



MINISTRY OF EDUCATION

Information Communication Technology

for Senior High Schools

TEACHER MANUAL

YEAR THREE



NATIONAL COUNCIL FOR
CURRICULUM & ASSESSMENT
OF MINISTRY OF EDUCATION

MINISTRY OF EDUCATION



REPUBLIC OF GHANA

Information Communication Technology

for Senior High Schools

Teacher Manual

Year Three



**NATIONAL COUNCIL FOR
CURRICULUM & ASSESSMENT
OF MINISTRY OF EDUCATION**

INFORMATION COMMUNICATION TECHNOLOGY TEACHER MANUAL

Enquiries and comments on this manual should be addressed to:

The Director-General

National Council for Curriculum and Assessment (NaCCA)

Ministry of Education

P.O. Box CT PMB 77

Cantonments Accra

Telephone: 0302909071, 0302909862

Email: info@nacca.gov.gh

Website: www.nacca.gov.gh



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INTRODUCTION

The National Council for Curriculum and Assessment (NaCCA) has developed the third and final set of curriculum materials to support the implementation of the new Senior High School curriculum.

This Year Three Teacher Manual for Information Communication Technology covers all aspects of the content, pedagogy, teaching and learning resources and assessment required to effectively support learners in their final year of Senior High School. All the necessary information for the Student Assessment Portal has been included in the Year Three Teacher Manual to simplify the development of weekly learning plans, meaning that teachers have a single reference document.

The Year Three Teacher Manual has two main objectives:

- To support learners to consolidate and deepen their understanding of the content, pedagogy, and assessment across all three years of the new Senior High School curriculum in preparation for the West Africa Senior Secondary Certificate Examination (WASSCE).
- To equip teachers with the tools and resources needed to deliver revision-focused, assessment-led lessons that build on the knowledge learners have acquired from Year One to Year Three.

In this third year, teachers will be supporting learners to prepare for the WASSCE. Each section of the Teacher Manual is therefore structured around the highest Depth of Knowledge (DoK) levels, allowing learners to build progressively on knowledge acquired from Year One to Year Three. For each week, learning tasks and pedagogy are built around the assessment, ensuring that classroom activities directly prepare learners for the demands of the examination. Two sets of sample examination papers are also provided; one administered by Week 12 as a first semester practice examination, and one by Week 20 as a mock examination, to gauge learners' competencies and identify areas requiring remediation.

To further support teachers in delivering Year Three, NaCCA, working with the Ghana Education Service, has developed a subject specific App for each subject.

The Year Three PLC sessions have been revised in response to findings from the 2025 annual evaluation survey. The survey confirmed that teachers have made strong progress in lesson planning, use of varied instructional methods, ICT integration and modes of assessment. To address the identified gap in explaining concepts clearly using examples familiar to learners, each PLC session now includes a dedicated Content Exploration segment. This ten-minute segment brings the subject group together to work through one challenging problem or concept from the week's Teacher Manual content, not to plan how to teach it, but to ensure that every teacher in the group fully understands it.

The PLC sessions in Year Three also place particular emphasis on connecting the week's content to equivalent topics taught in Years One and Two. Teachers are encouraged to note the recap weeks signposted throughout the Teacher Manual and to use the App to explore how content across all three years links together.

As in previous years, teachers are expected to integrate National Values, Gender Equality and Social Inclusion (GESI), Social and Emotional Learning (SEL), and 21st-century skills into their learning activities, assessment tasks, and rubrics and mark schemes. The subject-specific App will support teachers in doing this throughout the year.

Ghana Education Service acknowledges the dedication of the teachers who have implemented the new curriculum across Years One and Two and recognises that Year Three represents both the culmination of that effort and a critical moment for learners. The Year Three Teacher Manual and its accompanying resources have been developed to ensure that every learner, regardless of background, ability, or school context, is fully prepared to demonstrate what they know and can do in the WASSCE and to progress confidently to further studies, the world of work, and adult life.

ACKNOWLEDGEMENTS

Special thanks to Professor Samuel Ofori Bekoe, Director-General of the National Council for Curriculum and Assessment (NaCCA) and all who contributed to the successful writing of the Teacher Manuals for the new Senior High School (SHS) curriculum.

The writing team was made up of the following members:

National Council for Curriculum and Assessment	
Name of Staff	Designation
Reginald Quartey	Ag. Director, Curriculum Development Directorate
Anita Cordei Collison	Ag. Director, Standards, Assessment and Quality Assurance Directorate
Dr. Mercy Nyamekye	Ag. Director, Research, Planning, Monitoring, and Evaluation
Joana Adua Vanderpuije	Ag. Director, Instructional Resources Directorate
Rebecca Abu Gariba	Ag. Director, Corporate Affairs
Nii Boye Tagoe	Senior Curriculum Development Officer
Juliet Owusu-Ansah	Principal Curriculum Development Officer
Samuel Owusu Ansah	Principal Curriculum Development Officer
Godwin Mawunyo Kofi Senanu	Assistant Curriculum Development Officer
Stephen Acquah	Principal Curriculum Development Officer
Thomas Kumah Osei	Principal Curriculum Development Officer
Ayuuba Sullivan	Principal Curriculum Development Officer
Dr. Jephthar Adu-Mensah	Principal Standards, Assessment and Quality Assurance Officer (SAQA)
Richard Teye	Principal Standards, Assessment and Quality Assurance Officer (SAQA)
Nancy Asieduwaa Gyapong	Assistant Standards, Assessment and Quality Assurance Officer (SAQA)
Bridget Aku Anku	Principal, Standards, Assessment and Quality Assurance Officer (SAQA)
Francis Agbalenyo	Principal Research, Planning, Monitoring and Evaluation Officer
Joseph Barwuah	Senior Instructional Resource Officer
Samuel Amankwa Ogyampo	Senior Corporate Affairs Officer
Seth Nii Nartey	Corporate Affairs Officer

Writers		
Name	Name of Institution	Subject
Bernard Adobaw	West African Examinations Council	Accounting
Emmanuel Kodwo Arthur	Institute of Chartered Accountants, Ghana	
Benedicta Ama Yekua Etuaful	Ogyedom SHTS	Additional Mathematics
Innocent Nunana Duncan	KNUST SHS	
Benedicta Carbilba Foli	Pope Johns SHS & Minor Seminary, Koforidua	Agricultural Science
David Esela Zigah	Achimota School	
Prof. Jakpasu Victor Kofi Afun	Kwame Nkrumah University of Science and Technology	
Eric Morgan Asante	St. Peter's Boys SHS	Agriculture
Prof. Frederick Adzitey	University for Development Studies, Tamale	
Akuffo Twumhene Frederick	Koforidua SHTS	Applied Technology
Emmanuel Korletey	Benso SHTS	
Firmin Anewuoh	Presbyterian College of Education, Akropong	
Isaac Buckman	Armed Forces SHTS	
Kunquuri Philip	Kumasi Senior High Technical School	
Lavoe Daniel Kwaku	Sokode SHTS	
Philip Turkson	St Joseph's SHTS, Bekwai	
Dr. Sherry Kwabla Amedorme	Univ. of Skills Training and Entrepreneurial Development	
Walter Banuenumah	Univ. of Skills Training and Entrepreneurial Development	
Wisdom Dzidzienyo Adzraku	Univ. of Skills Training and Entrepreneurial Development	
Abass Umar Mohammed	University of Ghana, Legon	Arabic
Mohammed Mahey Ibrahim	Tijjaniya Senior High School, Kumasi	

Writers		
Name	Name of Institution	Subject
Dr. Ebenezer Acquah	University of Education, Winneba	Art and Design Studio and Foundation
Dr. Mantey Jectey-Nyarko	Kwame Nkrumah University of Science and Technology	
Kwame Opoku-Bonsu	Kwame Nkrumah University of Science and Technology	
Seyram kojo Adipah	GES- Ga East	
David Kofi Oppong	Kwame Nkrumah University of Science and Technology	Aviation and Aerospace
Obed Frimpong	Zipline International	
Jo Ann Naa Dei Neequaye	Nyakrom SHTS	Biology
Paul Beeton Damoah	Prempeh College, Kumasi	
Dr. Daniel Akwei Addo	Kwame Nkrumah University of Science and Technology	Biomedical Science
Dr. Mrs. Dorothy Araba Yakoba Agyapong	Kwame Nkrumah University of Science and Technology	
Avole Baba Ansbert	Bolga SHS	Business Management
Emmanuel Caesar Ayamba	Bolgatanga Technical University	
Faustina Graham	GES HQ	
Bismark Kwame Tunu	Opoku Ware School, Kumasi	Chemistry
Patrick Nsobila Awumbire	Bolgatanga S.H.S.	
Francis Normanyo	Mt Mary College of Education	Christian Religious Studies & Islamic Religious Studies
Francis Opoku	Valley View University	
Haruna Zagoon-Sayeed	University of Ghana	
Kabiru Soumana	GES HQ	
Richardson Addai-Mununkum	University of Education, Winneba	
Seth Tweneboah	University of Education, Winneba	
Jusinta Kwakyewaa (Rev.Sr.)	St Francis SHTS, Akim Oda	Clothing and Textiles
Rahimatu Yakubu	Potsin T.I Ahmadiyya SHS	
Dordoe Raphael Senyo	Ziavi SHTS	Computing and ICT
Gaddafi Abdul-salaam	Kwame Nkrumah University of Science and Technology	
Kwasi Abankwa Anokye	Ghana Education Service	
Ephrem Kwaa-Aidoo	University of Education, Winneba	

Writers		
Name	Name of Institution	Subject
Gabriel Boafo	Kwabeng Anglican Senior High Technical School	Design and Communication Technology
Mensah Henry Angmor	Anglican Senior High School, Kumasi	
Phyllis Mensah	University of Skills Training and Entrepreneurial Development (	
Charlotte Kpogli	Ho Technical University	Economics
Salitsi Freeman Etonam	Anlo SHS, Anloga	
Daniel Kwesi Agbogbo	Kwabeng Anglican Senior High Tech School	Engineering
Dr Valentina Osei-Himah	Atebubu College of Education	
Benjamin Orrison Akrono	Islamic Girls' SHS	English Language
Esther Okaitsoe Armah	Mangoase SHS	
Kukua Andoh Robertson	Breman Asikuma SHS	
Perfect Quarshie	Mawuko Girls SHS, Ho	
Ama Achiaa - Afriyie	St. Louis SHS, Kumasi	Food and Nutrition
Lily-Versta Nyarko	Mancell Girls SHTS, Kumasi	
Osmanu Ibrahim	Mount Mary College of Education, Somanya	French
Mawufemor Kwame Agorgli	Akim Asafo SHS	
Comfort Korkor Sam	University for Development Studies, Tamale	General Science
Robert Arhin	S.D.A SHS, Akim Sekyere	
Ishmael Yaw Dadson	University of Education, Winneba	Geography
Prof Ebenezer Owusu -Sekyere	University for Development Studies, Tamale	
Raymond Nsiah-Asare	Methodist Girls' SHS, Mamfe	
Catherine Ekua Mensah	University of Cape Cape	Ghanaian Language
David Sarpei Nunoo	University of Education, Winneba	
Prof Kwasi Adomako	University of Education, Winneba	
Arko Blay Augustine	University of Education, Winneba	Government
Josephine Akosua Gbagbo	Ngleshie Amanfro SHS	
Anitha Oforiwah Adu-Boahen	University of Education, Winneba	History
Prince Essiaw	Enchi College of Education	

Writers		
Name	Name of Institution	Subject
Blessington Dzah	Ziavi SHTS	Literature-in-English
Juliana Akomea	Mangoase SHS	
Dorcas Akosua Opoku	Winneba SHS	Management in Living
Grace Annagmeng Mwini	Tumu College of Education	
Eric Abban	Mt. Marys College of Education, Somanya	Mathematics
Isaac Buabeng	Mamprobi Sempe 2 JHS	
Benjamin Ofori	Cocoa Research Institute of Ghana Primary School	Music
Cosmas W. K. Mereku	University of Education, Winneba	
Davies Obiri Danso	New Juaben SHS	
Prof. Joshua Alfred Amuah	University of Ghana, Legon	
Evans Kofi Mati	GES HQ	
Wilson Klebi	GES HQ	
Professor Emmanuel Obed Acquah	University of Education, Winneba	
Chris Ampomah Mensah	Bolgatanga S.H.S	Performing Arts
Doreen Deedee Quarcoo	University of Education, Winneba	
Dr. Latipher Osei Appiah-Agyei	University of Education, Winneba	
Albert Sackey	KNUST SHS	Physical Education and Health (Core and Elective)
Ebenezer Ewiah-Quarm	Nkroful Agric SHS	
Evans Asare Yeboah	Adisadel College	
John Benedict Nyarko	Adisadel College	
Mary Aku Ogum	University of Cape Coast	
Dr Linus Kweku Labik	KNUST	Physics
Sylvester Affram	Kwabeng Anglican SHTS	
Anthony Mensah	Abetifi Presbyterian College of Education	RME
Clement Nsorwineh Atigah	Tamale SHS	
Eliel Keelson	Kwame Nkrumah University of Science and Technology	Robotics
Isaac Nzoley	Wesley Girls High School	

Writers		
Name	Name of Institution	Subject
Jemima Ayensu	Holy Child Girls SHS, Cape Coast	Social Studies
Mohammed Adam, Ph.D.	University of Education, Winneba	
Simon Tengan	Wa Senior High Technical School	
Franklina Kabio-Danlebo	University of Ghana	Spanish
Mishael Annoh-Achampong	University of Media, Art and Communication	
Augustina Gloria Henyo	West African Examinations Council	Inclusive Education
Dr. Gideon Kwesi Obosu	University of Cape Coast	
Dr. Daniel Fobi	University of Education, Winneba	
Dr. Martha-Pearl Okai	University of Cape Coast	
Francis Kweku Essel	Ashesi University	
Richard Doku	Mampong/Akw SHTS For The Deaf	
Yao Mati Abotsi	Ghana Blind Union	
Seth Kwame Ativor	Okuapemman SHS, Akropong	
Bernard Duorinaah	Presbyterian College of Education	
Evans Odei	Achimota Senior High School	

Reviewers		
Name of Reviewer	Institution	Subject
Ms. Ivy Eklemet	Univ. of Professional Studies, Accra	Accounting
Francis Tornyenor	Pope John SHS & Minor Seminary, Koforidua	Additional Mathematics
Selina Acheampong	Univ. College of Agriculture and Environmental	Agricultural Science
Mr. Godwin B. K. Doli	Municipal Educ. Office, Amasaman	Agriculture
Abdullah Musah Abdullah	Univ. of Media Arts & Communication, UniMAC	Arabic
Ernest Kwasi Elelakpodia	Hope College, Gomoa Fetteh	Art and Design Studio
Ernest Kwasi Elelakpodia	Hope College, Gomoa Fetteh	Art and Design Foundation
Okyere Kojo Alex	Ada College of Education	Automotive & Metal Technology
Dr. Augustine Akuoko Kwarteng	Univ. of Mines and Technology	Aviation & Aerospace Engineering

Reviewers		
Name of Reviewer	Institution	Subject
Rev. Joseph Kweku Delanyo	formerly of Hope College, Gomoa Fetteh	Biology
Dr. Irene Adzo Agbo	Univ. of Professional Studies, Accra	Biomedical Science
Mr. Alex A. Appah	Christ Calvary Prep. Sch.	Building Construction & Woodwork Technology
Mr. Emmanuel Boakye	Ghana Employers Association	Business Management
Joyce Okreyewa Odei	Hope College, Gomoa Fetteh	Chemistry
Rosemary Quarcoo	Department of Clothing and Textiles, UEW	Clothing and Textiles
Esme Serwaa Boateng	Ghana National College, Cape Coast	Design & Communication Technology
Dr. Kofi Kamasa	Department of Management Studies, UMaT	Economics
Dr. Emmanuel Ampoma Affum	Telecom Engineering Department, KNUST	Electrical & Electronics Technology
Dr. Albert Kotawoke Awopone	Univ. of Skills Training & Entrepreneurial Development	Engineering
Prof. Philip Gborsong	University of Cape Coast	English Language
Sylvia Baaba Yankey		Food and Nutrition
Gregory Nana Kobina Nketsia Mensah	Mfantsipim School, Cape Coast	French
Joyce Okreyewa Odei	Hope College, Gomoa Fetteh	General Science
Prof Kofi Adu Boahen	University of Education, Winneba	Geography
Prof. Regina Caesar	University of Education, Winneba	Ghanaian Languages
Clement Adu Acheampong	Prempeh College SHS, Kumasi	Government
Prof Wilson Yayoh	Univertsity of Cape Coast	History
Felicia Archeresuah	Nkoronza Technical Institute	Information Communication Technology
Dr. Frank Kwabena Nyarko	Kwame Nkrumah Univ. of Science and Technology	Manufacturing Engineering
Ezekiel Osei Bonsu	Bono East Regional Education Office, Nkoranza	Mathematics
Ms. Anna Holdbrooke	Swedru Senior High School	Management in Living

Reviewers		
Name of Reviewer	Institution	Subject
Prof Mark-Millas Fish	University of Education, Winneba	Music
Francis Maxwell Ayamba	Atebubu College of Education	Physical Education and Health Core
Sulemana Ahmed Tijani	Atebubu College of Education	Physical Education and Health Elective
Dr. Godfred Asare Yeboah	University of Education, Winneba	Performing Arts
Peter Bekoe	Our Lady of Mount Carmel Girls SHS, Techiman	Physics
Christain Kwarteng Mensah Oppong	Prempeh College, Kumasi	Religious and Moral Education
Dr. Yaw Okraku-Yirenki	Kofi-Annan Centre of Excellence in ICT	Robotics
Samuel Larbi	St Louis Girls SHS, Kumasi	Social Studies
Prof. Jonson Asunka	University of Ghana Legon	Spanish

SECTION 1: MULTIMEDIA TOOLS AND APPLICATIONS

STRAND: ICTS IN THE SOCIETY

SUB STRAND: Organising, Managing and Presenting Information Using Essential Productivity Tools

Learning Outcome: *Develop and use essential skills to communicate information using Presentation software and desktop publishing tool*

Content Standard: Demonstrate knowledge and understanding of Presentation software and Desktop Publishing Software

INTRODUCTION AND SECTION SUMMARY

In this section, we will explore cloud-based and desktop presentation tools like Microsoft Publisher, Google slides and Canva for creating visually engaging content for presentation and printing purposes.

Learners' mastery of this content will enable them to be creative with designing presentation materials and collaborate with other online users. The section spans from Week 1 – Week 12 with the following focal areas.

Week 1: Cloud Based Presentation Software and its Features

Week 2: Creating Presentation with Google Slides

Week 3: Presentation Software and Its Features

Week 4

1. Slide Development
2. Creating and Formatting Tables in Presentations

Week 5: Chart and Graph Integration

Week 6: Interactivity and Hyperlinks

Week 7: Understanding Desktop Publishing Software

Week 8: Creating and Structuring a Document

Week 9: The Importance of Colour Matching

Week 10: Exploring Text Boxes, Tables Export and Save Options

Week 11: Exploring Word Art, Picture Frames and Alignment and Distribution

Week 12: Layering, Grouping, and Alignment Techniques

SUMMARY OF PEDAGOGICAL EXEMPLARS

In this section, exploratory learning allows learners to investigate and discover key concepts of presentation and desktop publishing software. Discussion-based learning encourages collaborative engagement, as students exchange insights about the functionalities and applications of presentation tools. Through demonstration, essential features of each software are presented, helping learners grasp practical applications. Additionally, visual aids such as images, infographics and sample templates reinforced understanding, ensuring students could effectively apply their knowledge in designing professional and engaging content.

ASSESSMENT SUMMARY

Depth of Knowledge (DOK) is employed in the assessment of students to enhance the quality, validity, and fairness of assessments while promoting deeper learning and critical thinking skills. Various forms of assessments are conducted to determine the learners' performance on the concepts that will be taught under this section. Teachers are entreated to administer these assessments and the record as hinted above for onward submission into the Student Assessment Portal (SAP). The following assessment are the recommended assessment for the section's weeks:

Week 1: Discussion

Week 2: Practical

Week 3: Essay

Week 4: Research Project

Week 5: Multiple choice questions

Week 6: Mid-semester examination should be conducted by the end of the week.

Week 7: Homework

Week 8: Case Study

Week 9: Checklist

Week10: Practical

Week 11: Practical

Week 12: Practice Paper 1

WEEK 1

Learning Indicator: *Discuss presentation software and its features (Windows, Animation, Transition, Presentation views Slides, Master slide)*

Recap

- Year 1 Week 1-3: Describe software, hardware, and other computing features needed to create a document.
- Year 2 Week 1: Utilise knowledge of Spreadsheet software to create functions for data analysis, interpret graphs and manipulate tables.

FOCAL AREA: **CLOUD BASED PRESENTATION SOFTWARE AND ITS FEATURES**

In today's digital age, cloud-based presentation software has become an essential tool for students, teachers, and professionals. Unlike traditional offline presentation software like Google Slides, cloud-based presentation software operates over the internet, allowing users to create, edit, and share presentations from anywhere, at any time.

Examples of Cloud Based Presentation Software are:

1. Canva Presentations
2. Google Slides
3. Mentimeter
4. Microsoft PowerPoint Online. Note that Microsoft PowerPoint has a cloud and a desktop application version
5. Prezi

Key Features of Cloud-Based Presentation Software

1. Cloud-based presentation software has the feature of being able to be accessed from any device with an internet connection anywhere in the world. This feature enables users to work on their files without needing to carry storage devices like USB drives for information accessibility anywhere they go.
2. Cloud-based presentation software can be utilised across a variety of devices such as computers, tablets and smartphones, because of the flexible design of the software. This flexibility makes it convenient for users to work on their files regardless of the device they are using.
3. Another feature is that users can collaborate on the same work remotely, allowing them the flexibility to edit or review the work together in real time, enhancing their overall productivity and teamwork
4. Unlike desktop software, cloud-based tools automatically save changes as the user works so far as he is connected to the internet. This feature reduces the risk of losing work due to system crashes, poor internet connectivity or accidental deletion. Additionally, files are stored securely in the cloud, ensuring they are always backed up.

5. Cloud-Based software has the feature of linking files to cloud storage services such as Google Drive, OneDrive or Dropbox to ensure files are securely stored and can be accessed across different devices.
6. Another interesting feature is the availability of pre-designed templates, fonts and colours to help users create visually appealing presentations. Some of the software allow users to create templates for other users to use (these templates are sometimes free or paid for).
7. Users can share files via links, email, or embed the link on websites.
8. Some cloud-based software has the feature that allows the user to showcase or present their files remotely through live streaming or virtual meetings.
9. Users also enjoy the feature of embedding images, videos, animations and audio files directly into their work to enhance engagement and makes presentations more beautiful and dynamic.
10. Just like traditional presentation software, cloud-based presentation tools also offer text editing capabilities, like; Text alignment and spacing options, bullet points and numbered lists, hyperlinking to external sources and font customisation (size, style, colour, bold, italic, etc.).

Figure 1.1, is the summary chart of Cloud-Based Presentation Software

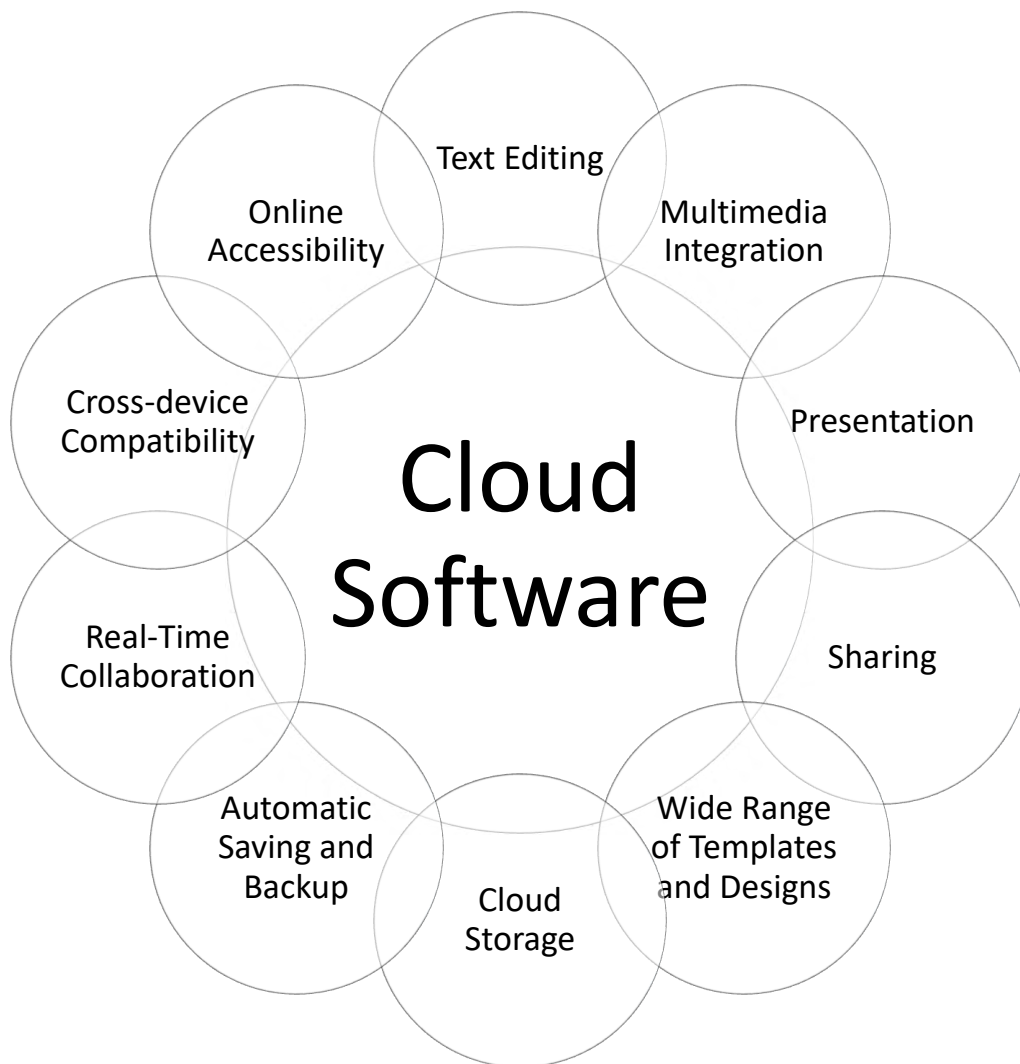


Figure 1.1: *Features of Cloud-Based Presentation Software*

Learning Tasks

1. Recap of previous learning on Computer system functionality and Spreadsheet application.
2. Learners contribute to class discussion on cloud-based presentation software.
3. Learners launch “google slide”, explore the template gallery and features of the editing window interface.
4. Learners list and explain at least three features they found on the editing window.

Pedagogical Exemplars

1. **Collaborative Revision Learning:** teacher facilitates group discussions where learners actively engage in recapping previous lessons
2. **Discussion-Based Learning:** Teacher facilitates an open class discussion on cloud-base presentation software
3. **Visual Aid:** Teacher presents image icons of popular presentation software to aid discussion (click on the [link](#) or scan QR code for images).



4. **Mixed-Ability Grouping:** Teacher groups learners according to their abilities and availability of devices to be used for exploration
5. **Exploratory Learning:** Teacher guides learners to explore the features of google slides

Key Assessment Level 3: Discussion

DOK Level 3

1. Analyse how animations and transitions can enhance a presentation’s effectiveness whilst avoiding audience distraction. Justify your answer with specific examples of when animations are beneficial and when they may hinder understanding.
2. Examine a presentation slide with different placeholders (text boxes, image placeholder) for a specific topic. Evaluate how the placement and hierarchy of these elements contribute to the overall clarity and visual flow of the slide. Suggest improvements and justify your recommendations.

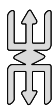
PLC Session 1

45 minutes

Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.

2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

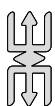
- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Plan the week's key assessment with your app
 - a. The key assessment for the week is **discussion**. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the discussion (NTS 3k-3q).

10 minutes

Content Exploration

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - b. all teachers in the group work through a similar problem individually for 3–4 minutes
 - c. the group then works through the problem together step by step
 - d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?
- If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.

- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes**Enactment**

6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - b. After the enactment, ask for structured feedback from the group
 - i. was the concept explained in a way that a learner with no prior knowledge could follow?
 - ii. were the examples grounded in contexts familiar to Ghanaian learners?
 - iii. did any misconceptions surface and if so, how were they addressed?

5 minutes**Reflection**

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
 - a. transfer your chats into your learning planner template.
 - b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
 - c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 2

Learning Indicator: *Develop slides, format tables, and incorporate charts, graphs, animation and transitions in a slide presentation*

Recap

- Year 1 Week 6: Create multimedia documents using appropriate computing tools
 Year 2 Week 4: Generate and interpret graphs and charts to visualise data

FOCAL AREA: ANIMATION AND TRANSITION EFFECTS IN PRESENTATIONS

1. Animation Effects in Presentations

Animation effects are a powerful way to add visual interest and interactivity to presentations. They help engage the audience, direct attention, and emphasise key points. When used effectively, animation enhances storytelling, making complex ideas easier to understand.

There are four (4) main types of Animation Effects

- a. Entrance Effects – These animations introduce elements onto the slide, making them appear in various ways.

Examples:

- i. Fade in
- ii. Fly in
- iii. Zoom in
- iv. Bounce

- b. Exit Effects – These animations make objects leave the slide, creating a smooth transition or emphasising closure.

Examples:

- i. Fade out
- ii. Fly out
- iii. Shrink and disappear
- iv. Spin away

- c. Emphasis Effects – These animations highlight an element to make it stand out while remaining on the slide.

Examples:

- i. Pulse
- ii. Shake
- iii. Glow
- iv. Grow/Shrink

- d. Motion Paths** – These animations move objects along a predefined path, allowing dynamic visual storytelling.

Examples:

- i. Straight line movement
- ii. Curved path
- iii. Spiral motion
- iv. Custom paths

Note: The best way to use animations are as follows.

- i. Use animations strategically to enhance communication, not distract.
- ii. Keep transitions smooth and professional for clarity.
- iii. Maintain consistency to create a cohesive visual style.

2. Transition Effects in Presentations

Transition effects are essential for creating smooth, professional shifts between slides in a presentation. They help maintain engagement, improve clarity, and add a visual rhythm to the flow of information. By carefully applying transitions, presenters can guide their audience's focus and ensure a seamless experience.

Types of Transition Effects

- a. Fade** – A gentle, gradual appearance or disappearance of slides.
 - i. Best for subtle, professional presentations.
 - ii. Keeps the transition soft and natural.
- b. Dissolve** – One slide fade into the next, blending them smoothly.
 - i. Ideal for storytelling or emotional presentations.
 - ii. Creates a fluid, cinematic effect.
- c. Slide** – The new slide moves in from a specific direction.
 - i. Great for dynamic, high-energy presentations.
 - ii. Can be customised to slide from the left, right, top, or bottom.
- d. Zoom** – The slide elements zoom in or out relative to the viewport, creating a depth effect.
 - i. Best for modern and engaging presentations.
 - ii. Works well when emphasising a shift in focus or a transition between ideas.

Note: It is good to customise transitions to enable better flow. You can customise transitions by:

- i. **Adjusting Duration** – Set the speed of transitions to match the pacing of your presentation (e.g., shorter for fast-paced content, longer for dramatic effects).

- ii. Using Timing – Automate transitions based on content flow or manual click control.
- iii. Applying Consistently – Use a limited number of transition types for a professional and cohesive feel.
- iv. Pairing with Animation – Combine transitions with animations to enhance storytelling.

Learning Tasks

1. Learners are to scan the QR code or click on ([link](#)) to download the file for recap activity.



2. Learners are to scan the QR code or click on ([link](#)) to watch a video on how to create animation and transitions.



3. Learners list and explain two advantages each of using animations and transitions.

Pedagogical Exemplars

1. **Supervised learning:** Teacher supervises learners to demonstrate their skills in the recap activity.
2. **Visual-Aid:** Teacher guides learners to watch a video on how to create animation and transitions
3. **Discussion-based Learning:** Teacher facilitates discussion, where learners list and explain at least two advantages of using animation and transitions.

Key Assessment Level 4: Practical

1. Create and justify a presentation: Develop a 5–6 slide presentation on a school-related topic. Apply appropriate transitions and animations to improve the flow and emphasis of information, then explain why you selected each effect.
Present the slides to the class and explain how applying transitions and animations improves communication and audience engagement.
2. You are creating a presentation on “The Water Cycle” for your classmates. Analyse which combination of animation types (entrance, exit, emphasis, or motion paths) you would use

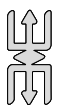
to teach this concept effectively. Explain how each animation type you choose supports your classmates' understanding and keeps them engaged. Identify what could go wrong if you use too many animations and justify why your strategy avoids these problems (10 marks).

3. Imagine you need to create two presentations: one to present your school's financial report to the principal, and another to tell a creative story to primary school children. Evaluate how different transition effects (fade, dissolve, slide, zoom) would work for each presentation. Explain why certain transitions are better suited to each situation and discuss the trade-offs between keeping things professional and making them interesting (10 marks).
4. Design a complete animation and transition plan for a presentation explaining a complex science topic of your choice (such as photosynthesis, DNA replication, or climate change) to learners who have different levels of science knowledge. Analyse how you would use animations and transitions to guide your audience's attention, highlight the most important ideas, and keep them interested without overwhelming them. Justify each of your design choices by explaining how they help people learn and understand the topic better. Consider how your choices would help learners with different abilities or learning styles (10 marks).

PLC Session 2

45 minutes	Planning & Reviewing the Learning Plan
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1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

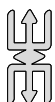
- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Plan the week's key assessment with your app

- a. The key assessment for the week is ***practical***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the practical (NTS 3k-3q).

10 minutes	Content Exploration
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5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - b. all teachers in the group work through a similar problem individually for 3–4 minutes
 - c. the group then works through the problem together step by step
 - d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).


Note

- This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?
- If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.
- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes	Enactment
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6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - b. After the enactment, ask for structured feedback from the group
 - i. was the concept explained in a way that a learner with no prior knowledge could follow?
 - ii. were the examples grounded in contexts familiar to Ghanaian learners?
 - iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection
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7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to

- a.** transfer your chats into your learning planner template.
- b.** read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
- c.** integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 3

Learning Indicator: Discuss presentation software and its features (windows, Animation, transition, Presentation views Slides, Master slide)

Recap

- Year 1 Week 6: Creating slides consisting of text and graphics in PowerPoint
- Year 3 Week 2: Develop slides, format tables, and incorporate charts, graphs, animation and transitions in a slide presentation.

FOCAL AREA: **PRESENTATION SOFTWARE AND ITS FEATURES**

1. Presentation Views

Presentation software provides multiple views to help users create, organise, and deliver content effectively. Each view serves a distinct purpose in the presentation workflow, from editing to arranging slides and delivering the final presentation.

Common Presentation Views are:

- a. Normal View
 - i. This is the default editing mode, where users create and format slides.
 - ii. Displays a single slide in full view, with a slide navigation pane on the side.
 - iii. Best for adding content, images, animations, and transitions.
- b. Slide Sorter View
 - i. Shows thumbnail previews of all slides, allowing easy rearrangement.
 - ii. Useful for organising slide sequence and transitions.
 - iii. Helps maintain a logical structure and flow in the presentation.
- c. Notes View
 - i. Displays a slide along with an area for speaker notes.
 - ii. Ideal for adding additional explanations or cues for presenters.
 - iii. Notes can be printed or viewed during the presentation mode for reference.
- d. Slide Show View
 - i. This is the presentation mode, where slides are displayed full-screen.
 - ii. Used for delivering the final presentation to an audience.
 - iii. Interactive features like animations, transitions, and multimedia elements function in real time.

How to Use Views Effectively

- i. Start with Normal View for slide creation and formatting.

- ii. Switch to Slide Sorter View for organising the sequence and flow.
- iii. Use Notes View to add speaking prompts and explanations.
- iv. Deliver the presentation in Slide Show View for the best audience experience.

Scan the bar code or click on the [link](#) to watch a video tutorial on presentation views



2. Accessibility and Compatibility in Presentations

Themes play an important role in creating visually appealing, professional and consistent presentations. A well-chosen theme ensures that slides have a harmonious design, making it easier for audiences to follow the content. Beyond aesthetics, accessibility is key to ensuring presentations can be understood by all viewers, including those with disabilities. The following sub items are important items to consider when creating accessible presentations

- a. Adding Alt Text to Images**
 - i. Alt text provides descriptions of images for individuals using screen readers.
 - ii. Helps visually impaired users understand graphs, photos, and illustrations.
 - iii. Keep alt text concise yet descriptive, explaining the key information in the image.
- b. Using Readable Fonts**
 - i. Choose sans-serif fonts like Arial or Calibri for clarity.
 - ii. Avoid overly decorative or script fonts that reduce readability.
 - iii. Maintain sufficient font size (e.g., 24pt or larger for body text).
- c. Applying Proper Colour Contrast**
 - i. Ensure text and background colours have high contrast for readability.
 - ii. Avoid using red & green together, as colourblind users may struggle to differentiate them.
 - iii. Use tools like contrast checkers to verify accessibility.
- d. Ensuring Compatibility Across Devices**
 - i. Test presentations on different screen sizes, including mobile and tablets.
 - ii. Avoid overly complex animations that may not function properly on all devices.
 - iii. Save files in universal formats like PDF or PowerPoint to ensure compatibility.

Note the following points on why accessibility matters

- i. Improves inclusivity, allowing all audience members to engage with the content.

- ii. Enhances clarity and ensures key points are understood by everyone.
- iii. Helps meet accessibility standards for public and corporate presentations.

Scan the bar code or click on the [link](#) to access a tutorial on accessibility and compatibility.



3. Slide Master and Layouts

The Slide Master is a powerful feature in presentation software that helps maintain consistency and uniformity throughout a presentation. It acts as a central template, ensuring that design elements such as backgrounds, fonts, colours and placeholders remain consistent across all slides. The following items are the core design properties of the layout

- a. Background**
 - i. Set a uniform background colour, gradient, image, or texture.
 - ii. Use subtle designs to avoid distracting from content.
- b. Fonts & Text Formatting**
 - i. Choose a standard font style for titles and body text.
 - ii. Maintain readability by using consistent font sizes and spacing.
- c. Colour Schemes**
 - i. Apply a predefined or custom colour palette.
 - ii. Ensure high contrast between text and background for accessibility.
- d. Placeholders for Content**
 - i. Customise placeholders for text, images, videos, and charts.
 - ii. Ensure proper alignment for a structured layout.

Why Slide Master Matters

- i. Saves time by applying global formatting to all slides.
- ii. Helps maintain a professional and cohesive design.
- iii. Ensures branding consistency for corporate or educational presentations.
- iv. Reduces manual edits when making design adjustments.
- v. Customising Slide Master Elements

Scan the bar code click on the [link](#) to watch a video tutorial on the use of slide master.



Learning Tasks

1. Learners in their groups perform the recap activity.
2. Learners are to scan the QR code or click on ([link](#)) to access tutorials of presentation view, accessibility options and slide master .

Presentation views	Compatibility and accessibility	Using Slide Master
		

3. Learners are to practice along the tutorial videos, list and explain two reasons each for using a particular view, accessibility options and slide master.

Pedagogical Exemplars

1. **Visual-Aid:** Teacher guides learners to access tutorial videos for practical learning.
2. **Practical:** Teacher guides learners to practice the content learnt from the tutorial videos.

Key Assessment: Group Project

Question 1

You are preparing a presentation on “Climate Change” with 15 slides for your school assembly. Analyse how you would use each of the four presentation views (Normal View, Slide Sorter View, Notes View, and Slide Show View) throughout your preparation and delivery process. Explain why each view is important at different stages of your work and justify how using the correct view at the right time would improve the quality and efficiency of your presentation (**10 marks**)

Question 2

Imagine you are creating a presentation on “Human Rights” that will be shared with students in your school, including learners with visual impairments, colour blindness, and those using mobile devices. Evaluate which accessibility and compatibility features (alt text, readable fonts, colour contrast, device compatibility) you would prioritise and why. Explain how each feature you choose supports different learners and discuss the trade-offs between creating an accessible presentation and maintaining visual appeal (**10 marks**)

Question 3

Design a comprehensive Slide Master strategy for a presentation on “Sustainable Development Goals” that will be used by multiple students in your class. Analyse how you would use background, fonts and text formatting, colour schemes, and content placeholders to create a consistent, professional, and accessible design. Justify each design choice by explaining how it supports the presentation’s purpose, maintains visual consistency, and ensures accessibility for all viewers. Consider how your Slide Master design would save time and reduce errors when multiple people work on the presentation. **(10 marks)**

Hint



Assign Group Project to learners and give them reasonable time to complete it. Use the SS App to generate the project as well as the rubric. Learners’ projects should be marked immediately and scores entered into the SAP.

PLC Session 3

45 minutes

Planning & Reviewing the Learning Plan

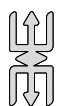
1. Begin the session by recapping lessons from the previous session, focusing on how learning was applied.
2. Use Slide Master in Microsoft PowerPoint to explore and apply consistent presentation design before creating your lesson slides.
 - a. Explore the Slide Master view and identify how it can be used to control the overall appearance of a presentation, including themes, fonts, colours, backgrounds, placeholders, logos and slide layouts.
 - b. Identify three common problems that may occur when designing lesson presentations, such as inconsistent formatting, misplaced objects or unreadable text, and explain how Slide Master can be used to address them in ways that support diverse learners (NTS 3a, 3g and 3m).
3. Use Slide Master to plan and design a presentation for a lesson in your subject area.
 - a. Create or modify a Slide Master to establish a consistent design suitable for teaching the selected topic.
 - b. Develop appropriate slide layouts for different learning purposes, such as lesson objectives, explanations, activities, questions and summaries, while considering accessibility and learner diversity (NTS 3a–3q).
 - c. Review the completed presentation and use Slide Master to correct any inconsistencies in layout, formatting, fonts, colours, placeholders or other design elements that may affect the clarity and effectiveness of the lesson presentation (NTS 3a–3c).

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Use your app to plan and administer the mode of assessment for the Student Assessment Portal (SAP).
 - a. The key assessment for the week is **group project**. Chat with your app to plan this assessment by reviewing or developing the assessment items/tasks and marking schemes/rubrics for the project (NTS 3k-3q).

10 minutes	Content Exploration
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5. As a subject group, select one problem or topic/idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - b. all teachers in the group work through the problem individually for 3–4 minutes
 - c. the group then works through it together the problem, step by step
 - d. highlight the most common errors made at each step (NTS 1c, 1e, 2c, 2e, 3e-3j).


Note

- This part is not 'How do I teach this?' but how do I teach it for learners to understand?
- If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.
- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes	Enactment
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6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - b. After the enactment, ask for structured feedback from the group
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5 minutes	Reflection
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7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
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9. Remember to

- a.** transfer your chats into your learning planner template.
- b.** read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
- c.** integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 4

Learning Indicator: *Develop slides, format tables, incorporate charts, graphs, animation and transitions in a slide presentation*

Recap

Year 1 Week 2: Basic file handling, editing and reviewing tools in Word

Year 1 Week 6: Creating slides consisting of text and graphics in PowerPoint

FOCAL AREA 1: SLIDE DEVELOPMENT

A well-designed slide enhances understanding, keeps the audience engaged and makes key information memorable.

1. Steps to Create Engaging Slides

- a. Choose a Suitable Slide Layout; Use predefined layouts or create custom ones for different types of content.
- b. Prioritise balanced spacing to avoid clutter.
- c. Ensure key elements like titles and images stand out.

2. Add and Organise Content

- a. Keep text concise—bullet points work better than long paragraphs.
- b. Use high-quality images and graphics to support key points.
- c. Incorporate multimedia (videos, audio, charts) for engagement and explanation.

3. Maintain Consistency Across Slides

- a. Stick to a uniform font style, size and colour scheme.
- b. Use consistent alignment and spacing to create a professional look.
- c. Apply a Slide Master for standardising backgrounds, text formatting and placeholders.

4. Enhance Visual Appeal

- a. Use contrasting colours for text visibility.
- b. Apply animations sparingly to highlight important points without distraction.
- c. Ensure slides are accessible (alt text for images, readable fonts, high contrast).

Best Practices for Effective Slide Design

1. Limit each slide to one key idea for better audience retention.
2. Use charts and infographics instead of excessive text.
3. Ensure presentations work smoothly on different devices and screen sizes.

FOCAL AREA 2: CREATING AND FORMATTING TABLES IN PRESENTATIONS

Tables are a great way to organise information in a structured format, making data easy to read and compare. Presentation software allows learners to create, edit and format tables for better visual clarity.

1. Creating a Table

- a. Navigate to the Insert tab and select Table.
- b. Choose the number of rows and columns needed or draw a custom table.
- c. Enter content into table cells and format as needed.

2. Adjusting Column Widths and Row Heights

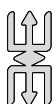
- a. Select the table and hover over the column or row border.
- b. Drag the edge to resize width or height manually.
- c. Use AutoFit to automatically adjust size based on content.

3. Adding & Deleting Rows/Columns

- a. To add: Right-click inside the table and select Insert Rows Above/Below or Insert Columns Left/Right.
- b. To delete: Right-click the row or column, then select Delete Row/Column.

4. Merging Cells

- a. Select the cells to merge.
- b. Right-click and choose Merge Cells to combine multiple cells into one.
- c. Use merged cells for titles, headers, or grouping related data. Avoid merging cells within data tables as it breaks screen-reader visibility.



Note

Avoid merging cells within data tables as it breaks screen-reader visibility.

Find the tutorial for inserting a table in PowerPoint by scanning the QR code below or clicking on this [link](#).



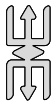
Learner Tasks

1. Learners create a copy of their class timetable using Microsoft table tools.
2. Learners practice how to create tables, format it and enhance slide visuals on a given topic.
3. Learners present their work to the class.

Key Assessment Level 4: Research Project

Create a comprehensive presentation project on a topic of your choice that addresses a real-world problem or issue relevant to your school or community. Your project should include:

1. Phase 1: Research and Planning (Extended Investigation)
 - a. Research your chosen topic using at least three different sources (academic articles, news reports, expert interviews, case studies, or data sets)
 - b. Synthesise information from multiple sources to develop a nuanced understanding of the issue
 - c. Identify different perspectives or stakeholder viewpoints on the topic



Note

Teachers should provide learners with printed/offline resources such as textbooks, newspaper extracts, case studies, government reports, datasets and pre-downloaded articles. They should also guide learners to credible Ghanaian sources such as Ghana Statistical Service, GES, Ministry of Education, universities, NCCE and reputable media organisations.

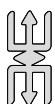
2. Phase 2: Iterative Slide Design (Design and Refinement)
 - a. Create a presentation slide with a clear hierarchy of information using headings, bulleted lists, and visuals to effectively communicate your main point
 - b. Test your slide design with at least two different audiences (e.g., peers, teachers, family members) and gather feedback on clarity, engagement, and accessibility
 - c. Refine your slide design based on feedback, explaining what changes you made and why
3. Phase 3: Accessibility and Inclusivity Analysis (Critical Reflection)
 - a. Analyse how your final slide design supports learners with different abilities and learning styles (visual, auditory, kinaesthetic and learners with disabilities)
 - b. Evaluate the effectiveness of your design choices (hierarchy, visuals, text, colour contrast, font selection) in communicating your message to diverse audiences
 - c. Reflect on trade-offs you made between aesthetic appeal, clarity, accessibility, and information density
4. Phase 4: Presentation and Justification (Synthesis and Communication)
 - a. Present your slide to the class, explaining:
 - b. How your research informed your design choices
 - c. Why you selected specific visual elements and text hierarchy
 - d. How your design supports accessibility and inclusivity
 - e. What you learned about effective slide design through the iterative process
 - f. How you would adapt your design for different contexts or audiences

(30 marks total: 5 marks each for phase 1 and 4. 10 marks each for phase 2 and 3)

PLC Session 4

45 minutes Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



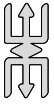
Note

- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Plan the week's key assessment with your app
 - a. The key assessment for the week is **research project**. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the project (NTS 3k-3q).

10 minutes Content Exploration

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - b. all teachers in the group work through a similar problem individually for 3–4 minutes
 - c. the group then works through the problem together step by step
 - d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- This part is not just about ‘How do I teach this?’ but how do I teach it for learners to understand?
- If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.
- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes

Enactment

6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - b. After the enactment, ask for structured feedback from the group
 - i. was the concept explained in a way that a learner with no prior knowledge could follow?
 - ii. were the examples grounded in contexts familiar to Ghanaian learners?
 - iii. did any misconceptions surface and if so, how were they addressed?

5 minutes

Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
 - a. transfer your chats into your learning planner template.
 - b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
 - c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 5

Learning Indicator: *Develop slides, format tables, and incorporate charts, graphs, animation and transitions in a slide presentation*

Recap

- Year 1 Week 1-3: Describe software, hardware, and other computing features needed to create a document.
- Year 2 Week 1: Utilise knowledge of Spreadsheet software to create functions for data analysis, interpret graphs and manipulate tables.

FOCAL AREA: CHART AND GRAPH INTEGRATION

Charts are a powerful way to communicate information and highlight patterns in data visually. There are different types of charts which serve distinct purposes. Below is a list of some key charts.

1. Types of charts

- a. Bar Charts – Used to compare quantities across categories.
 - i. Ideal for displaying sales figures, survey results, or population data.
 - ii. Bars can be horizontal or vertical based on preference.

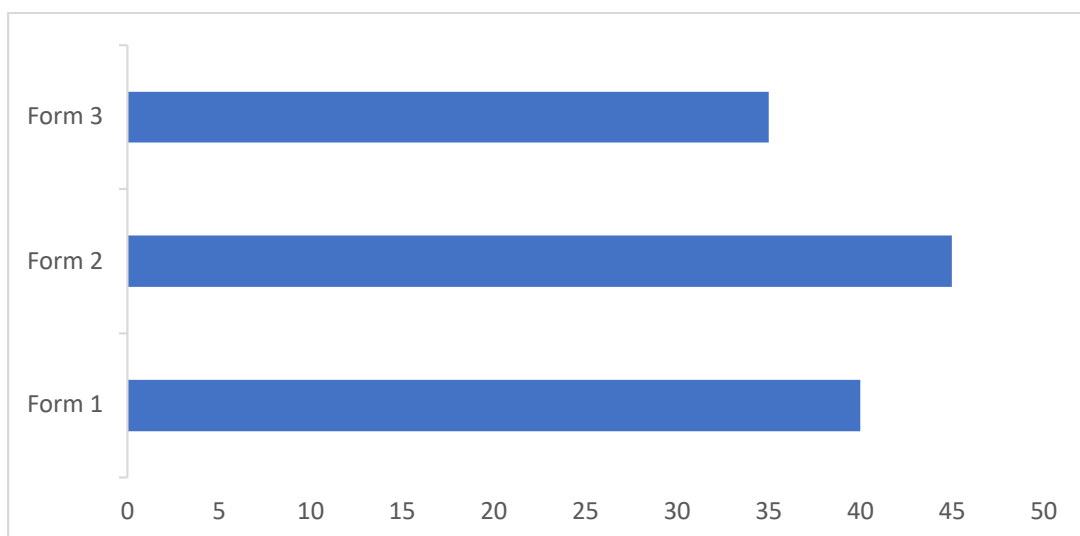


Figure 1.2: Bar Chart

- b. Column Charts – Used to compare quantities across categories using vertical bars.
 - i. The categories are displayed along the horizontal axis (x-axis).
 - ii. The values or frequencies are shown on the vertical axis (y-axis).
 - iii. Each column (bar) represents a category, and its height shows the value of that category.
 - iv. Column charts are especially useful for showing changes over time or comparing values across different groups.

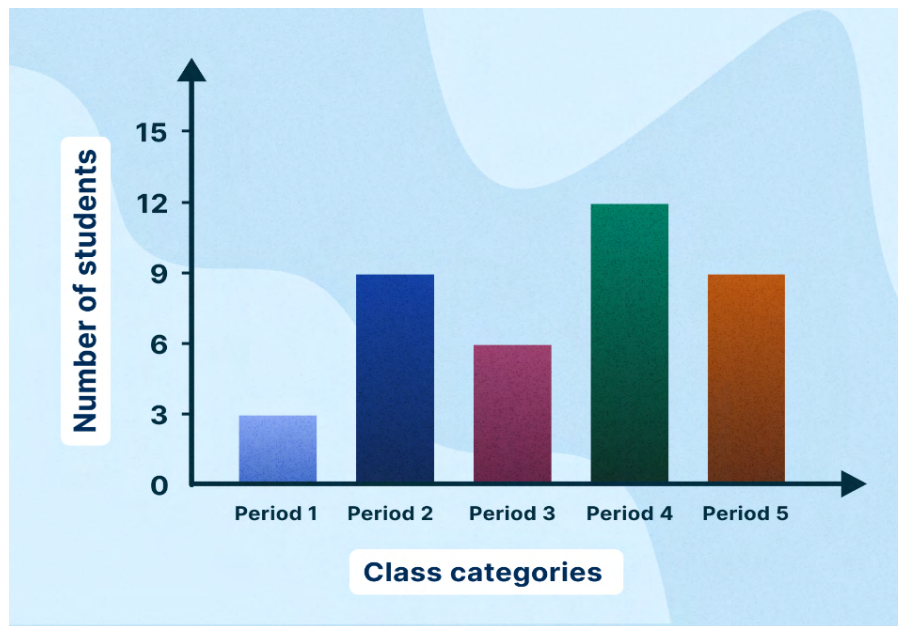


Figure 1.3: Column Chart

Note: Column charts are similar to bar charts, but the main difference is that column charts use **vertical bars**, while bar charts use **horizontal bars**.

- c. Pie Charts – Represent proportions in a dataset as slices of a circle.
 - i. Best for showing percentages or market share distribution.
 - ii. Works well for small datasets with limited categories.

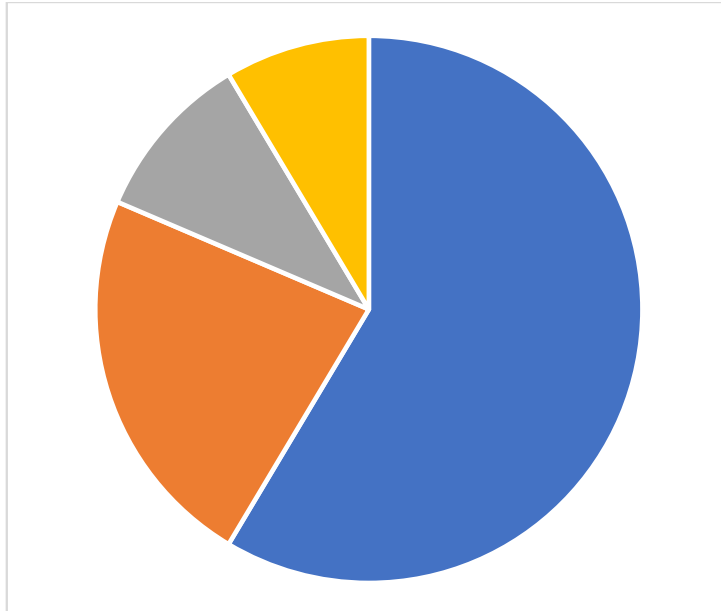


Figure 1.4: Pie Chart

- d. Line Charts – Used to display trends over time.
 - i. Commonly used in financial analysis, temperature tracking, or progress monitoring.
 - ii. Helps highlight growth patterns or fluctuations.

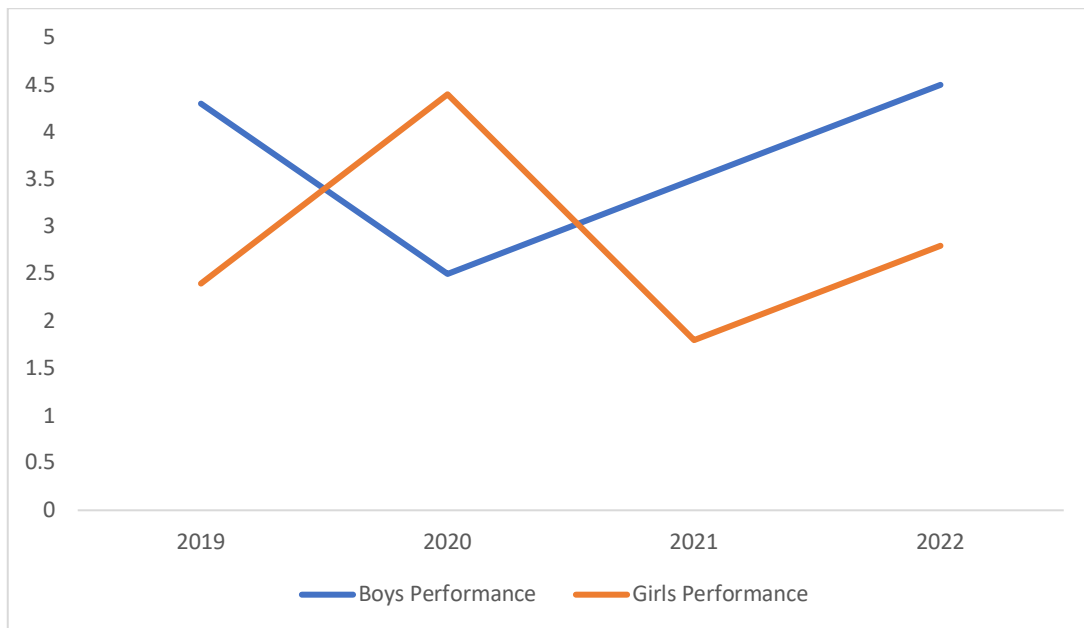


Figure 1.5: *Line Graph*

2. Customising Chart Appearance

Chart appearance can be enhanced to become visually appealing to audiences by

- a. Adjust Colours and Styles – Use contrasting colours to distinguish data groups.
- b. Modify Chart Title & Labels – Clearly indicate the chart's purpose.
- c. Format Axes and Gridlines – Improve readability by customising scales and grid visibility.
- d. Apply Data Markers – Highlight key data points for better understanding.

3. Adding Labels & Legends

- a. Chart Title – Provides a concise description of what the chart represents.
- b. Axis Labels – Clarify what each axis measures (for bar and line charts).
- c. Data Labels – Display values directly on chart elements for quick reference.
- d. Legend – Helps differentiate categories by assigning colours or symbols.

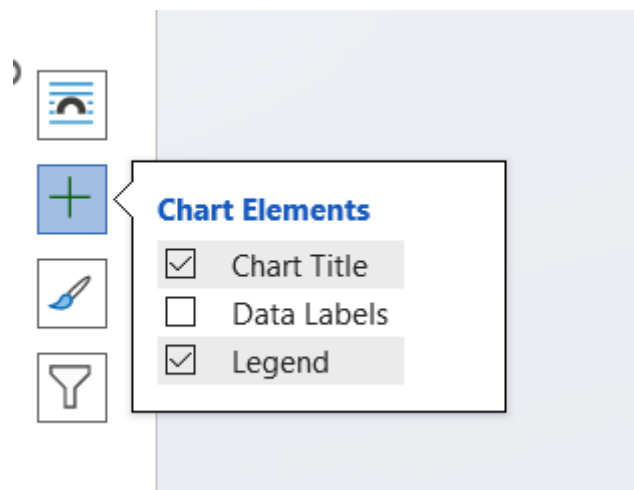


Figure 1.6: *Chart Elements*

Learning Tasks

1. Learners in groups perform recap activity.
2. Learners pay attention to the teacher's demonstration and learn from the processes.
3. Learners participate in discussion of the poorly designed charts alongside improved versions.
4. Learners practice integrating charts in their presentation and present their work as a group or individuals.

Pedagogical Exemplars

1. **Demonstration:** Teacher demonstrates the basic chart creation process in presentation software and explains the characteristics of different chart types and their suitable applications
2. **Discussion:** Teacher presents examples of poorly designed charts alongside improved versions for discussion
3. **Guided- Practice:** Teacher guides learners to integrate charts into their presentation.

Key Assessment Level 3: Multiple Choice Questions

DoK Level 2 (Skills/Concepts)

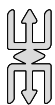
1. Which of these chart types is best for showing parts of a whole?
 - A. Bar chart
 - B. Line chart
 - C. Pie chart
 - D. Scatter plot
2. Where can you find the chart insertion option in most presentation software?
 - A. File menu
 - B. Home tab
 - C. Insert tab
 - D. View tab
3. What is the most effective way to highlight a specific data point in a chart during a presentation?
 - A. Verbally mention the data point
 - B. Use a laser pointer during the presentation
 - C. Use chart animation to emphasise that specific element
 - D. Create a separate slide with just that information

DoK Level 3

4. A presenter needs to show the relationship between employee training hours and productivity across five departments. Which approach would be most effective?
 - A. Two separate charts on different slides - one for training hours and one for productivity
 - B. A dual-axis chart showing both metrics with appropriate scales
 - C. A table of the raw numbers with conditional formatting
 - D. Five pie charts, one for each department

PLC Session 5**45 minutes****Planning & Reviewing the Learning Plan**

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).

**Note**

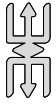
- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Plan the week's key assessment with your app
 - a. The key assessment for the week is **multiple choice questions**. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the assessment (NTS 3k-3q).

10 minutes**Content Exploration**

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then

- a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
- b. all teachers in the group work through a similar problem individually for 3–4 minutes
- c. the group then works through the problem together step by step
- d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e–3j).



Note

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- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes

Enactment

6. Enact a teaching activity based on your learning plan (NTS 1a–1b, 1e–lg, 2c, 2e, 2f, 3c–3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - b. After the enactment, ask for structured feedback from the group
 - i. was the concept explained in a way that a learner with no prior knowledge could follow?
 - ii. were the examples grounded in contexts familiar to Ghanaian learners?
 - iii. did any misconceptions surface and if so, how were they addressed?

5 minutes

Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
 - a. transfer your chats into your learning planner template.
 - b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
 - c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 6

Learning Indicator: *Develop slides, format tables and incorporate charts, graphs, animation, and transitions in a slide presentation*

FOCAL AREA: INTERACTIVITY AND HYPERLINKS

1. Interactivity in ICT

Interactivity in ICT refers to the ability of a computer system or digital content to respond to user actions. It is a two-way communication process where you, the user, can give input and the system or application reacts to that input. This is a shift from passively receiving information (like watching a traditional TV program) to actively engaging with the content.

As a matter of emphasis, think of it this way, reading a printed book page by page, which becomes non-interactive as against using an educational app where you click on an answer, and the app tells you if it's correct and provides feedback, or playing a video game where your character moves based on your commands which is very interactive.

Importance of Interactivity

- a. Interactive elements make learning and using ICT tools more interesting and captivating as it engages learners.
- b. By actively participating, you can often grasp concepts more effectively. For example, an interactive simulation of an ICT or science experiment can be more insightful than just reading about it.
- c. Interactivity gives users control over their experience, allowing them to explore content at their own pace and make choices.
- d. Interactive systems can provide immediate feedback, helping you learn from mistakes and reinforce correct understanding.
- e. Many interactive applications require users to make decisions and solve problems, thereby fostering critical thinking skills.

Examples of Interactivity in ICT relevant to you

- a. **Educational Software & Apps:** Quizzes that give immediate scores, simulations, interactive diagrams, and educational games.
- b. **Websites:** Clicking on menus to navigate, filling out forms, using search bars, clicking on buttons to play videos or music, interactive maps, and online polls or surveys.
- c. **Presentation Software (like PowerPoint or Google Slides):** Adding buttons that jump to different slides, creating interactive quizzes within a presentation, or embedding playable media.
- d. **Multimedia Content:** Interactive videos that allow you to choose different paths or click on hotspots for more information.
- e. **Communication Tools:** Instant messaging apps where you type and get immediate responses, video conferencing where you can speak and see others react in real-time.

- f. **Operating Systems:** Clicking on icons to open applications, dragging and dropping files, using menus and settings to customise your computer.

2. Hyperlinks

A hyperlink, often simply called a **link**, is a digital reference that connects one piece of information to another. It allows you to navigate seamlessly between different documents, web pages, or even different sections within the same document by simply clicking on a highlighted word, phrase, image, or icon. Hyperlinks are the backbone of the World Wide Web, creating a vast network of interconnected information.

Think of it like this: Imagine reading a textbook where, instead of just a mention of “photosynthesis,” the word itself is a “magic door” that, when touched (or clicked), instantly takes you to a detailed chapter or an animated explanation of photosynthesis.

Types of Hyperlinks

- a. **Text Hyperlinks:** These are the most common types, where a word or phrase is clickable. The clickable text is often blue and underlined by default, though its appearance can be customised.
- b. **Image Hyperlinks:** An image can be made into a hyperlink, so when you click on the image, you are taken to another location.
- c. **Internal Hyperlinks (or Anchor Links):** These links take you to a different section within the *same* web page or document. This is useful for long documents, allowing users to jump to specific headings or chapters.
- d. **External Hyperlinks:** These links take you to a *different* website or document.
- e. **Email Hyperlinks (Mailto Links):** Clicking on this type of link opens the user’s default email program with the recipient’s email address already filled in.

Purpose of Hyperlinks

- a. **Navigation:** They allow users to move non-linearly through information, jumping to related topics or resources quickly.
- b. **Connection:** They link related pieces of information together, creating a web of knowledge.
- c. **Access to More Detail:** Hyperlinks can direct users to supplementary materials, definitions, sources, or more in-depth explanations without cluttering the main content.
- d. **Organisation:** They help organise large amounts of information, making it easier to access specific parts (e.g., a table of contents with links to chapters).

Interactivity and Hyperlinks Working Together

Hyperlinks are a fundamental component of interactivity. Clicking on a hyperlink is a user action (input), and the system responds by taking you to the linked content (output). Websites are prime examples where interactivity is heavily reliant on hyperlinks for navigation and accessing information.

Learning Tasks

1. Learners contribute to class discussion on interactive and hyperlinks with given examples.

2. Learners explore the school's website or the Ghana Education Service website (www.ges.gov.gh) to learn more on interactivity and hyperlinks.
3. Learners use the GES website as a platform to learn how interactivity and hyperlinks overlap.

Pedagogical Exemplars

1. **Discussion-Based Learning:** Teacher facilitates an open class discussion on the importance of interactivity and hyperlinks.
2. **Visual Aid:** Teacher presents an interactive website such as www.ges.gov.gh for learners to explore and give feedback.
3. **Explorative Learning:** Teacher groups learners according to their abilities and availability of devices to be used for exploration of different websites.

Key Assessment: Mid-Semester Examination

DoK Level 2

Identify three situations where using hyperlinks would be beneficial or necessary in a presentation. For each situation, explain what information you would link to and why a hyperlink is better than including all the information on the slide itself. (9 marks)

Hint



Conduct *Mid-semester Examination*. It should cover contents taught from Week 1 to 5. Refer to the *Table of Specification and Structure of the Paper*. Learners' papers should be marked immediately and scores entered into the SAP.

Structure of Mid-Semester Examination

Nature: Multiple-Choice Questions

1. 50 questions
2. 1 mark each for a correct answer
3. Examination duration: 60 minutes

Table of Specification

Week	Focal Area	Type of Question	DoK Level				Total
			1	2	3	4	
1	Cloud Based Presentation Software and its Features	Multiple Choice	3	4	3	-	10
2	Creating Presentation with Google Slides	Multiple Choice	3	4	3	-	10
3	Introduction to Microsoft Publisher (Desktop Version)	MCQ	3	4	3	-	10

4	1. Slide Development 2. Creating and Formatting Tables in Presentations	MCQ	3	4	3	-	10
5	Chart and Graph Integration	MCQ	3	4	3	-	10
	Total		15	20	15	-	50

Sample Questions

- Which of the following is an example of cloud-based presentation software?
 - Adobe Photoshop
 - Google Slides
 - Microsoft PowerPoint Desktop
 - Microsoft Publisher
- What type of software is Microsoft Publisher?
 - Database management
 - Desktop publishing
 - Spreadsheet
 - Word processing
- A presenter needs to deliver the same core presentation to different client groups, with customised sections for each client. Which cloud-based presentation strategy would be most efficient?
 - Creating a core presentation and using linked slides from separate client-specific presentations
 - Creating a master presentation with all possible content and hiding slides as needed
 - Creating separate presentations for each client from scratch
 - Using a desktop presentation software instead of cloud-based options
- A team is working on a critical presentation that requires input from members in different time zones, with some members having intermittent internet access. Which strategy would be most effective?
 - Having one team member create the entire presentation based on emailed contributions
 - Using a desktop presentation software and sharing files via email
 - Using cloud-based software with assigned editing times for each member
 - Using cloud-based software with offline editing enabled and clear communication about who is working on which sections
- How would you best incorporate a complex chart into a presentation without overwhelming the audience?
 - Include all data at once
 - Make the font size smaller to fit more data

- C. Speak quickly when presenting that slide
 - D. Use animation to build the chart progressively
6. Below are statements about how hyperlinks can improve the effectiveness of an interactive quiz on a school website. Some are correct, while others are incorrect. Tick ✓ the ones that are correct.

	Statement	Tick Area
1	A hyperlink can provide instant access to related study materials, helping students learn more about quiz topics	
2	Using hyperlinks in quizzes makes the website harder to navigate and confusing for students	
3	Hyperlinks slow down quizzes by making students leave the website to find answers elsewhere	
4	Adding hyperlinks to quiz explanations can enhance student understanding by linking to detailed answers or tutorials	
5	If a quiz question asks, “What is photosynthesis?” a hyperlink could lead to an educational video or article explaining the process, allowing students to learn in depth before answering	
6	A well-placed hyperlink can guide students to instructional videos that clarify difficult questions	

Marking Scheme

1. B: Google Slides
2. B: Desktop publishing
3. A: Creating a core presentation and using linked slides from separate client-specific presentations
4. D: Using cloud-based software with offline editing enabled and clear communication about who is working on which sections
5. D: Use animation to build the chart progressively

How to Administer

1. Write clear instructions for the mid semester examination
2. Administer in a controlled environment
3. Score test items using the provided objective marking key, etc.

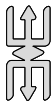
How to provide feedback

1. Review commonly missed questions with the entire class
2. Clarify misconceptions that many students share
3. Use incorrect answers as teaching opportunities, etc

PLC Session 6

45 minutes
Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous session, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand.
 - b. identify three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q).
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).

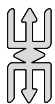

Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Use your app to plan and administer the mode of assessment for the Student Assessment Portal (SAP).
 - a. The key assessment for the week is **mid-semester examination**. Chat with your app to plan this assessment by reviewing or developing the assessment items/tasks and marking schemes/rubrics for the mid-semester examination (NTS 3k-3q).

10 minutes
Content Exploration

5. As a subject group, select one problem or topic/idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - b. all teachers in the group work through the problem individually for 3–4 minutes
 - c. the group then works through it together the problem, step by step
 - d. highlight the most common errors made at each step (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- This part is not ‘How do I teach this?’ but how do I teach it for learners to understand?
- If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.
- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes	Enactment
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6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - b. After the enactment, ask for structured feedback from the group
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 - iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection
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7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
 - a. transfer your chats into your learning planner template.
 - b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
 - c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 7

Learning Indicator: Create and save a publication using desktop publishing software, such as MS Publisher or Adobe

FOCAL AREA: UNDERSTANDING DESKTOP PUBLISHING SOFTWARE

Desktop publishing (DTP) software is designed for creating visual communications such as brochures, business cards, greeting cards, web pages, posters, and more for professional or personal printing online or on-screen.

Programs such as [Adobe InDesign](#), [Microsoft Publisher](#), QuarkXPress, and [Scribus](#) are examples of desktop publishing [software](#). Professional graphic designers and commercial printing technicians use some of these, whereas office workers, teachers, students, small-business owners, and non-designers use others like CorelDRAW. Their choices depend on capabilities, budget, and personal preference.

What is Microsoft Publisher?

Microsoft Publisher is an Office program that allows you to make professional documents such as newsletters, postcards, flyers, invitations, brochures, and more using built-in templates.

This is the Desktop Software developed by Microsoft Corporation, in reality, this is an CorelDRAW.

The specialty of the publisher is that it has many other pre-published editions available in it. Like Newsletters, Brocher, Invitation Card, Greeting Cards, Mailing Label, Banner, Web Page, etc. all this is there in it. You can prepare all this within a few minutes with the help of a wizard available on the Microsoft publisher.

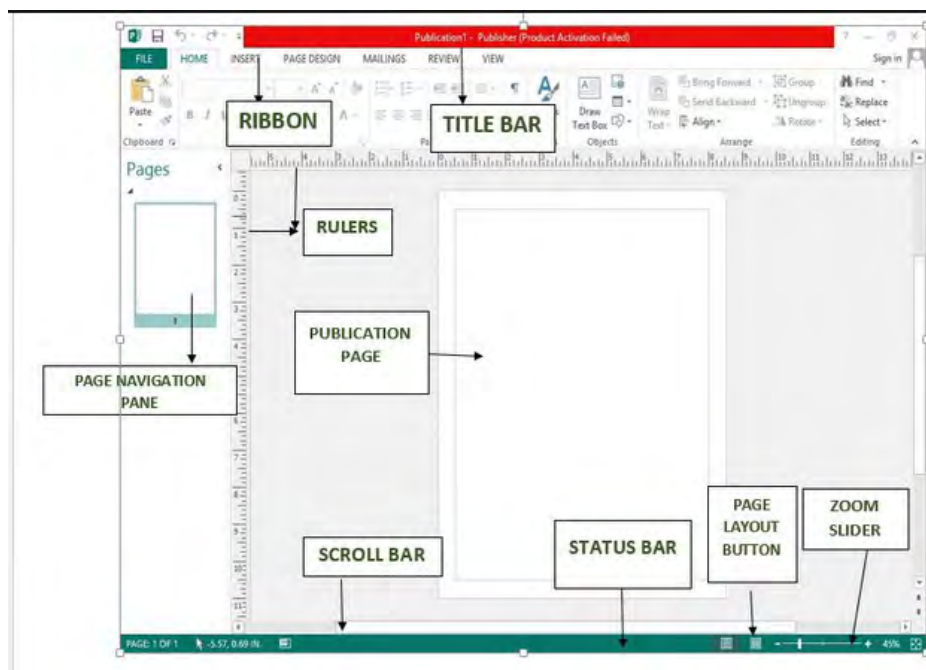


Figure 1.7: Microsoft Publishing User Interface

Features of Microsoft Publisher

These are the features available with Microsoft publisher:

1. Technical-level effects for texts, shapes, and images.
2. Capability to use high-quality image backgrounds.
3. Mail merge tools.
4. Personalisation tools.
5. Drag-and-drop picture importing and interchanging.
6. Detailed ruler and guides for correct measurements.
7. Document-sharing abilities.

Functionality of Microsoft publisher

1. The publisher is a useful software program used for desktop publishing.
2. It allows you to operate characteristics such as page size, text, graphics, and borders.
3. Publisher's strong points are in its ability to bring altogether text and pictures to make professional-looking flyers, brochures, handouts, and newsletters.

Start Page, Workspace

To open Microsoft Publisher, go to the Start menu and then in application opt Microsoft Office-Microsoft Publisher. This has a one-type layout with other MS Office applications in that the main toolbar (called a Ribbon) is on top of the workspace screen. When pressed on, these two tabs open up new Ribbons that is surely dealing with art/graphics and text respectively.

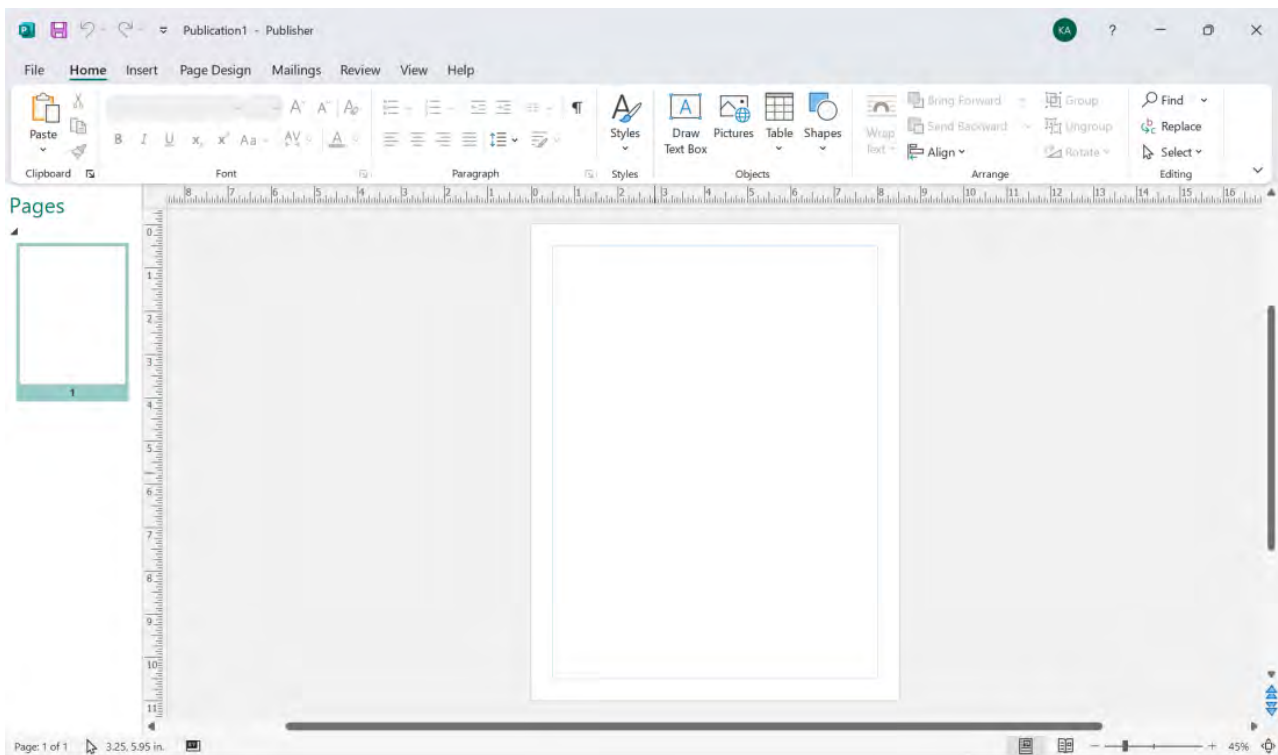


Figure 1.8: *Workspace of a Publisher*

Learning Tasks

1. Learners contribute to class discussion on publishing software and their role in creating types of publications such as flyers brochures, newsletters, and posters.
2. Learners Discuss common desktop publishing tools such as Microsoft Publisher, Adobe InDesign, and Scribus.
3. Learners explore the user interface of desktop publishing software, focusing on key elements such as the ribbon/menu bar, document workspace, toolbars, and panels.

Pedagogical Exemplars

1. **Whole class Discussion:** Engage learners in an open discussion on the concept of desktop publishing software, common desktop publishing tools such as Microsoft Publisher, Adobe InDesign, and Scribus and its role in creating various types of publications, such as flyers, brochures, newsletters, and posters
2. **Discussion and Presentation:** Learners will work in mixed ability groups (teachers identify abilities and position their sitting to ensure mixed ability) and share their ideas with peers, and accept constructive feedback on:
 - a. *user interface of desktop publishing software, focusing on key elements such as the ribbon/menu bar, document workspace, toolbars and panels.*
 - b. *difference between Desktop publishing software and other software used for creating multimedia documents.*
3. **Practical sessions and Project-based learning:** Learners engage in practical sessions and project-based learning to navigate the user interface efficiently to create and edit publications.

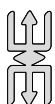
Key Assessment Level 3: Homework

1. You have been asked to create a professional brochure for a local business in your community (such as a restaurant, school, or community centre). Analyse which features of Microsoft Publisher (technical effects, image backgrounds, mail merge, personalisation tools, drag-and-drop importing, rulers and guides, document sharing) would be most important for this task and why. Justify your choices by explaining how each feature you select supports the creation of a professional-looking document and helps meet the business's needs. (10 marks)
2. Compare two different situations: (1) you are creating a simple flyer for a school event, and (2) you are creating a professional newsletter for a large organisation. Evaluate which features of Microsoft Publisher would be essential for each task and which would be optional. Explain why different features are prioritised in different contexts and discuss the trade-offs between ease of use and professional quality when using desktop publishing software. (10 marks)

PLC Session 7

45 minutes Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



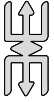
Note

- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Plan the week's key assessment with your app
 - a. The key assessment for the week is **homework**. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the homework (NTS 3k-3q).

10 minutes Content Exploration

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - b. all teachers in the group work through a similar problem individually for 3–4 minutes
 - c. the group then works through the problem together step by step
 - d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- This part is not just about ‘How do I teach this?’ but how do I teach it for learners to understand?
- If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.
- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes

Enactment

6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - b. After the enactment, ask for structured feedback from the group
 - i. was the concept explained in a way that a learner with no prior knowledge could follow?
 - ii. were the examples grounded in contexts familiar to Ghanaian learners?
 - iii. did any misconceptions surface and if so, how were they addressed?

5 minutes

Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
 - a. transfer your chats into your learning planner template.
 - b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
 - c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 8

Learning Indicator: *Create and save a publication using desktop publishing software, such as MS Publisher or Adobe*

FOCAL AREA: FEATURES OF DESKTOP PUBLISHING

Desktop Publishing (DTP) software exists to help you handle text, images and tables together in an easy way. Unlike Word and other word-processors, this type of software lets you decide the position of the elements on the page and does not force you to follow the direction of the text. Here are some lists of features:

1. Text tools

This feature allows you to choose a specific typographic style and have full control over it (text-wrapping tool); using the timesaving paragraph styles to reuse text styles; creating artistic drop caps, adding text boxes; creating bullet points and numbered lists, spell-check and other versatile text layout features;

a. Font Selection (Typeface)

This is the style of your letters. Just like you have different handwriting styles, there are countless fonts available. Examples include Times New Roman (a classic serif font), Arial (a clean sans-serif font), and more decorative script fonts. Choosing the right font is crucial for the tone and readability of your publication. Think about whether you want a formal look, a friendly feel, or something more artistic.

b. Font Size

This determines how big or small your text appears, usually measured in points (pt). Headlines will typically have a larger font size than the main body text.

c. Font Style

These are variations within a font family, such as bold (making the text thicker for emphasis), italic (slanted text, often used for emphasis or titles), and sometimes underline (though this is less common in professional print)

d. Alignment

This controls how your text lines up within a text box.

e. Left-aligned

Text lines up along the left edge (most common for body text).

f. Right aligned

Text lines up along the right edge (often used for dates or captions).

g. Centre-aligned

Text is centred within the text box (good for headings or short lines).

h. Justified

Text stretches to fill the entire width of the text box, creating straight left and right edges (common in newspapers and books). Be mindful of how this affects spacing.

i. Line Spacing (Leading)

This is the vertical space between lines of text. Too little leading can make text feel cramped and hard to read, while too much can make it look disconnected.

j. Character Spacing (Kerning and Tracking)**i. Kerning**

For adjusting the space between specific pairs of letters to improve visual harmony (e.g., making a “W” and an “a” sit nicely together).

ii. Tracking (Letter Spacing)

Adjusting the uniform spacing between all the letters in a selected block of text. This can be used to subtly condense or expand text.

k. Paragraph Spacing

This controls the space before and after paragraphs, helping to visually separate blocks of text.

l. Indentation

Moving the start of a line or an entire paragraph in from the left or right margin. First-line indents are common for starting new paragraphs.

m. Bullet Points and Numbering

Useful for creating lists and making information easy to scan. DTP software offers various bullet and numbering styles.

n. Text Colour

Changing the colour of your text to match your design or highlight specific words.

2. Graphic tools

This feature allows easy images insertion, effective manipulation and built-in image effects and filters, full integration with other graphic tools (like Illustrator and Photoshop in the case of InDesign)

3. Page Layout tools

The process of arranging the text and graphics on the page with the help of rulers, adjustable guides, multiple editing layers, object snapping and grouping.

4. Printing and sharing of the document

WYSIWYG - What you see is what you get; one look at your computer screen and you will know what your published/printed content will look like.

For example, say you are trying to create an impressive brochure for your company that will to attract potential customers potential customers. You have this idea - three pages with plenty of images and text written in a creative typographic style flawlessly wrapped around the images. How you design the brochure is how you get it.

Typography Features: The Art of Making Text Readable and Beautiful

Typography goes beyond just the basic formatting. It's about making conscious choices about how text looks to enhance readability, convey the right tone, and create a visually appealing design. Here are some key typographic considerations in DTP software:

1. **Hierarchy:** Using different font sizes, styles (bold, italic), and weights (how thick the font appears) to indicate the importance of different pieces of text. Headlines should be the most prominent, followed by subheadings, and then the body text. This helps readers quickly understand the structure of your document.
2. **Readability:** Choosing fonts that are easy on the eyes for extended reading. Generally, serif fonts are often preferred for long blocks of printed text, while sans-serif fonts can work well for headings and digital displays. Consider the font size and line spacing to avoid eye strain.
3. **Legibility:** This refers to how easily individual characters can be distinguished from one another. Some fonts, especially decorative ones, can have complex letterforms that make them difficult to read, especially at small sizes.
4. **Contrast:** Ensuring enough difference between the text colour and the background colour so that the text stands out clearly. Poor contrast makes text difficult to read.
5. **Consistency:** Using a limited number of fonts (usually no more than two or three) throughout a publication to create a unified and professional look. Consistency in formatting (e.g., using the same heading styles) is also important.
6. **White Space:** The empty space around text and other elements. Effective use of white space can improve readability by giving the eye a rest and highlighting important information.

Learning Tasks

1. Learners identify and apply various text formatting features in DTP software.
2. Learners discuss, understand and apply basic principles of typography to enhance readability and visual appeal.
3. Learners explore and make informed decisions about font selection, size, spacing, and alignment for different types of publications.
4. Learners recognise and avoid common typographic errors.

Pedagogical Exemplars

1. **Peer Learning and Collaboration:** Encourage learners to collaborate and share knowledge on text Formatting and adding images, graphics, shapes and objects in desktop publishing
2. **Experiential learning:** In small groups of 4–6, ensuring a mix of abilities, skills, and gender where possible, practically guide learners to explore text formatting and typography features available in desktop publishing software and process of adding graphics, images, shapes and objects to publications.
3. **Learner-led presentations:** Learners given the opportunity to present their slideshow to the class, followed by a Q&A session about text Formatting and adding images, graphics, shapes and objects in desktop publishing.

Key Assessment Level 3: Case Study

1. A school club is creating a flyer to advertise a fundraising event. They want the important information (date, time, location, and ticket price) to stand out immediately. Which typographic strategy would be MOST effective in achieving this?
 - A. Using a different font for each piece of information.
 - B. Applying the same bold and italic styles to all crucial details.
 - C. Employing a significantly larger font size and a contrasting font for the key information, while using a smaller font for supporting text.
 - D. Centring all important information in a brightly coloured text box.
2. You are designing a multi-page brochure for a local artisan market. To ensure a consistent and professional look throughout the document, which of the following practices is MOST important regarding typography?
 - A. Experimenting with as many different fonts as possible on each page to maintain visual interest.
 - B. Establishing a clear typographic hierarchy using a limited number of consistent fonts and styles for headings, subheadings, and body text across all pages.
 - C. Using decorative fonts for all headings to attract attention and reflect the artistic nature of the market. (Overuse of decorative fonts can hinder readability and look unprofessional).
 - D. Relying heavily on the default font settings of the DTP software to ensure uniformity. (Default settings may not always be the most appropriate for the specific design goals).
3. When preparing a lengthy report using DTP software, readability is paramount. Which combination of text formatting choices would MOST likely contribute to a positive reading experience?
 - A. Small font size (8pt), single line spacing, and justified alignment. (This combination often leads to cramped text and uneven word spacing, reducing readability.)
 - B. A legible serif or sans-serif font (11-12pt), adequate line spacing (e.g., 1.5 lines), and left alignment.
 - C. A decorative script font (14pt), double line spacing, and centre alignment.
 - D. Bold and italic styles applied randomly throughout the text for emphasis.
4. **Case Study: Improving Readability through Line and Paragraph Spacing**

Ama, a high school student, is preparing a digital newsletter for her school's club activities. She carefully writes her content, ensuring that all necessary details are included. However, when she reviews her draft, she notices that her paragraphs appear dense and cluttered, making it difficult to read. The words seem cramped together, and the content lacks visual appeal.

Feeling frustrated, Ama asks her teacher for advice. She learns that proper line spacing and paragraph spacing can significantly improve readability and make the newsletter look more professional.

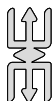
Problem Statement

Ama needs to adjust the formatting of her text to enhance its clarity, readability, and overall presentation. But how can she effectively use line spacing and paragraph spacing to fix the cluttered appearance?

PLC Session 8

45 minutes Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
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 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

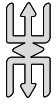
- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Plan the week's key assessment with your app
 - a. The key assessment for the week is **case study**. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the case study (NTS 3k-3q).

10 minutes Content Exploration

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)

- b. all teachers in the group work through a similar problem individually for 3–4 minutes
- c. the group then works through the problem together step by step
- d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

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- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes

Enactment

6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - b. After the enactment, ask for structured feedback from the group
 - i. was the concept explained in a way that a learner with no prior knowledge could follow?
 - ii. were the examples grounded in contexts familiar to Ghanaian learners?
 - iii. did any misconceptions surface and if so, how were they addressed?

5 minutes

Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
 - a. transfer your chats into your learning planner template.
 - b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
 - c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 9

Learning Indicator: *Create and save a publication using desktop publishing software, such as MS Publisher or Adobe*

FOCAL AREA: COLOUR MANAGEMENT FEATURES

1. RGB

RGB stands for **Red, Green, Blue**. It is used in phones, TVs, or computer screen to produce the colours we see.

The screens have tiny little lights, or pixels and each pixel has a red, a green and a blue light inside it. When these three colours of light are combined, they can create millions of other colours which we see on the screens when using them. The colours are created by the addition of lights. The more light is added, the brighter and lighter the colour becomes. This reason makes RGB an additive colour model.

When the red, green, and blue lights are all turned off (zero intensity), the colour produced is Black. It's pure white when at highest intensity.

2. CMYK - The Colours of Print

CMYK stands for **Cyan, Magenta, Yellow and Key** (which means black key). CMYK are colours made when things like magazine or poster are printed.

To better understand CMYK, let's look at how it is different from RGB. Remember how RGB adds light to make colours brighter? CMYK is the opposite! It is a subtractive colour model.

Imagine you have a piece of white paper. White paper looks white because it is reflecting all the colours of light. When you put ink on that paper, the ink absorbs (or “subtracts”) some of that light, and the colours you see are the light that's left over the white paper reflecting to your eyes.

When there is no ink, all light is reflected, so you see white and when there is more ink, more light is absorbed, so the colour gets darker.

The Role of “K” (Key Black)

This is a really important detail! In theory, if you mix 100% Cyan, Magenta, and Yellow ink, you should get black. But in reality, due to imperfections in the inks, you usually end up with a muddy, dark brown, not a true, deep black.

That's why the “K” for Black (also called “Key Black”) is added separately. It is the “key” colour for a few reasons:

- a. **Deeper Blacks:** It provides a much richer and deeper black than trying to mix C, M, and Y.
- b. **Sharper Text:** Most text is black. Using pure black ink ensures crisp, clear letters without any fuzzy edges from trying to combine three different colours for every letter.
- c. **Cost-Effective:** Black ink is generally cheaper than using large amounts of cyan, magenta, and yellow ink to try and create black.

- d. **Drying Time:** Using less ink overall (by having a dedicated black) helps the paper dry faster and prevents smudging.

3. HSB/HSV

HSB stands for: **H**ue, **S**aturation, **B**rightness. Sometimes it is written HSV, where the 'B' (Brightness) is replaced with 'V' (Value). They represent essentially the same concept. The same thing in this context.

HSB is a different way to understand and describe colours, especially when you are editing photos or designing something. Think of it like how humans perceive colours but not how colours are made. Let's break down each part:

- a. **Hue (H):** The pure colour. It is simply the actual colour itself – like red, blue, green, yellow, orange, purple. It is what you first think of when someone says “colour.”
- b. **Saturation (S):** The purity or vibrancy of the colour. Saturation tells you how intense, pure, or vibrant a colour is.
 - i. **High Saturation:** Means the colour is very strong, vivid, and pure. An example is a super bright, pure red.
 - ii. **Low Saturation:** Means the colour is very faded, muted, or greyish. It looks desaturated. An example is a dull, greyish red, almost like old, faded photo.
 - iii. **Zero Saturation:** The colour becomes a shade of grey (from black to white).
- c. **Brightness (B) or Value (V):** This determines how much light is in the colour, making it appear lighter or darker.
 - i. **High Brightness/Value:** The colour is very light, moving towards white.
 - ii. **Low Brightness/Value:** The colour is very dark, moving towards black.

Summary

RGB (Red, Green, Blue): For screens (additive - adding light makes it brighter, starts with black).

CMYK (Cyan, Magenta, Yellow, Black): For print (subtractive - adding ink makes it darker, starts with white paper).

While RGB and CMYK are about the technical way colours are made, HSB/HSV is about how we perceive them and how designers and artists can control their appearance to create specific feelings and looks!

Learning Tasks

1. Learners explore the colour mixing of RGB using the link <https://www.csfieldguide.org.nz/en/interactives/rgb-mixer/> and then
2. Learners screenshot their screens after creating this colour using the code: `rgb(0,253,253)`, `rgb(255, 0, 255)`, `rgb(255,253,5)` and compare their shots with the colour names (Cyan, Magenta, Yellow).
3. Learners identify the difference between various colour models (RGB, CMYK, HSB/HSV) and their appropriate applications in digital and print media.

Offline alternative

1. Learners use a graphics or presentation application such as Microsoft PowerPoint, Publisher, Paint, or another colour-selection tool that allows RGB values to be entered.
2. Learners create colour samples using RGB (0,253,253), RGB (255,0,255), and RGB (255,253,5) and identify the resulting colours as approximately Cyan, Magenta, and Yellow.
3. Learners save or capture the colour samples and compare their results.
4. Learners then compare RGB, CMYK, and HSB/HSV, identifying where each is commonly used, such as RGB for screens, CMYK for printing, and HSB/HSV for selecting and adjusting colours.

Pedagogical Exemplars

1. **Visual-Aid:** Teacher introduces the concept of RGB as an additive colour model used in digital displays by using simulations.
2. **Demonstration:** Teacher demonstrates how to use the sliders to mix different RGB values and guide learners to create colours using the colour codes.
3. **Mixed-Grouping:** Teacher supervise learners to identify the difference between various colour models (RGB, CMYK, HSB/HSV) and their appropriate applications in digital and print media.

Key Assessment Level 3: Checklist

1. A client provides you with a brand guide that includes specific RGB values for their logo and text colours. You notice the desktop publishing software you're using uses CMYK by default. What is the best way to manage the client's colours to ensure accurate output? (1 mark)
 - A. Convert the RGB values to CMYK using the software's colour management tools and create custom swatches.
 - B. Ignore the RGB values and select colours from a default theme.
 - C. Manually choose colours that look similar in CMYK.
 - D. Use any colour scheme that looks appealing to you.
2. A design team is working on a project that will involve a logo displayed on a company website, printed on business cards, and used within their video presentations. For each of the following statements, indicate whether it is a correct or incorrect consideration for maintaining colour consistency across these different media.

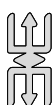
S/n	Items	Tick Only the Correct Cells
i.	The RGB colour model should not be the primary colour space used for the business cards to ensure accurate print reproduction	
ii.	When converting the logo from the website's RGB format to the business card's CMYK format, some subtle colour shifts may occur due to the fundamental differences in colour mixing	
iii.	Adjusting the Brightness/Value in the HSB/HSV model can be helpful for creating lighter and darker variations of the logo colour for different sections of the website without changing the base hue	
iv.	The black used in the logo text for the business cards should ideally be created by combining 100% Cyan, Magenta, and Yellow to achieve the richest possible black	
v.	The saturation of the logo colours needs to be increased when going from the vibrant display of a video presentation (using RGB) to the printed business cards (using CMYK) to avoid a dull appearance in print	

PLC Session 9

45 minutes

Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
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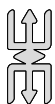
- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Plan the week's key assessment with your app

- a. The key assessment for the week is **checklist**. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the checklist (NTS 3k-3q).

10 minutes	Content Exploration
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5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - b. all teachers in the group work through a similar problem individually for 3–4 minutes
 - c. the group then works through the problem together step by step
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Note

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- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

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6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
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5 minutes	Reflection
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7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).

9. Remember to

- a.** transfer your chats into your learning planner template.
- b.** read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
- c.** integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 10

Learning Indicator: *Utilise basic tools in desktop publishing to add pictures, text boxes, tables, word art, and picture frames to a publication*

FOCAL AREA: **EXPLORING TEXT BOXES, TABLES EXPORT AND SAVE OPTIONS**

1. Text Boxes

Text boxes are containers for text that can be positioned and formatted independently within a publication.

To access the text box in Microsoft Publisher.

- a. click on the insert tab
- b. click on the preferred text box icon (horizontal or vertical text writing).
- c. Drag the plus cursor to cover some space on the editorial page
- d. Type the needed characters into the text box
- e. Resize and move the text to the position needed

2. Pictures

Images can significantly enhance the visual appeal and convey information.

To access the text box in Microsoft Publisher.

- a. click on the insert tab
- b. click on picture button.
- c. Resize and move the image to the position needed

Note that images can also be used to set the background

3. Picture Frames

Picture frames are decorative borders or shapes that can be applied to images to enhance their visual presentation.

- a. After inserting a picture, if there is the need to give it a border, click on the picture format tab.
- b. you will find different types of picture frames in the picture styles.
- c. Then select a preferred one for the image

4. Tables

Just like in Word or PowerPoint, tables are used to organise and present data in a structured format with rows and columns.

To access the text box in MS 365.

- a. click on the insert tab
- b. click on the table icon.
- c. Resize to fit the space needed

5. Word Art

Word Art allows users to create stylised and decorative text with various effects.

To insert a table in MS Publisher:

- a. click on the insert tab
- b. click on the Word Art icon.
- c. Select the preferred Word Art
- d. Type the needed characters in the popup window and click on “ok”.
- e. Resize to fit the space needed

6. Exporting Publisher files

- a. Click File → Export.
- b. Choose the required format, e.g. PDF/XPS.
- c. Select quality or publishing options.
- d. Choose a location and click Publish/Save.

7. Saving a custom layout as a template

- a. Create and format the publication.
- b. Click File → Save As.
- c. Select Publisher Template as the file type.
- d. Enter a template name and click Save.

8. Preparing a publication for printing

- a. Set page size, orientation and margins under Page Design.
- b. Check images, fonts and page layout.
- c. Click File → Print and review the print preview.
- d. Select printer, paper size and print settings.
- e. Print directly or export as a print-ready PDF.

Learning Tasks

1. Learners watch examples of publications that effectively use pictures, text boxes, tables, word art and picture frames.
2. Learners are given specific tasks to practice by exploring each of the tools:
 - a. Inserting a text box and type a short title.
 - b. Inserting a picture and resize it appropriately.

- c. Creating a small table with a few rows and columns and enter some sample data.
 - d. Adding a piece of Word Art with their name or a short phrase.
 - e. Applying a picture frame to the image they inserted.
3. Learners share their work on the projector screen or similar device for the whole class to see.

Pedagogical Exemplars

1. **Visual-Aid:** Teacher shows examples of publications that effectively use pictures, text boxes, tables, word art, and picture frames and briefly introduce the basic tools to be explored and their purpose in enhancing publications.
2. **Guided-Practice:** Teacher guides learners to explore the tools discussed.
3. **Presentation:** Teacher facilitates the flow of the presentation by calling students to share their work on the screen.

Key Assessment Level 3: Practical

1. A student has created a newsletter with several articles and wants to include a sidebar with key dates and deadlines. They have inserted a text box for this purpose.
 - Analyse the following four design choices for the sidebar and evaluate which one would have the most critical impact on the overall readability and visual harmony of the newsletter.
 - For each choice, explain the potential benefits and drawbacks, and justify which choice you would recommend and why.

Design Choices:

- A. Adding a thin, solid-coloured border around the text box and adjusting the internal margins.
- B. Placing a relevant, but slightly distracting, picture frame around the entire text box.
- C. Simply changing the background colour of the text box to a light grey.
- D. Using Word Art for the heading of the sidebar and a different, highly decorative font for the dates.

(10 marks)

2. a. Practical work, follow these instructions to create an event publication for your school
 - i. Open a desktop publishing software
 - ii. Create a new, blank publication (letter or A4 size).
 - iii. You must include the following elements in your flyer:
 - A photograph related to a school event.
 - Give it a title, e.g.: “Ziavi SHTS Quiz 2025” and the date of the event.
 - Use Word Art for the title.

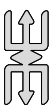
- A brief paragraph (3-4 sentences) describing what “Ziavi SHTS 2025” will involve (e.g., class competitions). Write this in a text box.
 - A simple table outlining three different competition options and their corresponding times (make up the details).
 - A piece of Word Art highlighting a special aspect of the event (e.g., Trophy for winners).
 - Strategically place and format each of these elements on the page to make the flyer visually appealing, easy to read and effectively communicate the key information about the event.
- b. In a short, written paragraph (separate document or below your flyer if possible), explain why you chose to place and format at least three of the elements in the way you did. Consider things like:
- i. Where did you place the most important information and why?
 - ii. How did you use size, colour, and font to create visual hierarchy?
 - iii. How did you ensure the flyer is easy for someone to quickly understand the key details?

PLC Session 10

45 minutes

Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week’s concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week’s content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week’s concepts to learners with diverse backgrounds.
 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

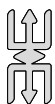
- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Plan the week's key assessment with your app

- a. The key assessment for the week is ***practical***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the practical (NTS 3k-3q).

10 minutes	Content Exploration
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5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - b. all teachers in the group work through a similar problem individually for 3–4 minutes
 - c. the group then works through the problem together step by step
 - d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?
- If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.
- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes	Enactment
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6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - b. After the enactment, ask for structured feedback from the group
 - i. was the concept explained in a way that a learner with no prior knowledge could follow?
 - ii. were the examples grounded in contexts familiar to Ghanaian learners?
 - iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection
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7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).

9. Remember to

- a.** transfer your chats into your learning planner template.
- b.** read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
- c.** integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 11

Learning Indicator: *Utilise basic tools in desktop publishing to add pictures, text boxes, tables, word art, and picture frames to a publication*

FOCAL AREA: EXPLORING WORD ART, PICTURE FRAMES AND ALIGNMENT AND DISTRIBUTION

1. Word Art

Word Art lets you turn plain text into eye-catching decorative designs. You can add shadows, outlines, colours, and effects to make titles or headings stand out.

How to access

1. Click on the “Insert” tab on the Ribbon (top of the screen).
2. In the Text group, click on “WordArt” (it looks like a slanted “A”).
3. A drop-down menu will appear with different WordArt styles.
4. Choose a WordArt style by clicking on one you like.
5. A placeholder text box will appear that says “Your text here.”
6. Type your own text to replace the placeholder.
7. You can now:
 - Change the font size or colour
 - Add shadow, glow, or 3D effects
 - Move and resize the WordArt like a shape

When to Use WordArt

- For document titles or section headers
- On flyers or posters
- To grab attention in a project

2. Picture Frames

Steps to Add a Picture Frame

1. Click on the “Insert” tab on the Ribbon at the top of the screen.
2. Click “Pictures” and choose where to insert the image from (e.g., “This Device”).
3. After the picture is inserted into your document, **click on the picture** to select it.
4. When the picture is selected, a new tab will appear at the top called “Picture Format” or “Format”.
5. On the **Picture Format** tab, look for the “Picture Styles” group.
6. In this group, you’ll see **pre-made picture frames** or borders you can choose from.
7. If you want to **customise your own frame**:

- Click on **“Picture Border”**
- Choose a **colour**
- Click on **“Weight”** to choose the thickness
- Use **“Dashes”** for dotted or dashed borders

Why Use Picture Frames?

- To highlight important images
- To improve the design of posters, reports, or presentations
- To make your work more creative and professional

3. Object Alignment and Canvas Grid Operations

Alignment means lining up objects—either to each other or to the page (left, centre, right, top, middle, or bottom).

Steps to Align Objects

1. **Open Microsoft Publisher** and insert the objects (e.g., pictures or text boxes).
2. **Hold the Shift key and click each object to select multiple items simultaneously** you want to align.
3. Go to the **“Arrange” group** on the **Home tab**.
4. Click on **“Align”**.
5. Choose how you want to align:
 - **Align Left** – aligns all objects to the left
 - **Align Centre** – centres objects horizontally
 - **Align Right** – aligns all objects to the right
 - **Align Top / Middle / Bottom** – aligns objects vertically

What is Distribution?

Distribution spaces out objects evenly—either across the page (horizontally) or from top to bottom (vertically).

Steps to Distribute Objects

1. **Select all the objects** you want to distribute (hold Shift and click each one).
2. Click on **“Align”** again.
3. Choose:
 - **Distribute Horizontally** – spaces objects evenly across the page
 - **Distribute Vertically** – spaces objects evenly up and down the page

Why Use These Tools?

- To make your projects look neat and professional
- To keep text and images balanced on the page

- To save time arranging objects by hand

Learning Tasks

1. Learners design a visually appealing title for an event (e.g., Program for Schools Speech and Prize Giving Day) using the Word Art features of your desktop publishing software. Experiment with different styles, colours, and effects to create a title that captures attention and reflects the theme of the event.
2. Learners will insert word art objects, choose from different text styles and effects (e.g., shadow, reflection, gradient fill), and customise word art properties (e.g., font, size, colour).
3. Learners will insert picture frames, apply frame styles and effects (e.g., borders, shadows), and adjust frame properties (e.g., size, shape, alignment).

Pedagogical Exemplars

1. Peer Learning and Collaboration: Encourage learners to collaborate and share knowledge on inserting and formatting WordArt, picture frames, and the importance of alignment and distribution when working with text and various objects in desktop publishing.
2. Learner-led presentations: Learners given the opportunity to present their slideshow to the class, followed by a Q&A session about inserting and formatting WordArt, picture frames, and the importance of alignment and distribution when working with text and various objects in desktop publishing
3. Experiential learning: In small groups of 4–6, ensuring a mix of abilities, skills, and gender where possible, practically guide learners to
 - a. insert word art objects, choose from different text styles and effects (e.g., shadow, reflection, gradient fill), and customise word art properties (e.g., font, size, colour).
 - b. insert picture frames, apply frame styles and effects (e.g., borders, shadows), and adjust frame properties (e.g., size, shape, alignment).
 - c. align pictures, text boxes, tables, word art, and picture frames relative to each other or to the page margins, and how to distribute objects evenly for a balanced layout.

Key Assessment Level 3: Analytical Design Portfolio

1. You are designing a poster and want your WordArt title to stand out without making it hard to read. What should you consider when customising the WordArt?
 - A. Use as many effects as possible like glow, shadow, and 3D together
 - B. **Choose bold styles with high contrast and align it appropriately with surrounding elements**
 - C. Rotate the WordArt multiple times to make it eye-catching
 - D. Use thin fonts with low colour contrast to appear subtle.
2. You are designing a poster for a school talent show. You need to decide whether to use Word Art for the title, add picture frames to photographs of previous talent show winners, and align all elements on the page. Analyse how each of these design tools (Word Art,

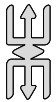
picture frames, and alignment) would contribute to the poster's visual impact and professionalism. Evaluate which tool would be most critical for creating an effective poster and justify your recommendation by explaining how it supports the poster's purpose of attracting student participation. (10 marks)

PLC Session 11

45 minutes

Planning & Reviewing the Learning Plan

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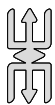
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 - a. The key assessment for the week is **practical**. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the practical (NTS 3k-3q).

10 minutes

Content Exploration

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WEEK 12

Learning Indicator: *Utilise basic tools in desktop publishing to add pictures, text boxes, tables, word art, and picture frames to a publication*

Recap

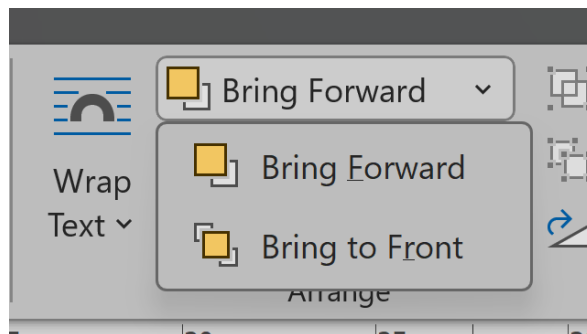
- Year 1 Week 1-3: Describe software, hardware, and other computing features needed to create a document.
- Year 1 Week 5: Create, edit and format text and images in PowerPoint using keyboard and mouse.

FOCAL AREA: BASIC TOOLS IN DESKTOP PUBLISHING

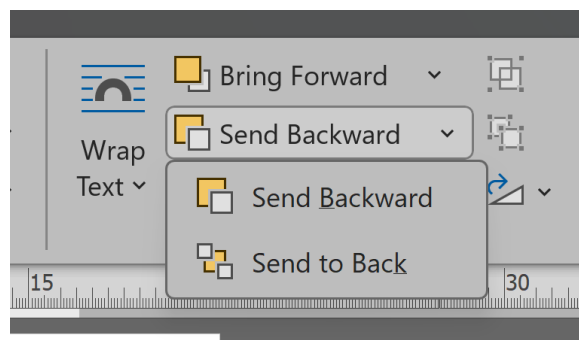
This lesson introduces learners to essential desktop publishing skills that enhance the visual organisation of content. Understanding object arrangement empowers students to create professional, clear, and well-structured digital publications.

1. Layering and Stacking Order

- Definition:** Layering and stacking refer to a case where objects placed in a publication are stacked like layers of paper, one on top of another.
- Stacking Order** determines which object appears on top or behind others.
- Commands:**
 - Bring to Front:* Moves an object to the top layer.



- Send to Back:* Sends an object behind all others.



- Bring Forward / Send Backwards:* Moves an object one step up/down in the stacking order.

- d. **Use Case:** Ensuring text boxes are visible over background images.

2. Grouping and Ungrouping

- a. **Grouping:** Combining multiple objects into one unit so they can be moved or formatted together.
- b. **Ungrouping:** Splitting a grouped object to work on each component individually.
- c. **Benefits:** Easier formatting, alignment, movement, resizing.
- d. **How to**
 - Select multiple objects → Right-click → Group / Ungroup

3. Alignment Guides and Smart Guides

- a. **Alignment Guides:** Lines that help align objects with margins, centres, or other objects.
- b. **Smart Guides:** Dynamic guides that appear as you drag objects, showing when they align with others.
- c. **How to Enable/Use**
 - Enable from “View” menu (depends on software e.g., Microsoft Publisher, PowerPoint, Canva)
 - Drag objects while watching the guidelines for alignment cues

Learning Task (Activity-Based)

Learners are given a blank publication page with various shapes, text boxes, and images.

Task Instructions

1. Arrange the objects so that:
 - a. A text box appears on top of an image.
 - b. A shape is behind all other objects.
2. Group two or more objects and move them together.
3. Align three different objects vertically using alignment/smart guides.

Sensory Adaptations

- Use large, high-contrast, clearly labelled objects and provide step-by-step visual or written instructions.
- Allow zoom, keyboard shortcuts, assistive devices, and extra time for learners with visual or fine-motor difficulties.

Pedagogical Exemplars

Demonstration & Guided Practice: Teacher uses projector to show how layering, grouping, and alignment is done in real-time. The learners in turn follow what the teacher is demonstrating to try out each feature using their computers.

Peer Collaboration: Learners work in pairs to review each other's alignment and grouping.

Sensory Adaptations: Demonstrate each action using clear verbal explanations, enlarged screen views, and highlighted controls.

Use strategic peer pairing and individual support, allowing learners to repeat tasks at their own pace.

Key Assessment: Practice Paper 1 (DOK Levels 1 to 4)

1. Explain what layering and stacking means in desktop publishing. Describe why using the correct layering and stacking order is important when creating a flyer. Give two examples of how proper layering helps make a desktop publishing project look clear and professional. (6 marks)
2. Design a simple flyer that demonstrates your understanding of layering, stacking, and alignment. Your flyer must include:
 - a. One image positioned at the back (sent to back)
 - b. One text box positioned at the front (brought to front) with information about an event
 - c. A grouped set of three shapes used as a decorative element
 - d. All elements aligned using smart guides or alignment tools

In a short paragraph below your flyer, explain:

- a. Why you sent the image to the back and brought the text box to the front
- b. How grouping the three shapes helped you organise your design
- c. How alignment tools helped you create a neat and professional-looking flyer

(10 marks: 6 marks for the flyer, 4 marks for the explanation)

Hint



Conduct *Practice Paper 1*. It should cover the contents taught from Year 1 to 3. Refer to the *Table of Specification and Structure of the Paper* at the end of this section. Learners' papers should be marked immediately and scores entered into the SAP.

Table of Item Specification (Papers 1, 2 & 3)

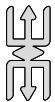
Strand	Sub-Strand	Learning Outcome	Content Standard	Learn- ing In- dicator	Levels of Assessment					
					1	2	3	4	Total Items	Remarks

Strand 1: ICT in Society	Organising, Managing & Presenting Information	1.1.1.LO.1 Create multimedia documents	1.1.1.CS.1 Use computing tools responsibly	1.1.1.LI.2 Create, edit and format text	6	4	0	0	10	Objective + Theory + Practical (MS Word) (Paper 1, Paper 2 & Paper 3)
		2.1.1.LO.1 Utilise spreadsheet for data analysis	2.1.1.CS.1 Analyse numerical data	2.1.1.LI.2 Use formulae & functions	5	5	2	0	12	Objective + Theory + Practical (Excel) (Paper 1, Paper 2 & Paper 3)
		3.1.1.LO.1 Communicate using presentation tools	3.1.1.CS.1 Use presentation & publishing software	3.1.1.LI.2 Develop slides & publications	4	4	2	0	10	Objective + Practical (PowerPoint & Publisher) (Paper 1 & Paper 3)
	Emerging Technologies & Applications	1.1.2.LO.1 Explain digital platforms	1.1.2.CS.1 Understand emerging technologies	1.1.2.LI.1 Explain digital devices	4	3	0	0	7	Objective questions (Paper 1)
	Connecting & Communicating Online	1.1.3.LO.1 Use Internet applications	1.1.3.CS.1 Understand Internet use	1.1.3.LI.2 Use email & IP addressing	6	4	0	0	10	Objective + Theory (Paper 1 & Paper 2)
Strand 2: Network Systems	Guided & Un-guided Network Systems	2.2.1.LO.1 Understand network models & protocols	2.2.1.CS.1 Basic knowledge of networks	2.2.1.LI.2 Explain protocols (TCP/IP, FTP, SMTP)	6	5	1	0	12	Objective & Theory (Paper 1 & Paper 2)
	Computer & Information Security	2.2.2.LO.1 Evaluate ICT risks & prevention	2.2.2.CS.1 Understand safety & security	2.2.2.LI.1 Discuss risks & preventive measures	7	6	1	0	14	Objective + Theory + Practical (Paper 1, Paper 2 & Paper 3)

PLC Session 12

45 minutes
Planning & Reviewing the Learning Plan

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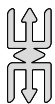

Note

- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Use your app to plan and administer the mode of assessment for the Student Assessment Portal (SAP).
 - a. The key assessment for the week is **Practice Paper 1**. Chat with your app to plan this assessment by reviewing or developing the assessment items/tasks and marking schemes/rubrics for the practice paper (NTS 3k-3q).

10 minutes
Content Exploration

5. As a subject group, select one problem or topic/idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
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5 minutes

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 - c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

Section 1 Review

In section one, you learned how to use cloud and desktop tools to make strong presentations. The section began with cloud software features, then moved to Google Slides and Microsoft Publisher. You practiced slide design, tables, charts and graphs. You also added links and interactivity to make content engaging. In later weeks, you studied desktop publishing, document structure and colour matching for clear visuals. Explored text boxes, word art and picture frames to improve layout. In the final weeks, you worked on alignment, grouping and layering techniques. You now have the skills to be able to design creative materials and share them online.

MARKING SCHEMES FOR THE KEY ASSESSMENTS

WEEK 1

Question 1: Animations and Transitions Analysis (10 marks)

Criteria	Marks	Descriptor
Analysis of Effectiveness	3	Provides an analysis of how animations and transitions enhance presentation effectiveness, identifying at least three specific benefits (e.g., emphasising key points, improving engagement, guiding audience attention).
	2	Identifies and explains two benefits of animations and transitions in presentations.
	1	Identifies one benefit or provides vague/incomplete explanation.
	0	No analysis provided or response is irrelevant.
Identification of Distractions	2	Clearly explains at least three scenarios where animations/transitions may hinder understanding (e.g., excessive movement, conflicting timing, overuse of effects).
	1	Explains one to two scenarios where animations/transitions may distract the audience.
	0	Does not identify distractions or explanation is unclear.
Specific Examples	3	Provides at least three concrete, contextual examples demonstrating when animations are beneficial and when they are detrimental (e.g., "Use fade-in for introducing new concepts; avoid spinning text for data-heavy slides").
	2	Provides two relevant examples with adequate context.
	1	Provides one example or examples lack clarity/context.
	0	No examples provided.
Justification with Evidence	2	Justifies all recommendations with clear reasoning and evidence-based explanations (e.g., references to user experience, cognitive load, or audience engagement principles).
	1	Justifies most recommendations with reasonable explanations.
	0	Justification is weak or missing.

Answer Key / Marking Guidance

Expected Response Elements

Benefits of animations/transitions (3 marks): Emphasising key points, maintaining audience engagement, guiding visual flow, improving retention, creating professional appearance

Potential distractions (2 marks): Excessive movement, misaligned timing with narration, conflicting animations, overuse of effects, animations that obscure content

Specific examples (3 marks):

✓ Beneficial: Fade-in for introducing new concepts; slide transitions for section breaks; emphasis animations for highlighting statistics

X Detrimental: Spinning text on data-heavy slides; rapid transitions that don't allow reading time; animations that play automatically and distract from speaker

Justification (2 marks): Links to cognitive load theory, user experience principles, or audience engagement research

Question 2: Slide Placeholder Evaluation (10 marks)

Criteria	Marks	Descriptor
Analysis of Placement and Hierarchy	3	Thoroughly examines how the placement and hierarchy of text boxes and image placeholders contribute to visual flow and clarity. Identifies at least three design principles (e.g., rule of thirds, visual hierarchy, white space).
	2	Examines how placement and hierarchy affect clarity, identifying two design principles.
	1	Identifies one principle or provides superficial analysis.
	0	No analysis provided.
Evaluation of Effectiveness	2	Evaluates the current design's effectiveness for the specific topic, explaining how elements guide the viewer's eye and support understanding.
	1	Evaluates the design's effectiveness with limited explanation of visual flow.
	0	Evaluation is incomplete or lacks connection to the topic.
Suggested Improvements	3	Proposes at least three specific, practical improvements (e.g., repositioning elements, adjusting text size, adding visual balance).
	2	Suggests two improvements with reasonable justification.
	1	Suggests one improvement or improvements lack clarity.
	0	No improvements suggested.
Justification of Recommendations	2	Justifies each recommendation with clear reasoning tied to design principles, user experience, or content clarity.
	1	Justifies most recommendations with adequate reasoning.
	0	Justification is weak or missing.

Answer Key / Marking Guidance

Expected Response Elements:

Design principles (3 marks): Rule of thirds, visual hierarchy, white space, balance, alignment, contrast

Effectiveness evaluation (2 marks): How placement guides viewer attention; how hierarchy supports content priority; how spacing aids comprehension

Improvements (3 marks): Repositioning image to rule of thirds; increasing text box size for emphasis; adding white space; adjusting alignment for visual balance

Justification (2 marks): Links improvements to specific design principles and audience understanding

Question 3: Master Slide Design Analysis (10 marks)

Criteria	Marks	Descriptor
Design Consistency	2	Master slide demonstrates strong visual consistency across layout, colour scheme, and typography. Explains how these elements work together to create a cohesive design.
	1	Master slide shows good consistency in layout and colour scheme with adequate explanation.
	0	Design shows limited consistency or explanation is vague.
Colour Scheme Justification	2	Provides detailed reasoning for colour choices, explaining how they support the scientific topic's credibility and accessibility (e.g., colour psychology, contrast for readability, cultural appropriateness).
	1	Explains colour choices with reference to credibility or accessibility.
	0	Colour justification is minimal or lacks reasoning.
Typography and Spacing Analysis	2	Analyses how font selection, sizing, and spacing enhance readability and professionalism. Explains at least two specific design decisions (e.g., serif fonts for formal tone, adequate line spacing for accessibility).
	1	Analyses typography and spacing with one design decision explained.
	0	Analysis is incomplete or lacks specific reasoning.
Accessibility Considerations	2	Demonstrates awareness of accessibility by addressing at least two considerations (e.g., colour contrast for colour-blind users, readable font sizes, sufficient white space).
	1	Addresses one accessibility consideration.
	0	Accessibility is not addressed or only mentioned superficially.

Criteria	Marks	Descriptor
Overall Strategic Reasoning	2	All design decisions are clearly justified with evidence-based reasoning tied to the scientific discovery topic and audience needs.
	1	Most design decisions are justified with reasonable explanations.
	0	Justification is weak or missing for most decisions.

Answer Key / Marking Guidance

Expected Response Elements

Design consistency (2 marks): Unified visual language across all slides; consistent use of fonts, colours, and spacing

Colour scheme (2 marks): Colours chosen for scientific credibility (e.g., blues/greens for trust); sufficient contrast for readability; cultural appropriateness

Typography and spacing (2 marks): Professional fonts (e.g., sans-serif for modern, serif for formal); consistent sizing hierarchy; adequate line spacing

Accessibility (2 marks): High contrast ratios; readable font sizes (minimum 24pt for slides); colour not the only differentiator; sufficient spacing for dyslexic readers

Strategic reasoning (2 marks): All choices tied to enhancing credibility, accessibility, and supporting the scientific discovery narrative

WEEK 2

Question 1

Criteria	Excellent	Good	Satisfactory	Need Improvement
Selection of Animation Types	Identifies and explains three different animation types (entrance, exit, emphasis, or motion paths) with specific purposes for teaching the water cycle. (1 mark each)	Identifies and explains two different animation types with clear purposes for teaching the water cycle. (1 mark each)	Identifies and explains one animation type with a stated purpose for teaching the water cycle. (1 mark)	Identifies one animation type with limited or unclear purpose. (1 mark)
Explanation of Learning Support	Explains how each of the three animation types supports classmates' understanding with specific reasoning (e.g., prevents cognitive overload, aids memory, makes abstract concepts concrete). (1 mark each)	Explains how each of the two animation types supports understanding with reasonable reasoning. (1 mark each)	Explains how one animation type supports understanding with basic reasoning. (1 mark)	Provides limited or vague explanation of how animation supports understanding. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Identification of Potential Problems	Identifies three potential problems that could occur with overuse of animations (e.g., distraction, motion sickness, loss of focus on content). (1 mark each)	Identifies two potential problems that could occur with overuse of animations. (1 mark each)	Identifies one potential problem that could occur with overuse of animations. (1 mark)	Identifies a potential problem but with unclear or incomplete explanation. (1 mark)
Justification of Strategy	Provides clear justification for why the chosen strategy avoids all identified problems, with evidence-based reasoning about effective presentation design. (1 mark)	Provides justification for why the chosen strategy avoids most identified problems with reasonable reasoning. (1 mark)	Provides basic justification for why the chosen strategy avoids at least one problem. (1 mark)	Provides minimal or unclear justification for the strategy. (1 mark)

Question 2

Criteria	Excellent	Good	Satisfactory	Need Improvement
Analysis of Transition Types	Analyses three different transition types (fade, dissolve, slide, zoom) and explains their effects on audience perception in each context. (1 mark each)	Analyses two different transition types and explains their effects on audience perception in each context. (1 mark each)	Analyses one transition type and explains its effect on audience perception. (1 mark)	Identifies a transition type with limited explanation of its effect. (1 mark)
Evaluation of Context Appropriateness	Evaluates why certain transitions are more appropriate for the financial report and why different transitions are more appropriate for the story presentation, with clear reasoning for each context. (1 mark each context)	Evaluates why certain transitions suit each presentation with reasonable reasoning for both contexts. (1 mark each context)	Evaluates why certain transitions suit one of the presentations with basic reasoning. (1 mark)	Provides limited evaluation of context appropriateness. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Discussion of Trade-offs	Discusses three distinct trade-offs between professionalism and interest (e.g., professional but potentially boring, interesting but potentially unprofessional, consistency vs. creativity). (1 mark each)	Discusses two trade-offs between professionalism and interest with clear explanation. (1 mark each)	Discusses one trade-off between professionalism and interest. (1 mark)	Mentions trade-offs but with unclear or incomplete explanation. (1 mark)
Strategic Reasoning	Demonstrates sophisticated understanding of how transition choices communicate different messages to different audiences and support specific presentation goals. (1 mark)	Demonstrates good understanding of how transition choices support presentation goals for each audience. (1 mark)	Demonstrates basic understanding of how transitions affect audience perception. (1 mark)	Shows limited understanding of how transitions affect presentations. (1 mark)

Question 3:

Criteria	Excellent	Good	Satisfactory	Need Improvement
Selection and Explanation of Animation Types	Selects and explains three different animation types with specific purposes for teaching the chosen science topic. (1 mark each)	Selects and explains two different animation types with clear purposes for the science topic. (1 mark each)	Selects and explains one animation type with a stated purpose for the science topic. (1 mark)	Selects one animation type with limited explanation of purpose. (1 mark)
Justification of Learning Support	Justifies how each of the three animation types supports learning with evidence-based reasoning (e.g., cognitive load theory, memory retention, visualisation of abstract concepts). (1 mark each)	Justifies how each of the two animation types supports learning with reasonable reasoning. (1 mark each)	Justifies how one animation type supports learning with basic reasoning. (1 mark)	Provides limited justification for how animations support learning. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Consideration of Diverse Learners	Explains how the design strategy supports three different learner groups (e.g., visual learners, auditory learners, learners with less prior knowledge, advanced learners). (1 mark each)	Explains how the design strategy supports two different learner groups with clear reasoning. (1 mark each)	Explains how the design strategy supports one learner group. (1 mark)	Mentions diverse learners but with unclear or minimal explanation. (1 mark)
Balance of Engagement and Clarity	Demonstrates sophisticated understanding of how to balance engagement and clarity without overwhelming learners, with specific strategies for managing cognitive load. (1 mark)	Demonstrates good understanding of how to balance engagement and clarity with reasonable strategies. (1 mark)	Demonstrates basic understanding of balancing engagement and clarity. (1 mark)	Shows limited understanding of balancing engagement and clarity. (1 mark)

Marking Guidance for Teachers

General Principles

Holistic Scoring: Award marks based on the quality and depth of response, not just the number of points mentioned.

Evidence-Based Reasoning: Look for learners who explain *why* their choices work, not just *what* they chose.

Context Awareness: Excellent responses demonstrate understanding of how design choices affect different audiences and purposes.

Specificity: Excellent responses include specific examples and detailed explanations; developing responses are vague or incomplete.

WEEK 3**Question 1**

Criteria	Excellent	Good	Satisfactory	Need Improvement
Identification and Explanation of Views	Identifies and explains all four presentation views (Normal View, Slide Sorter View, Notes View, Slide Show View) with specific purposes for each stage of presentation preparation. (1 mark each)	Identifies and explains three presentation views with clear purposes for different stages. (1 mark each)	Identifies and explains two presentation views with stated purposes. (1 mark each)	Identifies one or two views with limited explanation of purpose. (1 mark)
Sequencing of View Usage	Explains a logical sequence for using views throughout the workflow (e.g., Normal View first for creation, Slide Sorter View for organisation, Notes View for speaker notes, Slide Show View for delivery). (1 mark)	Explains a reasonable sequence for using views with clear reasoning for the order. (1 mark)	Explains a basic sequence for using views. (1 mark)	Mentions using different views but without clear sequencing or reasoning. (1 mark)
Justification of Efficiency Gains	Justifies how using the correct view at the right time improves quality and efficiency with three specific benefits (e.g., saves time, reduces errors, improves organisation, enhances content quality). (1 mark each)	Justifies how using correct views improves quality and efficiency with two specific benefits. (1 mark each)	Justifies how using correct views improves quality or efficiency with one benefit. (1 mark)	Provides limited or unclear justification of efficiency gains. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Strategic Understanding of Workflow	Demonstrates sophisticated understanding of how presentation views work together to support the entire workflow from creation to delivery, with clear reasoning about why each view matters. (1 mark)	Demonstrates good understanding of how views support different stages of the workflow. (1 mark)	Demonstrates basic understanding of how views are used at different stages. (1 mark)	Shows limited understanding of how views support the workflow. (1 mark)

Question 2

Criteria	Excellent	Good	Satisfactory	Need Improvement
Selection and Prioritisation of Accessibility Features	Selects and prioritises all four accessibility features (alt text, readable fonts, colour contrast, device compatibility) with clear reasoning for each priority. (1 mark each)	Selects and prioritises three accessibility features with reasonable reasoning. (1 mark each)	Selects and prioritises two accessibility features with basic reasoning. (1 mark each)	Selects one or two features with limited reasoning for prioritisation. (1 mark)
Explanation of Support for Diverse Learners	Explains how each of the four selected features supports specific learner groups (e.g., visually impaired users, colour-blind users, mobile device users) with clear connections. (1 mark each)	Explains how three features support different learner groups with reasonable connections. (1 mark each)	Explains how two features support different learner groups. (1 mark each)	Provides limited explanation of how features support diverse learners. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Discussion of Trade-offs	Discusses three distinct trade-offs between accessibility and visual appeal (e.g., simple fonts vs. decorative fonts, high contrast vs. aesthetic colour choices, device compatibility vs. advanced features). (1 mark each)	Discusses two trade-offs between accessibility and visual appeal with clear explanation. (1 mark each)	Discusses one trade-off between accessibility and visual appeal. (1 mark)	Mentions trade-offs but with unclear or incomplete explanation. (1 mark)
Strategic Reasoning About Inclusivity	Demonstrates understanding that accessibility enhances rather than limits visual appeal, with evidence-based reasoning about inclusive design principles. (1 mark)	Demonstrates good understanding of balancing accessibility and visual appeal. (1 mark)	Demonstrates basic understanding of accessibility considerations. (1 mark)	Shows limited understanding of accessibility and visual appeal balance. (1 mark)

Question 3

Criteria	Excellent	Good	Satisfactory	Need Improvement
Selection and Explanation of Slide Master Elements	Selects and explains all four Slide Master elements (background, fonts and text formatting, colour schemes, content placeholders) with specific design choices for each. (1 mark each)	Selects and explains three Slide Master elements with clear design choices. (1 mark each)	Selects and explains two Slide Master elements with stated design choices. (1 mark each)	Selects one or two elements with limited explanation of design choices. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Justification of Design Choices	Justifies each of the four design choices by explaining how they support the presentation's purpose, maintain visual consistency, and ensure accessibility. (1 mark each)	Justifies three design choices with reasonable explanations of how they support purpose, consistency, and accessibility. (1 mark each)	Justifies two design choices with basic explanations. (1 mark each)	Provides limited justification for design choices. (1 mark)
Consideration of Collaborative Workflow	Explains how the Slide Master design saves time and reduces errors when multiple students work on the presentation, with three specific benefits (e.g., consistent formatting, reduced manual edits, faster slide creation, fewer design mistakes). (1 mark each)	Explains how the Slide Master design saves time and reduces errors with two specific benefits. (1 mark each)	Explains one benefit of using Slide Master for collaborative work. (1 mark)	Mentions Slide Master benefits but with unclear or incomplete explanation. (1 mark)
Strategic Understanding of Branding and Consistency	Demonstrates understanding of how Slide Master creates professional branding and visual consistency across a multi-author presentation, with evidence-based reasoning. (1 mark)	Demonstrates good understanding of how Slide Master supports consistency and branding. (1 mark)	Demonstrates basic understanding of Slide Master's role in consistency. (1 mark)	Shows limited understanding of Slide Master's purpose and benefits. (1 mark)

Feedback Suggestions

For Excellent Responses: Highlight the specific reasoning and evidence that made the response strong - Encourage learners to apply this strategic thinking to other presentation projects

For Good Responses: Acknowledge the solid understanding demonstrated - Suggest one area where more specific examples or deeper reasoning would strengthen the response

For Satisfactory Responses: Identify which criteria were addressed well - Suggest specific ways to expand explanations or add more examples

For Need Improvement Responses: Provide encouragement and identify one specific area to focus on - Offer a concrete suggestion for how to strengthen the response (e.g., “Try explaining why this view is important, not just what it does”)

WEEK 4

Phase 1

Criteria	Excellent	Good	Satisfactory	Need Improvement
Number and Quality of Sources	Identifies and uses three or more credible, diverse sources (academic articles, news reports, expert interviews, case studies, data sets) with clear evidence of careful selection. (1 mark)	Identifies and uses three credible sources with adequate diversity. (1 mark)	Identifies and uses two credible sources. (1 mark)	Identifies one or two sources with limited credibility or diversity. (1 mark)
Synthesis of Information	Synthesises information from all three sources to develop a nuanced, multi-faceted understanding of the issue, showing how different sources complement or contradict each other. (1 mark)	Synthesises information from most sources to develop a good understanding of the issue. (1 mark)	Synthesises information from at least two sources to develop a basic understanding. (1 mark)	Summarises information from sources without clear synthesis or integration. (1 mark)
Identification of Perspectives	Identifies and explains three or more distinct stakeholder perspectives on the topic, demonstrating understanding of different viewpoints and interests. (1 mark each)	Identifies and explains two stakeholder perspectives with clear reasoning. (1 mark each)	Identifies one or two perspectives with basic explanation. (1 mark)	Mentions perspectives but with limited or unclear explanation. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Depth of Understanding	Demonstrates sophisticated understanding of the complexity and nuance of the issue, recognising interconnections and implications. (1 mark)	Demonstrates good understanding of the issue with recognition of some complexity. (1 mark)	Demonstrates basic understanding of the issue. (1 mark)	Demonstrates limited understanding of the issue. (1 mark)
Documentation and Organisation	Clearly documents all sources with proper citations and organises research findings in a logical, accessible format (e.g., research notes, annotated bibliography, concept map). (1 mark)	Documents sources with mostly proper citations and organises findings adequately. (1 mark)	Documents sources with some citations and basic organisation. (1 mark)	Limited documentation of sources or unclear organisation. (1 mark)

Phase 2

Criteria	Excellent	Good	Satisfactory	Need Improvement
Initial Slide Design Quality	Creates a slide with excellent hierarchy of information, using three or more design elements (headings, bulleted lists, visuals, colour, typography) effectively to communicate the main point. (1 mark)	Creates a slide with good hierarchy using two or more design elements effectively. (1 mark)	Creates a slide with basic hierarchy using one or two design elements. (1 mark)	Creates a slide with limited hierarchy or unclear communication of main point. (1 mark)
Testing with Multiple Audiences	Tests slide design with two or more diverse audiences and systematically gathers detailed feedback on clarity, engagement, and accessibility. (1 mark)	Tests slide design with two audiences and gathers feedback on most aspects. (1 mark)	Tests slide design with one or two audiences and gathers basic feedback. (1 mark)	Tests slide design with limited audience feedback or unclear process. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Analysis of Feedback	Analyses feedback in depth, identifying patterns, contradictions, and implications for design improvement. (1 mark)	Analyses feedback adequately, identifying key points for improvement. (1 mark)	Analyses feedback at a basic level, noting some suggestions. (1 mark)	Minimal analysis of feedback or unclear interpretation. (1 mark)
Iterative Refinement	Makes three or more significant, evidence-based refinements to the slide design, clearly explaining what changed and why based on feedback. (1 mark each)	Makes two significant refinements with clear explanation of changes. (1 mark each)	Makes one or two refinements with basic explanation. (1 mark)	Makes minimal refinements or unclear explanation of changes. (1 mark)
Documentation of Process	Clearly documents the entire iterative process, including initial design, feedback received, refinements made, and reasoning for each change. (1 mark)	Documents the process adequately with most stages explained. (1 mark)	Documents the process at a basic level. (1 mark)	Limited documentation of the iterative process. (1 mark)

Phase 3

Criteria	Excellent	Good	Satisfactory	Need Improvement
Analysis of Support for Diverse Learners	Analyses how the slide design supports three or more learner groups (visual, auditory, kinesthetic learners, and learners with disabilities) with specific, evidence-based examples. (1 mark each)	Analyses how the design supports two or three learner groups with reasonable examples. (1 mark each)	Analyses how the design supports one or two learner groups with basic examples. (1 mark)	Limited analysis of support for diverse learners. (1 mark)
Evaluation of Design Choices	Evaluates the effectiveness of all design choices (hierarchy, visuals, text, colour contrast, font selection) in communicating to diverse audiences, with evidence-based reasoning. (1 mark each)	Evaluates most design choices with reasonable reasoning. (1 mark each)	Evaluates some design choices with basic reasoning. (1 mark)	Limited evaluation of design choices. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Reflection on Trade-offs	Reflects critically on three or more trade-offs made between aesthetic appeal, clarity, accessibility, and information density, explaining reasoning for each choice. (1 mark each)	Reflects on two trade-offs with clear explanation. (1 mark each)	Reflects on one trade-off with basic explanation. (1 mark)	Mentions trade-offs but with limited reflection. (1 mark)
Identification of Limitations	Identifies limitations of the current design and suggests improvements for future iterations, demonstrating sophisticated self-awareness. (1 mark)	Identifies some limitations and suggests improvements. (1 mark)	Identifies one limitation or suggests basic improvements. (1 mark)	Limited identification of limitations. (1 mark)
Connection to Accessibility Standards	Connects design choices to established accessibility standards (e.g., WCAG guidelines, inclusive design principles) with clear understanding. (1 mark)	References accessibility standards with adequate understanding. (1 mark)	References accessibility standards with basic understanding. (1 mark)	Limited reference to accessibility standards. (1 mark)

Phase 4

Criteria	Excellent	Good	Satisfactory	Need Improvement
Explanation of Research-to-Design Connection	Clearly explains how research findings informed all design choices, demonstrating sophisticated understanding of the relationship between content and design. (1 mark)	Explains how research informed most design choices with good reasoning. (1 mark)	Explains how research informed some design choices with basic reasoning. (1 mark)	Limited explanation of research-to-design connection. (1 mark)
Justification of Visual and Textual Elements	Justifies selection of specific visual elements and text hierarchy with three or more detailed, evidence-based reasons. (1 mark each)	Justifies selection with two detailed reasons. (1 mark each)	Justifies selection with one or two basic reasons. (1 mark)	Limited justification of visual and textual choices. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Explanation of Accessibility Features	Explains how the design supports accessibility and inclusivity with specific examples and reference to design principles. (1 mark)	Explains accessibility features with reasonable examples. (1 mark)	Explains accessibility features with basic examples. (1 mark)	Limited explanation of accessibility features. (1 mark)
Reflection on Learning and Iterative Process	Reflects deeply on what was learned about effective slide design through the iterative process, identifying key insights and principles. (1 mark)	Reflects on learning with good insights about the process. (1 mark)	Reflects on learning with basic insights. (1 mark)	Limited reflection on learning. (1 mark)
Adaptation for Different Contexts	Proposes three or more specific adaptations of the design for different contexts or audiences, with clear reasoning for each. (1 mark each)	Proposes two adaptations with reasonable reasoning. (1 mark each)	Proposes one adaptation with basic reasoning. (1 mark)	Limited discussion of design adaptation. (1 mark)

WEEK 5

1. C
2. C
3. C
4. B

WEEK 6

Criteria	Excellent	Good	Satisfactory	Need Improvement
Identification of First Situation	Identifies a clear, relevant situation where hyperlinks are beneficial or necessary (e.g., citing sources, providing detailed data tables, linking to external resources, connecting to supplementary materials). (1 mark)	Identifies a relevant situation with adequate clarity. (1 mark)	Identifies a situation with basic relevance. (1 mark)	Identifies a situation with limited clarity or relevance. (1 mark)
Explanation of First Situation	Clearly explains what information would be linked to and provides two or more reasons why a hyperlink is better than including all information on the slide (e.g., reduces clutter, allows audience to explore at their own pace, keeps main slide focused). (1 mark)	Explains what would be linked and provides one or two reasons why a hyperlink is better. (1 mark)	Explains what would be linked with basic reasoning about why a hyperlink is better. (1 mark)	Provides limited or unclear explanation. (1 mark)
Identification of Second Situation	Identifies a clear, relevant situation different from the first (e.g., linking to videos, interactive tools, detailed definitions, related research). (1 mark)	Identifies a relevant situation with adequate clarity. (1 mark)	Identifies a situation with basic relevance. (1 mark)	Identifies a situation with limited clarity or relevance. (1 mark)
Explanation of Second Situation	Clearly explains what information would be linked to and provides two or more reasons why a hyperlink is better than including all information on the slide. (1 mark)	Explains what would be linked and provides one or two reasons why a hyperlink is better. (1 mark)	Explains what would be linked with basic reasoning. (1 mark)	Provides limited or unclear explanation. (1 mark)
Identification of Third Situation	Identifies a clear, relevant situation different from the first two (e.g., linking to case studies, expert interviews, additional examples, interactive simulations). (1 mark)	Identifies a relevant situation with adequate clarity. (1 mark)	Identifies a situation with basic relevance. (1 mark)	Identifies a situation with limited clarity or relevance. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Explanation of Third Situation	Clearly explains what information would be linked to and provides two or more reasons why a hyperlink is better than including all information on the slide. (1 mark)	Explains what would be linked and provides one or two reasons why a hyperlink is better. (1 mark)	Explains what would be linked with basic reasoning. (1 mark)	Provides limited or unclear explanation. (1 mark)
Understanding of Hyperlink Benefits	Demonstrates clear understanding that hyperlinks reduce slide clutter, allow audience choice, keep presentations focused, and provide access to supplementary information without overwhelming the main content. (1 mark)	Demonstrates good understanding of hyperlink benefits. (1 mark)	Demonstrates basic understanding of hyperlink benefits. (1 mark)	Demonstrates limited understanding of hyperlink benefits. (1 mark)
Variety and Relevance of Situations	All three situations are distinct, relevant, and demonstrate understanding of different contexts where hyperlinks are useful (e.g., academic citations, multimedia content, detailed data). (1 mark)	Two or three situations are distinct and relevant. (1 mark)	Situations are somewhat relevant but may lack variety. (1 mark)	Situations lack variety or relevance. (1 mark)
Clarity and Organisation	Response is well-organised, clearly written, and easy to follow. Each situation is presented separately with clear explanations. (1 mark)	Response is mostly well-organised and clear. (1 mark)	Response is adequately organised but could be clearer. (1 mark)	Response is poorly organised or difficult to follow. (1 mark)

WEEK 7

Question 1

Mark Band	Descriptor
5 marks	Excellent Analysis and Justification – Identifies and analyses three or more Publisher features with sophisticated reasoning. Each feature is clearly connected to specific business needs (e.g., “Image backgrounds create visual appeal that attracts customers”). Justifications demonstrate deep understanding of how features support professional design. Shows awareness of how different features work together to create a cohesive brochure.
4 marks	Good Analysis and Justification – Identifies and analyses three features with clear reasoning. Each feature is connected to business needs with adequate explanation. Students demonstrate good understanding of how features support professional design. Justifications are logical and well-explained.

Mark Band	Descriptor
3 marks	Satisfactory Analysis – Identifies two or three features with basic reasoning. Features are connected to business needs, but explanations lack depth. demonstrates basic understanding of how features support design. Some justifications may be incomplete or lack specific examples.
2 marks	Emerging Analysis – identifies one or two features with limited reasoning. Connections to business needs are vague or unclear. Justifications are weak or incomplete. Shows emerging understanding but lacks depth in analysis.
1 mark	Minimal Analysis – identifies one feature with minimal explanation. Justifications are unclear or missing. Limited understanding demonstrated.
0 marks	No Response – Provides no answer or response is completely off-topic.

Question 2

Mark Band	Descriptor
5 marks	Excellent Evaluation and Comparison – Compares two scenarios and identifies essential vs. optional features for each with sophisticated reasoning. For the school flyer: identifies features like drag-and-drop importing and templates as essential; document sharing as optional. For the newsletter: identifies mail merge and rulers/guides as essential; technical effects as optional. Student discusses trade-offs with nuance (e.g., “Professional quality requires more time but produces better results”). Demonstrates sophisticated understanding of context-specific design needs.
4 marks	Good Evaluation and Comparison – Compares two scenarios and identifies essential vs. optional features for each with clear reasoning. Explains why features are prioritised differently in different contexts. Discusses trade-offs between ease of use and professional quality with good understanding. Reasoning is logical and well-explained.
3 marks	Satisfactory Evaluation – Compares two scenarios and identifies some essential vs. optional features. Explanations of why features differ between contexts are basic. Discussion of trade-offs is present but lacks depth. Some reasoning may be incomplete.
2 marks	Emerging Evaluation – Attempts to compare scenarios but analysis is limited. Identification of essential vs. optional features is unclear or incomplete. Discussion of trade-offs is minimal. Reasoning lacks depth.
1 mark	Minimal Evaluation – Identifies one scenario or provides minimal comparison. Analysis is very limited. Trade-offs are not discussed or are unclear.
0 marks	No Response – Provides no answer or response is completely off-topic.

WEEK 8

MCQs

1. C
2. B
3. B

CASE STUDY

Criteria	Excellent (5 marks)	Very Good (4 marks)	Good (3 marks)	Satisfactory (2 marks)	Need Improvement (1 mark)
	Identifies all 3 specific readability issues in Ama's news-letter (dense paragraphs, cramped words, lack of visual appeal) with at least two examples	Identifies 2 specific readability issues with examples.	Identifies 2 readability issues with one example.	Identifies 1 readability issue with minimal explanation.	Fails to clearly identify any specific readability issues.
Line Spacing Solutions	Proposes 3 specific line spacing adjustments (e.g., 1.15, 1.5, or 2.0 spacing) with clear rationale for each and explains their impact on readability.	Proposes 2 specific line spacing adjustments with rationale.	Proposes 2-line spacing solutions with limited rationale.	Proposes 1-line spacing solution with minimal explanation.	Proposes vague line spacing solutions without specifics.
Paragraph Spacing Solutions	Recommends 3 specific paragraph spacing techniques (e.g., adding space before/after paragraphs, indentation, block formatting) with examples of their visual impact.	Recommends 2 specific paragraph spacing techniques with examples.	Recommends 2 paragraph spacing techniques with limited examples.	Recommends 1 paragraph spacing technique with minimal detail.	Provides vague suggestions without specific paragraph spacing techniques.

WEEK 9

Question 1

Answer: A

Question 2.

- incorrect
- correct
- correct
- correct
- incorrect

WEEK 10**Question 1**

Mark Band	Descriptor
5 marks	Excellent Analysis and Evaluation – analyses all four design choices with sophisticated reasoning about their impact on readability and visual harmony. Clearly identifies that Choice D (Word Art and decorative fonts) would be most critical because it directly compromises readability and professional appearance. Explains benefits and drawbacks of each choice with specific examples (e.g., “Choice A creates clear visual separation without distraction”; “Choice D makes dates hard to read and looks unprofessional”). Justification demonstrates deep understanding of design principles. Discusses trade-offs between visual appeal and functionality with nuance.
4 marks	Good Analysis and Evaluation – analyses three or four design choices with clear reasoning. Identifies Choice D as most critical with good explanation. Explains benefits and drawbacks of most choices. Justification is logical and well-reasoned. Discusses trade-offs between visual appeal and functionality with adequate understanding.
3 marks	Satisfactory Analysis – analyses two or three design choices with basic reasoning. May identify Choice D as most critical but explanation lacks depth. Benefits and drawbacks are mentioned but not fully explained. Justification is present but incomplete. Limited discussion of trade-offs.
2 marks	Emerging Analysis – attempts to analyse design choices but reasoning is limited. May not clearly identify which choice is most critical. Benefits and drawbacks are vague or incomplete. Justification is weak. Minimal discussion of trade-offs.
1 mark	Minimal Analysis – identifies one or two design choices with minimal explanation. Does not clearly evaluate which is most critical. Justification is unclear or missing.
0 marks	No Response – Student provides no answer or response is completely off-topic.

Question 2

Part A: Event Publication Flyer (12 marks)

Rubric: Practical Flyer Creation

Element	Excellent (2 marks)	Good (1.5 marks)	Satisfactory (1 mark)	Need Improvement (0.5 marks)
Photograph	Photograph is relevant, high-quality, well-positioned, and enhances the flyer's visual appeal. Appropriate size and placement.	Photograph is relevant and well-positioned. Good quality and appropriate size.	Photograph is present and relevant but may be poorly positioned or low quality.	Photograph is present but irrelevant, very small, or poorly positioned.
Title with Word Art	Title is clear, visually striking, and uses Word Art effectively. Font is readable and professional. Includes event name and date clearly.	Title is clear and uses Word Art. Readable font. Includes event name and date.	Title is present with Word Art but may be hard to read or poorly formatted. Date may be unclear.	Title is present but Word Art is poorly executed or title is unclear.
Descriptive Paragraph	Paragraph is well-written (3–4 sentences), clearly describes the event, is placed in a text box, and is easy to read. Provides good context about what the event involves.	Paragraph is well-written, describes the event, placed in text box, and easy to read.	Paragraph is present, describes the event, but may lack detail or be poorly formatted in text box.	Paragraph is present but poorly written, unclear, or difficult to read.
Competition Table	Table is clear, well-formatted, includes three competition options with times, and is easy to read. Data is realistic and well-organised.	Table is clear, includes three options with times, and is easy to read.	Table is present with three options and times but may be poorly formatted or hard to read.	Table is present but poorly formatted, incomplete, or difficult to understand.

Element	Excellent (2 marks)	Good (1.5 marks)	Satisfactory (1 mark)	Need Improvement (0.5 marks)
Word Art for Special Aspect	Word Art is visually striking, clearly highlights a special aspect (e.g., Trophy for winners), and enhances the flyer. Readable and well-positioned.	Word Art is present, highlights a special aspect, and is readable. Well-positioned.	Word Art is present but may be hard to read or poorly positioned. Special aspect is unclear.	Word Art is present but poorly executed or unclear.
Overall Layout and Visual Appeal	Layout is professional, visually balanced, and visually appealing. All elements are strategically placed. Flyer is easy to scan and understand. Excellent use of white space.	Layout is good, elements are well-placed, and flyer is easy to read. Good visual balance.	Layout is adequate, elements are placed but may lack balance. Flyer is readable but could be more visually appealing.	Layout is poor, elements are cluttered or poorly placed. Flyer is difficult to read or visually unappealing.

Part B: Written Explanation (8 marks)

Criteria	Excellent (2 marks)	Good (1.5 marks)	Satisfactory (1 mark)	Need Improvement (0.5 marks)
Placement of Important Information	Clearly explains where the most important information is placed (e.g., title at top, event date prominent) and provides sophisticated reasoning about why this placement is effective (e.g., "The title is at the top because readers scan from top to bottom").	Explains where important information is placed and provides good reasoning for the placement.	Explains placement of important information but reasoning is basic or incomplete.	Limited or unclear explanation of information placement.

Criteria	Excellent (2 marks)	Good (1.5 marks)	Satisfactory (1 mark)	Need Improvement (0.5 marks)
Use of Size, Colour, and Font for Hierarchy	Provides detailed explanation of how size, colour, and font create visual hierarchy. Gives specific examples (e.g., “I used large, bold font for the title to make it stand out; smaller font for supporting details”). Shows sophisticated understanding of design principles.	Explains how size, colour, and font create hierarchy with good examples. Shows good understanding of design principles.	Explains use of size, colour, and font but examples are basic or incomplete.	Limited explanation of how design elements create hierarchy.
Readability and Quick Understanding	Clearly explains how the flyer design ensures someone can quickly understand key details. Discusses specific strategies (e.g., “I placed the competition table prominently so people can quickly see when events are happening”).	Explains how design ensures readability and quick understanding with reasonable strategies.	Explains readability but strategies are basic or incomplete.	Limited explanation of how design supports quick understanding.
Justification of At Least Three Elements	Addresses at least three elements with detailed, thoughtful justification for each placement and formatting choice.	Addresses at least three elements with good justification for each.	Addresses at least three elements but justification is basic.	Addresses fewer than three elements or justification is unclear.

WEEK 11

Criteria	Excellent	Good	Satisfactory	Need Improvement
Analysis of Design Tools	Analyses all three design tools (Word Art, picture frames, alignment) with detailed explanation of how each contributes to visual impact and professionalism. (1 mark each = 3 marks)	Analyses two design tools with clear explanation of how each contributes to visual impact and professionalism. (1 mark each = 2 marks)	Analyses one or two design tools with basic explanation of how they contribute to visual impact. (1 mark)	Identifies one design tool with limited or unclear explanation. (1 mark)
Explanation of Visual Impact	Explains how Word Art makes the title eye-catching, how picture frames highlight images, and how alignment creates visual order. Demonstrates clear understanding of visual hierarchy and design principles. (1 mark each = 3 marks)	Explains how two tools create visual impact with reasonable understanding of design principles. (1 mark each = 2 marks)	Explains how one or two tools create visual impact with basic understanding. (1 mark)	Provides limited explanation of visual impact. (1 mark)
Explanation of Professionalism	Explains how each tool contributes to a professional appearance (e.g., Word Art looks polished, frames add credibility, alignment prevents clutter). Shows sophisticated understanding of professional design. (1 mark each = 3 marks)	Explains how two tools contribute to professionalism with good understanding. (1 mark each = 2 marks)	Explains how one or two tools contribute to professionalism with basic understanding. (1 mark)	Provides limited explanation of professionalism. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Evaluation of Most Critical Tool	Clearly evaluates which tool is most critical with sophisticated reasoning. Identifies that Word Art is most critical because the title must grab attention first, or provides other well-reasoned justification. (1 mark)	Evaluates which tool is most critical with good reasoning about why it is most important. (1 mark)	Evaluates which tool is most critical with basic reasoning. (1 mark)	Identifies a tool as most critical but with limited or unclear reasoning. (1 mark)
Justification Connected to Purpose	Provides three detailed justifications explaining how the chosen tool supports the poster's purpose of attracting student participation. For example, "Word Art grabs attention, which is the first step in attracting participation." (1 mark each = 3 marks)	Provides two justifications explaining how the tool supports attracting participation. (1 mark each = 2 marks)	Provides one justification explaining how the tool supports the purpose. (1 mark)	Provides minimal or unclear justification. (1 mark)
Understanding of How Tools Work Together	Demonstrates sophisticated understanding of how all three tools work together to create an effective poster. Explains that each tool serves a different purpose but they support each other. (1 mark)	Demonstrates good understanding of how most tools work together. (1 mark)	Demonstrates basic understanding of how some tools work together. (1 mark)	Demonstrates limited understanding of how tools work together. (1 mark)

WEEK 12**Question 1**

Criteria	Excellent	Good	Satisfactory	Need Improvement
Definition of Layering and Stacking	Provides a clear, accurate definition explaining that layering and stacking means arranging objects in front of or behind each other on a page. Explains that objects can be sent to back, brought to front, or arranged in specific order. (1 mark)	Provides a mostly accurate definition of layering and stacking with minor omissions. (1 mark)	Provides a basic definition of layering and stacking. (1 mark)	Provides an incomplete or unclear definition. (1 mark)
Explanation of Importance - Part 1	Clearly explains one reason why proper layering and stacking order is important (e.g., prevents text from being hidden behind images, ensures important information is visible, creates visual hierarchy). (1 mark)	Explains one reason with adequate clarity. (1 mark)	Explains one reason with basic clarity. (1 mark)	Provides limited or unclear explanation of importance. (1 mark)
Explanation of Importance - Part 2	Clearly explains a second reason why proper layering and stacking order is important (e.g., makes the design look organised, prevents clutter, helps viewers understand the design). (1 mark)	Explains a second reason with adequate clarity. (1 mark)	Explains a second reason with basic clarity. (1 mark)	Provides limited or unclear explanation of a second reason. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
First Example of Proper Layering	Provides a specific, clear example of how proper layering helps make a project look clear and professional (e.g., “Placing a text box in front of a background image ensures the text is readable”). (1 mark)	Provides a good example with adequate detail. (1 mark)	Provides a basic example with limited detail. (1 mark)	Provides a vague or unclear example. (1 mark)
Second Example of Proper Layering	Provides a second specific, clear example of how proper layering helps (e.g., “Grouping decorative shapes behind the main content keeps the focus on important information”). (1 mark)	Provides a good second example with adequate detail. (1 mark)	Provides a basic second example with limited detail. (1 mark)	Provides a vague or unclear second example. (1 mark)
Clarity and Organisation	Response is well-organised, clearly written, and easy to follow. Definition, explanations, and examples are presented in a logical order. (1 mark)	Response is mostly well-organised and clear. (1 mark)	Response is adequately organised but could be clearer. (1 mark)	Response is poorly organised or difficult to follow. (1 mark)

Question 2

Element	Excellent (1 mark each)	Good (0.75 marks each)	Satisfactory (0.5 marks each)	Need Improvement (0.25 marks each)
Image Sent to Back	Image is included, properly positioned at the back, and does not obscure other important elements. Image is relevant to the flyer's purpose.	Image is included and positioned at the back. May have minor positioning issues.	Image is included but positioning at the back is unclear or incomplete.	Image is present but not properly positioned at the back.
Text Box Brought to Front	Text box is included, properly positioned at the front, contains clear event information, and is easily readable. Text is well-formatted.	Text box is included and positioned at the front with event information. Mostly readable.	Text box is included but positioning at the front is unclear. Text may be difficult to read.	Text box is present but not properly positioned at the front.
Grouped Set of Three Shapes	Three shapes are included, properly grouped together, and used as a cohesive decorative element. Grouping is evident and effective.	Three shapes are included and grouped. Grouping is mostly effective.	Three shapes are included but grouping may be incomplete or unclear.	Fewer than three shapes or grouping is not evident.
Alignment Using Tools	All elements are aligned using smart guides or alignment tools. Alignment is precise and creates a professional, organised appearance.	Most elements are aligned using tools. Alignment is mostly precise.	Some elements are aligned but alignment may be inconsistent or incomplete.	Limited or no use of alignment tools.
Overall Flyer Design	Flyer is visually appealing, well-organised, and demonstrates clear understanding of layering and alignment. Professional appearance.	Flyer is well-organised and demonstrates good understanding of layering and alignment.	Flyer is adequately organised but could be more visually appealing.	Flyer is poorly organised or lacks visual appeal.

Element	Excellent (1 mark each)	Good (0.75 marks each)	Satisfactory (0.5 marks each)	Need Improvement (0.25 marks each)
Explanation - Layering Rationale	Clearly explains why the image was sent to back and text box brought to front, with specific reasoning (e.g., "The image is at the back so the text is readable and stands out"). (1 mark)	Explains the layering rationale with good reasoning. (0.75 marks)	Explains the layering rationale with basic reasoning. (0.5 marks)	Provides limited or unclear explanation. (0.25 marks)
Explanation - Grouping Benefit	Clearly explains how grouping the three shapes helped organise the design (e.g., "Grouping kept the shapes together so they move as one unit and stay balanced"). (1 mark)	Explains the grouping benefit with good reasoning. (0.75 marks)	Explains the grouping benefit with basic reasoning. (0.5 marks)	Provides limited or unclear explanation. (0.25 marks)
Explanation - Alignment Tools	Clearly explains how alignment tools helped create a neat and professional-looking flyer (e.g., "Alignment tools ensured all elements were evenly spaced and lined up properly"). (1 mark)	Explains how alignment tools helped with good reasoning. (0.75 marks)	Explains how alignment tools helped with basic reasoning. (0.5 marks)	Provides limited or unclear explanation. (0.25 marks)

SECTION 2: DIGITAL TOOLS AND SOCIAL MEDIA

STRAND: ICTS IN THE SOCIETY

SUB-STRAND: Emerging Technologies and Applications

Learning Outcome: *Demonstrate knowledge and understanding of emerging technologies.*

INTRODUCTION AND SECTION SUMMARY

In this section, learners will explore the exciting world of digital tools and social media, which have transformed how people communicate, collaborate, and express themselves. Learners will analyse the role of platforms such as Facebook, Instagram, YouTube, TikTok and LinkedIn in promoting creativity, collaboration and information sharing. The section spans from week 13 to week 16 with the following focal areas:

Week 13: Exploring Digital Tools and Their Affordances

Week 14: The Roles of Different Social Media Platforms

Week 15: Collaboration and Communication using Social Media

Week 16: Responsible and Effective Use of Social Media

SUMMARY OF PEDAGOGICAL EXEMPLARS

Exploratory learning will guide learners to investigate digital tools and social media applications through discussion, group activities and demonstrations. Teachers will employ visual aids, case studies, and digital resources to help learners connect concepts to real-world uses. Learners will engage in collaborative projects such as creating a short multimedia campaign or developing a mock social media profile to demonstrate responsible and creative digital engagement.

Activities will include matching exercises, group reflections and practical tasks, such as comparing communication tools or analysing case studies of social media use in education and business. Discussions and peer reviews will enhance critical thinking and communication skills, helping learners apply knowledge ethically and professionally.

ASSESSMENT SUMMARY

Depth of Knowledge (DOK) is employed in assessing learners' understanding and performance in this section to promote critical thinking and meaningful engagement. Various forms of assessment will be conducted to measure learners' grasp of digital communication tools and social media use.

Teachers should administer and record the following assessments for submission into the Student Assessment Portal (SAP):

Week 13: Worksheet

Week 14: Worksheet

Week 15: Essay

Week 16: Practical

WEEK 13

Learning Indicator: Analyse and discuss the affordances and impact of digital tools in various domains

Recap

- Year 1 Weeks 8 & 9: Explore the purpose and uses of smartphones, digital cameras, wearable devices, game devices, e-book readers and portable and digital media players
- Year 2 Week 8: Explore the purpose and uses of smartphones, digital cameras, wearable devices, game devices, e-book readers, portable and digital media players

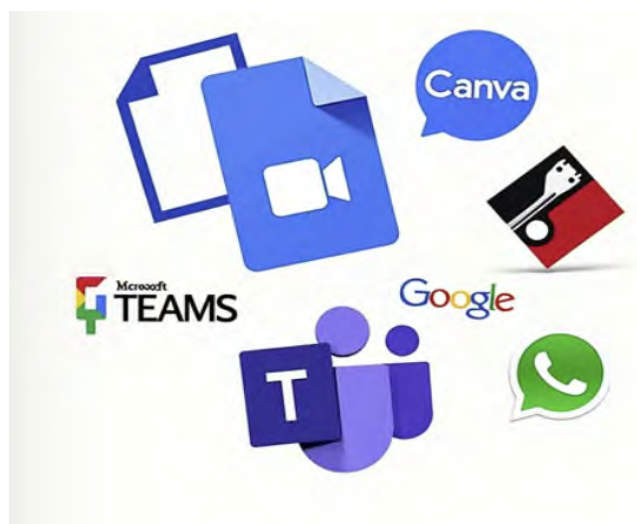
FOCAL AREA: AFFORDANCES AND IMPACT OF DIGITAL TOOLS IN VARIOUS DOMAINS

In today's technology-driven world, digital tools play a crucial role in how we communicate, work, learn, and express creativity. This lesson introduces learners to the functionalities, advantages, and social impact of digital tools in everyday life.

1. Introduction to Digital Tools

Definition: Digital tools are software, platforms, or devices that enable users to perform tasks electronically.

Examples of digital tools include Google Docs, Zoom, Canva, Photoshop, Microsoft Teams, WhatsApp, and GarageBand.



The purpose of digital tools is to solve problems, communicate, create content, collaborate, and automate tasks.

2. Affordances of Digital Tools

Digital affordances are the possibilities for action that digital tools enable for users in specific contexts. They arise from the interaction among a tool's features, the user's skills and goals,

and the environment in which the tool is used. Common digital affordances include automation, remote access, communication, collaboration, scalability, flexibility, data processing, and customisation.

These affordances can influence sectors including education, healthcare, manufacturing, government, finance, entertainment, transport, and business. When the necessary infrastructure, skills, policies, and user support are in place, digital tools can improve service delivery, productivity, communication, access to information, and decision-making.

Examples include online learning platforms in education, telemedicine in healthcare, automated manufacturing, e-government services, mobile banking, streaming media, GPS-based navigation, and e-commerce. However, digital tools may also pose challenges, including unequal access, privacy and cybersecurity concerns, misinformation, bias, and dependence on reliable electricity and internet connectivity.

Key Features of digital tools include:

- a. **Automation** – perform tasks with minimal human input.
- b. **Scalability** – reach many people with little extra effort.
- c. **Efficiency** – faster, more accurate results.
- d. **Accessibility** – used across locations and devices.
- e. **Customisation** – adaptable to user needs.
- f. **Flexibility** – usable in multiple contexts (education, business, health, etc.).

3. Impact on Communication and Social Interaction

Digital tools related to communication and social interaction include WhatsApp, Facebook, Zoom, Slack, and Telegram.

These are some of the ways that they have impacted the world of communication and social interaction:

- a. Global connectivity.
- b. Real-time information sharing.
- c. Virtual teamwork and remote work.
- d. New forms of expression (memes, vlogs, emojis).
- e. Community-building and social activism (hashtags, campaigns).

4. Impact on Creativity and Expression

Digital tools related to creativity and expression include Adobe Photoshop, TikTok, CapCut, FL Studio, Canva, and Procreate.

- a. These are some of the ways that they have impacted the world of creativity and expression:
 - Individuals can design, produce, and publish multimedia content.
 - Enhanced accessibility to tools for art, music, video, and storytelling.
 - Platforms for feedback and global audience engagement.
 - Empowerment through self-expression and innovation.

5. Impact on Entertainment and Media

Digital tools related to entertainment and media include YouTube, Spotify, Netflix, PlayStation/Xbox.

Some of the ways they impact entertainment and media are as follows:

- Changed how we consume movies, music, and games.
- Blurred line between creators and viewers.
- On-demand content anytime, anywhere.
- Interactive and immersive experiences (VR, AR).
- Independent creators can reach global audiences without traditional media channels.

Learning Tasks

Task Title: Digital Tools in My Daily Life

1. Learners work in small groups of 4–6, ensuring a mix of abilities, skills, and gender where possible.
2. Each group selects one domain: communication, creativity, or entertainment.
3. Identify 2–3 digital tools used in that domain and explain their affordances and their impact on how people interact, create, or consume.
4. Present findings in a 2-minute group presentation.

Pedagogical Exemplars

Think-Pair-Share: Learners reflect on digital tools they use, then share with a partner.

Group Discussion: Learners work in small groups to explore digital tools and present findings in a presentation to the entire class.

Multimedia presentation: The teacher shows screenshots/videos of real-life examples of digital tools in action. The teacher uses guided discovery to prompt learners with questions that uncover the affordances of digital tools.

Key Assessment Level 3: Worksheet

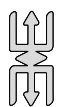
1. Explain two benefits of using digital tools for writing, creating presentations, or collaborating with others. For each benefit, give a specific example of how the digital tool makes the task easier or better than doing it without technology. (6 marks)
2. Describe how digital tools have changed the way we learn, access information, and work together with others. Give one example for each area (learning, accessing information, and collaborating) showing how digital tools have made these tasks different or better. (6 marks)

PLC Session 13

45 minutes

Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

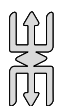
- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Plan the week's key assessment with your app
 - a. The key assessment for the week is **worksheet**. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the worksheet (NTS 3k-3q).

10 minutes

Content Exploration

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - b. all teachers in the group work through a similar problem individually for 3–4 minutes
 - c. the group then works through the problem together step by step
 - d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?

- If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.
- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes	Enactment
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6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - b. After the enactment, ask for structured feedback from the group
 - i. was the concept explained in a way that a learner with no prior knowledge could follow?
 - ii. were the examples grounded in contexts familiar to Ghanaian learners?
 - iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection
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7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
 - a. transfer your chats into your learning planner template.
 - b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
 - c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 14

Learning Indicator: Evaluate the role of social media as communication and collaboration tools in society. (Example Facebook, Twitter, Instagram, LinkedIn, YouTube, etc.)

Recap

- Year 2 Weeks 8: Explore the purpose and uses of smartphones, digital cameras, wearable devices, game devices, e-book readers and portable and digital media players
- Year 3 Week 13: Analyse and discuss the affordances and impact of digital tools in various domains.

FOCAL AREA: THE ROLES OF DIFFERENT SOCIAL MEDIA PLATFORMS

Social media platforms have become central to how people communicate, connect, and share information. This lesson helps learners understand the purpose and features of various platforms and how they influence modern communication and content sharing.

Introduction to Social Media Platforms

Introduce learners to the following popular platforms with these details:

Platform	Key Features	Target Audience	Primary Use Case
Facebook	Posts, stories, groups, events, Messenger	General public, older teens and adults	Social networking, group interaction
X	Tweets, retweets, threads, hashtags	Professionals, journalists, youth	Microblogging, trending news, debates
Instagram	Photo/video posts, reels, stories	Teenagers, content creators	Visual storytelling, branding
LinkedIn	Profiles, endorsements, job listings	Professionals, graduates	Career networking, recruitment
YouTube	Videos, playlists, comments	All demographics	Video content sharing, education, entertainment
Snapchat	Disappearing messages, filters, streaks	Teens and young adults	Quick, fun messaging
TikTok	Short videos, effects, duets	Teens and young adults	Entertainment, trends, music videos

1. Communication and Networking

Social media allows real-time communication and global networking. The following features enable interaction:

- i. Messaging – e.g., Facebook Messenger, Instagram DMs
- ii. Comments & Replies – under posts and videos

- iii. Mentions (@) – to tag people in conversations
- iv. Tags and Hashtags (#) – to organise and discover content
- v. Live streaming – real-time engagement with audiences

Social media connects:

- i. Friends and family
- ii. Businesses with customers
- iii. Activists with supporters
- iv. Students with teachers and resources
- v. Information Sharing and Dissemination

Information Sharing and Dissemination

Users share text, photos, videos, articles, and links with wide audiences using the following platforms:

- i. News updates (e.g., X)
- ii. Educational content (e.g., YouTube)
- iii. Announcements and campaigns (e.g., Facebook, LinkedIn)
- iv. Real-time events and live coverage

The benefits of such uses include:

- i. Fast and broad reach
- ii. Interactive and engaging content
- iii. User-generated content from diverse sources

Online Safety and Social Media

Social media can present risks to users. Social media users may changing risks and will need to adopt certain practices to stay protected. Common risks include cyberbullying, impersonation, scams, misinformation, privacy breaches, and harmful content. Users should apply strong passwords, adjust privacy settings, verify information and contacts, avoid oversharing personal details, report suspicious behaviour, and use social media responsibly.

Learning Tasks

Title: Match the Platform to the Purpose

Instructions

1. In groups, learners receive a handout with:
 - a. A list of use-cases (e.g., "Accessing iCampusGH past questions" or "Promoting a local Ghanaian Kente weaving enterprise, etc.)
 - b. A list of social media platforms.
2. Groups match each use case to the most appropriate platform and justify their choices.

3. Groups share their answers and explain their reasoning to the class in 2 minutes.

Pedagogical Exemplars

Multimedia presentation: The teacher uses questions to explore how learners personally use social media. The Teacher shows screenshots/videos of real-life examples of digital tools in action and demonstrates how the various features of social media platforms work.

Group Collaboration: Learners work in small, mixed-ability groups for the matching activity to develop critical thinking skills.

Key Assessment Level 3: Analytical Review Task

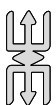
1. Identify three basic functionalities of social media platforms. For each functionality, give a specific example of how you would use it (e.g., creating a profile, sharing content, connecting with others, posting updates, commenting on posts). (6 marks)
2. Explain two benefits of using social media platforms. For each benefit, describe how social media helps with communication, information sharing, or building communities. Give a specific example showing how the platform provides this benefit. (6 marks)

PLC Session 14

45 minutes

Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

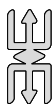
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- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Plan the week's key assessment with your app

- a. The key assessment for the week is ***practical***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the practical (NTS 3k-3q).

10 minutes	Content Exploration
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5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - b. all teachers in the group work through a similar problem individually for 3–4 minutes
 - c. the group then works through the problem together step by step
 - d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?
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30 minutes	Enactment
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6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - b. After the enactment, ask for structured feedback from the group
 - i. was the concept explained in a way that a learner with no prior knowledge could follow?
 - ii. were the examples grounded in contexts familiar to Ghanaian learners?
 - iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection
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7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to

- a.** transfer your chats into your learning planner template.
- b.** read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
- c.** integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 15

Learning Indicator: *Evaluate the role of social media as communication and collaboration tools in society. (Example Facebook, Twitter, Instagram, LinkedIn, YouTube, etc.)*

Recap

- Year 1 Weeks 8 & 9: Explore the purpose and uses of smartphones, digital cameras, wearable devices, game devices, e-book readers and portable and digital media players
- Year 3 Week 14: Evaluate the role of social media as communication and collaboration tools in society. (Example Facebook, X, Instagram, LinkedIn, YouTube, etc.)

FOCAL AREA: THE ROLE OF SOCIAL MEDIA AS COMMUNICATION AND COLLABORATION TOOLS IN SOCIETY

Social media is more than just a communication tool—it has become a powerful platform for building communities, collaborating on global issues, and developing careers. This lesson equips students with knowledge and skills to use social media responsibly and productively for positive engagement and professional growth.

1. Community Building and Engagement

- a. Definition: Online communities are formed around shared interests, affiliations, or identities.
- b. Examples of communities formed online include fan clubs, professional associations, study groups, and alumni networks.
- c. Features of social media that promote community include:
 - i. Groups and Pages (Facebook, Telegram) are used for dedicated discussions.
 - ii. Hashtags (#MentalHealthAwareness, #STEMGhana) are used for trend-based interactions.
 - iii. Events (LinkedIn, Facebook Events) are used for organising online/offline meetups.
 - iv. Communities (Reddit, WhatsApp) are niche interest-based engagement.

2. Crowdsourcing and Collaboration

- a. Definition: Collecting input, ideas, or services from a large group via social media.
- b. The uses of crowd sourcing and collaboration include:
 - i. Problem-solving challenges (e.g., design competitions).
 - ii. Campaigns (e.g., #EndPlasticWaste).
 - iii. Class or school projects (e.g., collecting environmental data via online forms).

- c. **Platforms:** X, Facebook, Instagram Stories (polls/questions).
 - d. **Benefits:** Shared ideas, diverse input, teamwork, global reach.
3. Professional Networking and Career Development
- a. **Platforms used for professional goals include** LinkedIn, X (for professional branding), and GitHub (for developers).
 - b. **Key Activities that occur on these platforms include:**
 - i. Building a professional profile (summary, experience, skills).
 - ii. Connecting with peers, mentors, and recruiters.
 - iii. Finding internships, job opportunities, scholarships.
 - iv. Sharing achievements or blog posts to build personal brand.

Learning Tasks

Social media in Action

Instructions: In small mixed-ability groups, learners choose one of the following:

- a. Create a concept for a social media group or hashtag campaign (e.g., #KeepOurSchoolsClean).
- b. Draft a basic LinkedIn profile for a fictional student, including headline, bio, and three skills.

Each group presents in 2–3 minutes.

Pedagogical Exemplars

- **Multimedia presentation & Demonstration:** The Teacher shows videos of real-life examples of social media platforms in action. The Teacher shows a real LinkedIn profile, a trending hashtag, or a Facebook group and demonstrates how to use the various features of social media platforms.
- **Group work & guided Practice:** Learners imagine they are launching a community or campaign and plan its features build a mock social media profile or campaign using templates provided by teacher.

Key Assessment Level 3: Essay

Design a professional social media profile using a template similar to LinkedIn. Your profile must include the following elements:

1. Profile Picture – A photograph or drawing that represents you professionally
2. Headline/Title – A professional title that describes your career goal or aspiration (e.g., “Aspiring Software Engineer” or “Future Business Leader”)
3. Professional Summary – A written summary of yourself in 50–100 words that explains your interests, skills, and career goals

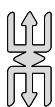
4. Three Skills – List three professional or technical skills you have or want to develop (e.g., communication, coding, graphic design)
5. Two Achievements – Describe two accomplishments or awards you have received or are working towards
6. Two Potential Connections – Identify two people you would like to connect with on a professional network. For each person, explain:
7. Who they are (e.g., a professional in your field of interest, a mentor, a business leader)

Why you specifically chose them as a connection (e.g., what they do, how they could help you, what you admire about them)

PLC Session 15

45 minutes Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



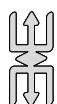
Note

- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Plan the week's key assessment with your app
 - a. The key assessment for the week is *essay*. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the essay (NTS 3k-3q).

10 minutes Content Exploration

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - b. all teachers in the group work through a similar problem individually for 3–4 minutes
 - c. the group then works through the problem together step by step
 - d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

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30 minutes

Enactment

6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
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 - i. was the concept explained in a way that a learner with no prior knowledge could follow?
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5 minutes

Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
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WEEK 16

Learning Indicator: *Evaluate the role of social media as communication and collaboration tools in society. (Example Facebook, Twitter, Instagram, LinkedIn, YouTube, etc.)*

Recap

- Year 1 Weeks 8 & 9: Explore the purpose and uses of smartphones, digital cameras, wearable devices, game devices, e-book readers and portable and digital media players
- Year 3 Week 14: Evaluate the role of social media as communication and collaboration tools in society. (Example Facebook, X Instagram, LinkedIn, YouTube, etc.)

FOCAL AREA: THE ROLE OF SOCIAL MEDIA AS COMMUNICATION AND COLLABORATION TOOLS IN SOCIETY

Social media plays a major role in modern communication, learning, and expression. This lesson empowers learners to create content responsibly, think critically online, and protect themselves while using digital platforms.

1. Content Creation and Curation

- a. Content is created for platforms like Instagram (photos/stories), YouTube (tutorials/vlogs), TikTok (short videos).
- b. The types of content created usually include visuals, educational videos, tutorials, and live streams.
- c. The purpose of creating the content is to increase engagement, entertainment, education, and branding.
- d. Content curation is the process of gathering and presenting high-quality, relevant content from various sources, often with the goal of engaging an audience and building brand awareness. It involves sharing relevant content from others while giving credit and organising posts around a theme.

2. Digital Literacy and Critical Thinking

- a. Content creation and curation require digital literacy and critical thinking, which are the ability to access, understand, evaluate, and create digital content.
- b. The required skills include:
 - i. Fact-checking using trusted sources (e.g. Snopes, BBC, fact-checkers).
 - ii. Cross-checking information.
 - iii. Recognising emotional manipulation or bias in content.
 - iv. Asking: Who posted this? Why? Is it verified?

3. Privacy and Security

- a. Privacy Settings refers to the control over who sees what you post.
- b. Control access to your personal data by avoiding oversharing (e.g., location, school, phone numbers).
- c. Use online safety measures practices like:
 - i. Strong passwords and two-factor authentication.
 - ii. Log out on shared devices.
 - iii. Avoid suspicious links and phishing.
 - iv. Know how to report/block harmful users.

d. Objectives of Computer Security

Computer security has three fundamental objectives known as the CIA Triad (Confidentiality, Integrity and Availability). Confidentiality ensures that information is accessed only by authorised persons; Integrity ensures that information remains accurate and is not altered improperly; and Availability ensures that information and systems are accessible to authorised users when needed. Use examples such as passwords, access controls, backups and data validation.

e. Emotional Self-Regulation in Digital Environments

It refers to managing emotions when communicating online. It is important to pause before responding to provocative messages, avoid impulsive posts, consider how messages may affect others, and seek help when interactions become distressing. Maintain respectful, calm and responsible digital communication.

f. Managing Screen Time

Learners should develop healthy, purposeful habits with digital devices. Balance screen use with learning, physical activity, sleep, face-to-face interaction and other responsibilities. Use strategies such as scheduled breaks, limiting unnecessary notifications, setting device-free periods and avoiding excessive recreational screen use.

g. Preventing Cyberbullying and Toxic Online Interactions

Learners should communicate respectfully and avoid harassment, insults, threats, rumours and deliberate exclusion online. Practical responses include not retaliating, saving evidence, blocking offenders, using reporting tools, adjusting privacy settings and informing a trusted adult or appropriate authority. Use responsible bystander behaviour, including supporting victims and reporting harmful content.

4. Be ethical online and practice responsible use of the internet and be mindful of the following.

- a. **Online Etiquette:** Respectful tone, no trolling, avoid cyberbullying.
- b. **Digital Footprint:** What you post can last forever—even if deleted.
- c. **Copyright:** Don't repost without credit or permission.
- d. **Respect for Privacy:** Don't share others' personal info or images without consent.

Learning Tasks

Social Media: The Right Way

Instructions

- a. Learners form small groups of 4–6, ensuring a mix of abilities, skills, and gender where possible.
- b. Each group is assigned one of the four areas (Content Creation, Digital Literacy, Privacy/Security, Ethics).
- c. Task: Create a 2-minute skit or poster showing a positive or negative example related to their topic.
- d. Share with class and explain what message it conveys.

Pedagogical Exemplars

- **Video Analysis:** Show a short video (e.g., YouTube tutorial or fake news clip or provide a printed text case study/scripts) and ask learners to assess its credibility or purpose.
- **Group work & Scenario Role-Play:** Learners work in small groups of 4–6, ensuring a mix of abilities, skills, and gender where possible to explore issues surrounding social media tools and present findings in a presentation to the entire class. They discuss social media dilemmas (e.g., sharing a meme about a friend) and have students act out responsible responses.

Key Assessment Level 2: Practical

Design a one-page guide titled “My Social Media Code” that includes:

1. Two rules for sharing content (e.g., check facts before sharing, think about how it affects others)
2. Two ways to identify fake or harmful content (e.g., check the source, look for evidence)
3. Two privacy and safety tips (e.g., use strong passwords, don’t share personal details)
4. Two ethical online behaviours (e.g., don’t cyberbully, respect others’ opinions)

You may use text, diagrams, or icons to make your guide clear and engaging.

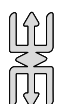
PLC Session 16

45 minutes

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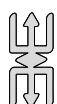
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Section 2 Review

In this section, we explored the exciting world of digital tools and social media, which changed how people communicate, collaborate and express themselves. We analysed the role of platforms such as Facebook, Instagram, YouTube, TikTok and LinkedIn in promoting creativity, teamwork and information sharing. In week 13, we studied digital tools and their affordances. In week 14, we examined the roles of different social media platforms. In week 15, we practiced collaboration and communication using social media. Finally, in week 16, we focused on responsible and effective use of social media.

MARKING SCHEMES FOR THE KEY ASSESSMENTS

WEEK 13

Question 1

Criteria	Excellent	Good	Satisfactory	Need Improvement
First Benefit Identified	Identifies a clear, relevant benefit of using digital tools (e.g., saves time, improves quality, allows easy editing, enables collaboration). (1 mark)	Identifies a relevant benefit with adequate clarity. (1 mark)	Identifies a benefit with basic clarity. (1 mark)	Identifies a benefit with limited clarity. (1 mark)
First Benefit Explained	Clearly explains how the first benefit makes the task easier or better than doing it without technology. Explanation is detailed and logical. (1 mark)	Explains the first benefit with good reasoning. (1 mark)	Explains the first benefit with basic reasoning. (1 mark)	Provides limited explanation of the first benefit. (1 mark)
First Specific Example	Provides a specific, relevant example showing how the digital tool demonstrates this benefit (e.g., "Using Microsoft Word allows you to easily edit and correct mistakes, whereas with pen and paper you would have to rewrite the whole page"). (1 mark)	Provides a good example with adequate detail. (1 mark)	Provides a basic example with limited detail. (1 mark)	Provides a vague or unclear example. (1 mark)
Second Benefit Identified	Identifies a second clear, relevant benefit different from the first (e.g., improves communication, increases accessibility, allows sharing). (1 mark)	Identifies a second relevant benefit with adequate clarity. (1 mark)	Identifies a second benefit with basic clarity. (1 mark)	Identifies a second benefit with limited clarity. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Second Benefit Explained	Clearly explains how the second benefit makes the task easier or better than doing it without technology. Explanation is detailed and logical. (1 mark)	Explains the second benefit with good reasoning. (1 mark)	Explains the second benefit with basic reasoning. (1 mark)	Provides limited explanation of the second benefit. (1 mark)
Second Specific Example	Provides a specific, relevant example showing how the digital tool demonstrates this benefit (e.g., "Using Google Docs allows multiple people to work on the same document at the same time from different locations, whereas with paper documents only one person can work on it at a time"). (1 mark)	Provides a good example with adequate detail. (1 mark)	Provides a basic example with limited detail. (1 mark)	Provides a vague or unclear example. (1 mark)

Question 2:

Criteria	Excellent	Good	Satisfactory	Need Improvement
Description of Impact on Learning	Clearly describes how digital tools have changed the way we learn (e.g., access to online courses, interactive learning, personalised learning, immediate feedback). Explanation shows understanding of how learning has changed. (1 mark)	Describes how digital tools have changed learning with good clarity. (1 mark)	Describes how digital tools have changed learning with basic clarity. (1 mark)	Provides limited description of impact on learning. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Example of Learning Impact	Provides a specific, relevant example showing how digital tools have made learning different or better (e.g., “Students can now access educational videos on YouTube to learn topics at their own pace, whereas before they had to wait for classroom instruction”). (1 mark)	Provides a good example with adequate detail. (1 mark)	Provides a basic example with limited detail. (1 mark)	Provides a vague or unclear example. (1 mark)
Description of Impact on Information Access	Clearly describes how digital tools have changed the way we access information (e.g., instant access to information, search engines, online databases, global information). Explanation shows understanding of how information access has changed. (1 mark)	Describes how digital tools have changed information access with good clarity. (1 mark)	Describes how digital tools have changed information access with basic clarity. (1 mark)	Provides limited description of impact on information access. (1 mark)
Example of Information Access Impact	Provides a specific, relevant example showing how digital tools have made information access different or better (e.g., “Using Google Search, you can find information on almost any topic in seconds, whereas before you had to go to a library and search through books”). (1 mark)	Provides a good example with adequate detail. (1 mark)	Provides a basic example with limited detail. (1 mark)	Provides a vague or unclear example. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Description of Impact on Collaboration	Clearly describes how digital tools have changed the way we collaborate with others (e.g., real-time communication, remote collaboration, file sharing, instant messaging). Explanation shows understanding of how collaboration has changed. (1 mark)	Describes how digital tools have changed collaboration with good clarity. (1 mark)	Describes how digital tools have changed collaboration with basic clarity. (1 mark)	Provides limited description of impact on collaboration. (1 mark)
Example of Collaboration Impact	Provides a specific, relevant example showing how digital tools have made collaboration different or better (e.g., "Using video conferencing tools like Zoom, teams can meet and work together from different countries, whereas before they had to be in the same room"). (1 mark)	Provides a good example with adequate detail. (1 mark)	Provides a basic example with limited detail. (1 mark)	Provides a vague or unclear example. (1 mark)

WEEK 14

Question 1

Criteria	Excellent	Good	Satisfactory	Need Improvement
Benefit for Communication	Clearly explains one benefit of social media for communication (e.g., allows instant messaging, connects people, enables quick contact). (1 mark)	Explains a benefit for communication with adequate clarity. (1 mark)	Explains a benefit for communication with basic clarity. (1 mark)	Provides limited or unclear explanation. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Benefit for Information Sharing	Clearly explains one benefit of social media for information sharing (e.g., allows sharing news, spreads information quickly, reaches many people). (1 mark)	Explains a benefit for information sharing with adequate clarity. (1 mark)	Explains a benefit for information sharing with basic clarity. (1 mark)	Provides limited or unclear explanation. (1 mark)
Benefit for Building Communities	Clearly explains one benefit of social media for building communities (e.g., connects people with similar interests, creates groups, brings people together). (1 mark)	Explains a benefit for building communities with adequate clarity. (1 mark)	Explains a benefit for building communities with basic clarity. (1 mark)	Provides limited or unclear explanation. (1 mark)
Clarity and Organisation	Response is clear, well-organised, and easy to follow. (1 mark)	Response is mostly clear and organised. (1 mark)	Response is adequately organised but could be clearer. (1 mark)	Response is poorly organised or difficult to follow. (1 mark)

Question 2

Criteria	Excellent	Good	Satisfactory	Need Improvement
Benefit for Communication	Clearly explains one benefit of social media for communication. (1 mark)	Explains a benefit for communication with adequate clarity. (1 mark)	Explains a benefit for communication with basic clarity. (1 mark)	Provides limited or unclear explanation. (1 mark)
Example for Communication	Provides a specific example showing how social media helps communication (e.g., "You can message friends instantly instead of waiting for a phone call"). (1 mark)	Provides a good example with adequate detail. (1 mark)	Provides a basic example with limited detail. (1 mark)	Provides a vague or unclear example. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Benefit for Information Sharing	Clearly explains one benefit of social media for information sharing. (1 mark)	Explains a benefit for information sharing with adequate clarity. (1 mark)	Explains a benefit for information sharing with basic clarity. (1 mark)	Provides limited or unclear explanation. (1 mark)
Example for Information Sharing	Provides a specific example showing how social media helps information sharing (e.g., "News spreads quickly on social media so people can learn about events immediately"). (1 mark)	Provides a good example with adequate detail. (1 mark)	Provides a basic example with limited detail. (1 mark)	Provides a vague or unclear example. (1 mark)
Benefit for Building Communities	Clearly explains one benefit of social media for building communities. (1 mark)	Explains a benefit for building communities with adequate clarity. (1 mark)	Explains a benefit for building communities with basic clarity. (1 mark)	Provides limited or unclear explanation. (1 mark)
Example for Building Communities	Provides a specific example showing how social media helps build communities (e.g., "People with the same interests can join groups and connect with each other"). (1 mark)	Provides a good example with adequate detail. (1 mark)	Provides a basic example with limited detail. (1 mark)	Provides a vague or unclear example. (1 mark)

WEEK 15

Criteria	Excellent	Good	Satisfactory	Need Improvement
Profile Picture	Picture is professional, appropriate, and clearly represents the learner in a positive way. Shows effort and thought in selection or creation. (1 mark)	Picture is appropriate and represents the learner professionally. (1 mark)	Picture is present but may lack professionalism or clarity. (1 mark)	Picture is missing or inappropriate. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Headline/Title	Headline is clear, specific, and reflects a realistic career goal or aspiration. Shows strategic thinking about professional identity (e.g., “Aspiring Software Engineer specialising in AI” rather than just “Student”). (1 mark)	Headline is clear and reflects a career goal or aspiration. (1 mark)	Headline is present but generic or vague. (1 mark)	Headline is missing or unclear. (1 mark)
Professional Summary - Content	Summary is well-written (50–100 words), clearly explains interests, skills, and career goals. Shows strategic thinking about how to present oneself professionally. (1 mark)	Summary is well-written, explains interests and goals with adequate detail. (1 mark)	Summary is present but may lack detail or be outside word count. (1 mark)	Summary is missing or poorly written. (1 mark)
Professional Summary - Quality	Summary is engaging, professional in tone, and demonstrates self-awareness about strengths and aspirations. (1 mark)	Summary is professional and demonstrates good self-awareness. (1 mark)	Summary is adequate but could be more engaging or professional. (1 mark)	Summary lacks professionalism or self-awareness. (1 mark)
Three Skills - Relevance	All three skills are relevant to the stated career goal and show strategic thinking about what skills are needed. (1 mark)	Two or three skills are relevant to the career goal. (1 mark)	Skills are listed but may lack clear relevance to career goal. (1 mark)	Skills are missing or irrelevant. (1 mark)
Three Skills - Specificity	Skills are specific and clearly defined (e.g., “Python programming” rather than just “coding”). (1 mark)	Skills are mostly specific and clearly defined. (1 mark)	Skills are somewhat specific but could be clearer. (1 mark)	Skills are vague or unclear. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Two Achievements – Quality	Achievements are specific, realistic, and demonstrate accomplishment or growth. Show strategic thinking about what is worth highlighting. (1 mark)	Achievements are specific and demonstrate accomplishment. (1 mark)	Achievements are present but may lack specificity or clarity. (1 mark)	Achievements are missing or vague. (1 mark)
Two Achievements – Relevance	Both achievements are relevant to the stated career goal and demonstrate progress towards it. (1 mark)	One or both achievements are relevant to the career goal. (1 mark)	Achievements are present but may lack clear relevance. (1 mark)	Achievements lack relevance to career goal. (1 mark)
First Connection – Identification	First connection is clearly identified with specific details about who they are and their professional role or expertise. (1 mark)	First connection is identified with adequate detail. (1 mark)	First connection is identified but with limited detail. (1 mark)	First connection is missing or unclear. (1 mark)
First Connection – Justification	Justification clearly explains WHY this specific person was chosen (e.g., “They work in AI development, which is my career goal” or “They are a mentor who can guide my learning”). Shows strategic thinking about professional networking. (1 mark)	Justification explains why this person was chosen with good reasoning. (1 mark)	Justification is present but may lack depth or clarity. (1 mark)	Justification is missing or unclear. (1 mark)
Second Connection – Identification	Second connection is clearly identified with specific details about who they are and their professional role or expertise. (1 mark)	Second connection is identified with adequate detail. (1 mark)	Second connection is identified but with limited detail. (1 mark)	Second connection is missing or unclear. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Second Connection - Justification	Justification clearly explains WHY this specific person was chosen. Shows strategic thinking about how this connection supports professional goals. (1 mark)	Justification explains why this person was chosen with good reasoning. (1 mark)	Justification is present but may lack depth or clarity. (1 mark)	Justification is missing or unclear. (1 mark)
Overall Professional Presentation	Profile is well-organised, professional in appearance, and demonstrates sophisticated understanding of what makes an effective LinkedIn profile. Shows strategic thinking throughout. (1 mark)	Profile is well-organised and professional. Demonstrates good understanding of LinkedIn profiles. (1 mark)	Profile is adequately organised but could be more professional. (1 mark)	Profile is poorly organised or lacks professionalism. (1 mark)
Strategic Thinking and Coherence	All elements work together to create a coherent professional identity. Shows sophisticated understanding of how to present oneself strategically for career goals. (1 mark)	Most elements work together to create a professional identity. (1 mark)	Elements are present but may lack coherence. (1 mark)	Elements lack coherence or strategic thinking. (1 mark)

WEEK 16

Criteria	Excellent	Good	Satisfactory	Need Improvement
Two Rules for Sharing Content	Both rules are clear, relevant, and show understanding of responsible content sharing. Rules are specific and practical (e.g., “I will check facts before sharing” not just “I will be careful”). (1 mark each = 2 marks)	Both rules are clear and relevant with adequate explanation. (1 mark each = 2 marks)	One or both rules are present but may lack clarity or specificity. (1 mark)	Rules are missing or unclear. (1 mark)
Two Ways to Identify Fake or Harmful Content	Both methods are clear, relevant, and show understanding of how to identify misinformation. Methods are specific and practical (e.g., “I will check the source” or “I will look for credible evidence”). (1 mark each = 2 marks)	Both methods are clear and relevant with adequate explanation. (1 mark each = 2 marks)	One or both methods are present but may lack clarity or specificity. (1 mark)	Methods are missing or unclear. (1 mark)
Two Privacy and Safety Tips	Both tips are clear, relevant, and show understanding of online safety. Tips are specific and practical (e.g., “I will use strong passwords” or “I will not share personal details with strangers”). (1 mark each = 2 marks)	Both tips are clear and relevant with adequate explanation. (1 mark each = 2 marks)	One or both tips are present but may lack clarity or specificity. (1 mark)	Tips are missing or unclear. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Two Ethical Online Behaviours	Both behaviours are clear, relevant, and show understanding of ethical online conduct. Behaviours are specific and practical (e.g., “I will not cyberbully others” or “I will respect others’ opinions”). (1 mark each = 2 marks)	Both behaviours are clear and relevant with adequate explanation. (1 mark each = 2 marks)	One or both behaviours are present but may lack clarity or specificity. (1 mark)	Behaviours are missing or unclear. (1 mark)
Organisation and Clarity	Guide is well-organised, easy to read, and clearly presents all four sections. Information is presented logically. (1 mark)	Guide is mostly well-organised and clear. (1 mark)	Guide is adequately organised but could be clearer. (1 mark)	Guide is poorly organised or difficult to follow. (1 mark)
Visual Elements and Engagement	Guide uses text, diagrams, and/or icons effectively to make it engaging and easy to understand. Visual elements enhance the message. (1 mark)	Guide uses some visual elements that support the message. (1 mark)	Guide has minimal visual elements or they add little value. (1 mark)	Guide lacks visual elements or they are confusing. (1 mark)

SECTION 3: DIGITAL COMMUNICATION AND COLLABORATION TOOLS

STRAND: ICTS IN THE SOCIETY

SUB-STRAND: Connecting and Communicating Online

Learning Outcome: *Develop and use essential skills to communicate and collaborate effectively using synchronous and asynchronous communication tools.*

Content Standard: Demonstrate knowledge and understanding of communication, collaboration, and synchronisation tools for effective information exchange in learning and work environments.

INTRODUCTION AND SECTION SUMMARY

In this section, learners will explore digital collaboration and communication tools that support both synchronous (real-time) and asynchronous (self-paced) interaction. The tools covered include Zoom, Google Meet, Gmail, Slack, WhatsApp, and Google Classroom, which enhance collaboration in education, business, and daily communication.

Learners will also learn how to create and secure online accounts, understand data protection, and apply integration and interoperability between tools to enhance workflow. This section spans Weeks 17–19 and provides practical skills for communicating securely and efficiently in a digital environment.

Focal Areas

- Week 17: Exploring Synchronous and Asynchronous Communication Tools
- Week 18: Creating and Securing Accounts on Communication Platforms
- Week 19: Integration and Interoperability and Remote Work and Virtual Collaboration

SUMMARY OF PEDAGOGICAL EXEMPLARS

In this section, exploratory learning allows learners to investigate the functions of communication and collaboration tools through hands-on practice. Discussion-based learning encourages learners to share experiences using online tools like Zoom and WhatsApp, while demonstration-based learning helps teachers showcase account setup, meeting scheduling, and message exchange processes.

Learners engage in practical exercises such as creating accounts, adjusting privacy settings, and simulating secure communication. Collaborative projects encourage learners to work in groups using shared tools like Google Docs or Microsoft Teams, while visual aids such as screenshots, step-by-step guides, and diagrams reinforce understanding. By the end of the section, learners will be confident in managing and using collaboration tools safely and effectively.

ASSESSMENT SUMMARY

Depth of Knowledge (DOK) is employed to promote critical thinking, creativity, and responsible digital practice. Teachers are encouraged to record all assessments and submit them into the Student Assessment Portal (SAP) following the timeline below.

Recommended Assessments for Section 3

- Week 17: Discussion
- Week 18: Practice Paper 2
- Week 19: Worksheet

WEEK 17

Learning Indicator: *Create and setup communication tools (synchronous (Real-time) and/or Asynchronous communication) (Zoom, Google Meet, Microsoft Teams, Facebook, other video conferencing platforms, instant messaging, telephone conversation/email, messengers, intranet, etc.)*

Recap

- Year 2 Weeks 11 & 12: Describe the evolution of the internet and identify internet service providers and their functions.
- Year 2 Week 8: Explore the purpose and uses of smartphones, digital cameras, wearable devices, game devices, e-book readers, portable and digital media players

FOCAL AREA: **COMMUNICATION TOOLS**

As communication increasingly takes place online, understanding digital tools is essential for learning, working, and connecting globally. This lesson helps learners differentiate between synchronous and asynchronous communication tools and use them effectively.

1. Understanding Communication Tools

- a. Synchronous tools are communication and collaboration technologies that allow for real-time, live interaction between participants, regardless of their physical location. They enable immediate exchange of information, ideas, and feedback. Examples of such tools include Zoom, Google Meet, Microsoft Teams, and WhatsApp calls.
- b. Asynchronous tools are communication and collaboration technologies that do not require participants to be present at the same time for interaction. Instead, they allow for an exchange of information with a time delay, where messages or content are delivered, stored, and then accessed by recipients at their convenience. Examples of such tools include Email, Google Docs comments, messaging apps (WhatsApp text messaging, Slack), and discussion boards.
- c. Traditional communication tools or methods generally refer to methods of conveying information that existed and were widely used *before* the widespread adoption of digital and internet-based technologies. Those tools include Phone calls, letters, and SMS.
- d. **Difference:** Synchronous replies are instant, while Asynchronous replies are delayed.

Sensory Adaptations

Provide large-print/high-contrast screenshots, written step-by-step guides, and verbal instructions, with captions or screen-reader support where needed. Allow use of keyboard navigation, magnification, assistive devices, extra time, or the mock worksheet for learners who have difficulty interacting directly with the platform.

2. Synchronous Communication Tools

- a. **Common features of synchronous tools are:**

- i. Live audio/video
- ii. Chat box
- iii. Reactions/emojis
- iv. Screen sharing
- v. Polls and breakout rooms
- b. To use tools like Zoom or Google Meet, follow these steps to**
 - i. Create an account
 - ii. Schedule a meeting
 - iii. Share the invite link
 - iv. Host, mute/unmute, use chat and screen share
- c.** These are examples of how they are used - online classes, team meetings, webinars, and interviews

3. Asynchronous Communication Tools

- a.** Asynchronous communication platforms include - Email, Slack, WhatsApp (text), Google Docs/Sheets, Microsoft Teams (channels)
- b.** Key Features of these tools include:
 - i. File sharing
 - ii. Leaving comments or tagged notes
 - iii. Organising threads/conversations
 - iv. Editing shared documents anytime
- c.** These are examples of how they are used: Group projects, remote collaboration, review and feedback, and homework submissions

Learning Tasks

Task: Match and Demonstrate

Instructions

- a.** Learners are given a mix of communication scenarios (for example, “group assignment in different time zones,” “emergency school announcement”).
- b.** In small groups of 4–6, ensuring a mix of abilities, skills, and gender where possible, they:
 - i.** Match each scenario with the most suitable tool (synchronous or asynchronous).
 - ii.** Select one tool and prepare a short demonstration (for example, how to schedule a Zoom meeting, send a voice note on WhatsApp, or comment on a Google Doc).
- c.** Groups present their match and tool demo in 2–3 minutes.

Sensory Adaptations

Provide scenarios in multiple formats (large-print/high-contrast text, pictorial prompts, and read-aloud instructions etc) to support learners with visual or hearing-related needs. Allow learners to demonstrate communication tools using text, voice, captions, screenshots, or assistive technologies, according to their sensory and communication needs.

Pedagogical Exemplars

- **Live Demonstration:** Teacher shares screen to show how to start a Google Meet or comment on a shared Google Doc.
- **Peer Teaching:** Learners work in pairs—one explains a tool they know (e.g., WhatsApp) to the other.
- **Group work & Scenario Role-Play:** Learners work in small groups of 4–6, ensuring a mix of abilities, skills, and gender where possible to explore issues surrounding synchronous and asynchronous tools. They discuss and practice the use of the tools and present findings in a presentation to the entire class.

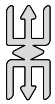
Key Assessment Level 3: Discussion

1. Describe the advantages and disadvantages of synchronous and asynchronous communication tools for different scenarios (e.g., brainstorming vs. progress reports).
2. Analyse a specific communication scenario (e.g., group project, client presentation) and recommend the most suitable communication tool based on its features and the needs of the participants.

PLC Session 17

45 minutes Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

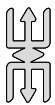
- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Plan the week's key assessment with your app

- The key assessment for the week is **discussion**. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the discussion (NTS 3k-3q).

10 minutes Content Exploration

- As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - all teachers in the group work through a similar problem individually for 3–4 minutes
 - the group then works through the problem together step by step
 - highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?
- If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.
- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes Enactment

- Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
 - Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - After the enactment, ask for structured feedback from the group
 - was the concept explained in a way that a learner with no prior knowledge could follow?
 - were the examples grounded in contexts familiar to Ghanaian learners?
 - did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection
7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b). 8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g). 9. Remember to a. transfer your chats into your learning planner template. b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a). c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.	

WEEK 18

Learning Indicator: *Create and Setup communication tools (synchronous (Real-time) and/ or Asynchronous communication) (Zoom, Google Meet, Microsoft Teams, Facebook, other video conferencing platforms, instant messaging, telephone conversation/email, messengers, intranet, etc.)*

Recap

- Year 2 Weeks 11 & 12: Describe the evolution of the internet and identify internet service providers and their functions.
- Year 2 Week 8: Explore the purpose and uses of smartphones, digital cameras, wearable devices, game devices, e-book readers, portable and digital media players

FOCAL AREA: **SETTING UP ACCOUNTS**

Creating and managing user accounts is the first step in using digital communication tools. This lesson equips learners with skills to set up accounts securely, protect their personal data, and understand privacy settings.

1. Create Accounts and Configure Tools

- a. Follow the following steps to Create Accounts on any of the following digital communication tools: Gmail, Zoom,
 - i. Enter basic information (name, email, password).
 - ii. Verify email or phone number.
 - iii. Set a strong password and enable 2-step verification.
 - iv. Customise profile (photo, time zone, language).
 - v. Connect tools (e.g., sync calendar or contacts).
 - vi. Adjust notification preferences.
 - vii. Manage roles and permissions (for group tools like Teams or Zoom).

2. Security and Privacy

- a. **Applying the following security concepts ensures online safe communications:**
 - i. **Encryption:** Encryption is the process of converting/scrambling information or data into a code to prevent unauthorised access. It ensures data is readable only by intended users. When you send an email, a message on a chat app, or make a video call, encryption ensures that the content of your communication is kept private. If an unauthorised person intercepts the communication, they will only see scrambled, unreadable data.
 - ii. **Authentication:** Authentication is the process of verifying the identity of a user, system, or device. It answers the question: “Are you who you say you are?”. Online communication tools utilise mechanisms such as passwords or One-Time passwords (OTP) and two-factor authentication to confirm a user’s identity.

- iii. **Access Control:** Access control determines what an authenticated user (or system) is permitted to do or access within a system or application. It answers the question: “What are you allowed to do once you’re in?”. For example, it restricts who can view or edit content (e.g., “view only” links).

b. Privacy Best Practices:

- i. Don’t share login details.
- ii. Avoid using public Wi-Fi without a VPN.
- iii. Regularly update passwords.
- iv. Limit app permissions. For example, app access to the microphone, location, etc.

c. Compliance and Data Protection:

- i. Awareness of laws like Ghana’s Data Protection Act or the EU General Data Protection Regulations (GDPR).
- ii. Be cautious when handling others’ personal or sensitive data online.
- iii. Respect digital consent (e.g., sharing images or documents of others).

Learning Tasks

Task: Secure Account Setup Simulation

Instructions

- a. Each learner selects a platform (Zoom, Gmail, or Slack—depending on devices available).
- b. Teacher guides step-by-step creation of an account or uses a demo account if already signed up.
- c. Learners then:
 - i. Set a strong password
 - ii. Enable 2FA (where applicable)
 - iii. Adjust privacy and notification settings
 - iv. Link a calendar or set profile preferences
- d. If internet access is limited, learners can complete a **mock setup worksheet** simulating each step.

Sensory Adaptations

Provide large-print/high-contrast screenshots, written step-by-step guides, and verbal instructions, with captions or screen-reader support where needed. Allow use of keyboard navigation, magnification, assistive devices, extra time, or the mock worksheet for learners who have difficulty interacting directly with the platform.

Pedagogical Exemplars

- **Live Demonstration by Teacher:** The teacher shows how to set up a Zoom or Gmail account using a projector.
- **Think-Pair-Share:** Discuss “What makes a password strong?” or “Why is 2FA important?”

Key Assessment: Practice Paper 2

DoK Level 2

1. Describe two reasons why using a professional or appropriate username is important when using communication tools in academic or professional settings. Give a specific example for each reason showing how a professional username helps. (5 marks)
2. Identify two situations where it might be necessary to create separate accounts on the same communication platform (e.g., one for personal use and one for professional use). For each situation, explain why keeping accounts separate is important. (6 marks)

Hint



Conduct **Practice Paper 2**. It should cover the contents taught from Year 1 to 3. Refer to the **Table of Specification and Structure of the Paper** at the end of this section. Learners' papers should be marked immediately and scores entered into the SAP.

Table of Item Specification (Paper 1, 2 & 3)

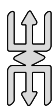
Strand	Sub-Strand	Learn-ing Out-come	Content Standard	Learn-ing In-dicator	Levels of Assessment					Remarks
					1	2	3	4	Total Items	
Strand 1: ICT in Society	Organ-ising, Man-aging & Pre-senting Informa-tion	1.1.1.LO.1 Create multime-dia docu-ments	1.1.1.CS.1 Use com-puting tools re-sponsibly	1.1.1.LI.2 Create, edit and format text	6	4	0	0	10	Objective + Theory + Practical (MS Word) (Paper 1, Paper 2 & Paper 3)
		2.1.1.LO.1 Utilise spread-sheet for data analysis	2.1.1.CS.1 Analyse numerical data	2.1.1.LI.2 Use for-mulae & functions	5	5	2	0	12	Objective + Theory + Practical (Excel) (Paper 1, Paper 2 & Paper 3)
		3.1.1.LO.1 Commu-nicate using presenta-tion tools	3.1.1.CS.1 Use pres-entation & publishing software	3.1.1.LI.2 Develop slides & publica-tions	4	4	2	0	10	Objective + Practical (PowerPoint & Publisher) (Paper 1 & Paper 3)
	Emerging Technol-ogies & Applica-tions	1.1.2.LO.1 Explain digital platforms	1.1.2.CS.1 Understand emerging technolo-gies	1.1.2.LI.1 Explain digital devices	4	3	0	0	7	Objective questions (Paper 1)

	Connect- ing & Commu- nicating Online	1.1.3.LO.1 Use Internet applica- tions	1.1.3.CS.1 Understand Internet use	1.1.3.LI.2 Use email & IP ad- dressing	6	4	0	0	10	Objective + Theory (Paper 1 & Paper 2)
Strand 2: Net- work Systems	Guided & Unguided Network Systems	2.2.1.LO.1 Under- stand network models & protocols	2.2.1.CS.1 Basic knowledge of net- works	2.2.1.LI.2 Explain protocols (TCP/ IP, FTP, SMTP)	6	5	1	0	12	Objective & Theory (Paper 1 & Paper 2)
	Com- puter & Infor- mation Security	2.2.2.LO.1 Evaluate ICT risks & pre- vention	2.2.2.CS.1 Understand safety & security	2.2.2.LI.1 Discuss risks & pre- ventive meas- ures	7	6	1	0	14	Objective + Theory + Practical (Paper 1, Paper 2 & Paper 3)

PLC Session 18

45 minutes
Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous session, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand.
 - b. identify three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q).
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



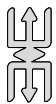
Note

- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Use your app to plan and administer the mode of assessment for the Student Assessment Portal (SAP).
 - a. The key assessment for the week is **Practice Paper 2**. Chat with your app to plan this assessment by reviewing or developing the assessment items/tasks and marking schemes/rubrics for the practice paper (NTS 3k-3q).

10 minutes	Content Exploration
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5. As a subject group, select one problem or topic/idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - b. all teachers in the group work through the problem individually for 3–4 minutes
 - c. the group then works through it together the problem, step by step
 - d. highlight the most common errors made at each step (NTS 1c, 1e, 2c, 2e, 3e-3j).


Note

- This part is not 'How do I teach this?' but how do I teach it for learners to understand?
- If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.
- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes	Enactment
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6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - b. After the enactment, ask for structured feedback from the group
 - i. was the concept explained in a way that a learner with no prior knowledge could follow?
 - ii. were the examples grounded in contexts familiar to Ghanaian learners?
 - iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection
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7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).

9. Remember to

- a.** transfer your chats into your learning planner template.
- b.** read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
- c.** integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 19

Learning Indicator: *Create and Setup communication tools (synchronous (Real-time) and/ or Asynchronous communication) (Zoom, Google Meet, Microsoft Teams, Facebook, other video conferencing platforms, instant messaging, telephone conversation/email, messengers, intranet, etc.)*

Recap

- Year 2 Weeks 11 & 12: Describe the evolution of the internet and identify internet service providers and their functions.
- Year 2 Week 8: Explore the purpose and uses of smartphones, digital cameras, wearable devices, game devices, e-book readers, portable and digital media players

FOCAL AREA: REMOTE WORK AND LEARNING

Integration and Interoperability for Remote Work and Virtual Collaboration.

Learners are to explore integration and interoperability options for communication tools to streamline workflows and enhance productivity and also explore remote working and virtual collaboration

In today's digital era, mobile integration has emerged as a game-changer, allowing employees to communicate and collaborate seamlessly, regardless of their location. Here's how mobile integration enhances communication and collaboration within organisations:

Goals

1. **Centralised communication** between teachers and learners.
2. **Efficient content delivery and assignment management.**
3. **Collaborative learning tools.**
4. **Integration with Ghana Education Service (GES) platforms (e.g., iCampusGH).**

Key Communication Tools for Education in Ghana (and their potential for integration)

1. **Learning Management Systems (LMS):** Platforms like Google Classroom (widely used and often free), and Moodle are central. They offer features for assignment submission, grading, announcements, and resource sharing
2. **Video Conferencing Tools:** Zoom, Google Meet, Facebook Zoom, Slack or Microsoft Teams are crucial for synchronous online lessons, group discussions, and virtual consultations with teachers and learners.
3. **Instant Messaging/Collaboration Platforms:** WhatsApp (highly prevalent in Ghana for general communication), Slack, or Microsoft Teams can facilitate quick communication, group chats for projects, and informal discussions.
4. **Productivity Suites:** Google Workspace (Docs, Sheets, Slides, Drive) and Microsoft Office 365 (Word, Excel, PowerPoint, OneDrive) enable collaborative document creation, sharing, and storage.

5. **Content Creation and Engagement Tools:** Kahoot!, Quizizz, EdPuzzle, and Canva can make learning interactive and allow students to create and share their work.
6. **Offline Solutions:** Tools like CENDLOS's iBox are vital for areas with limited or no internet access, providing offline access to educational content.

Integration Options to Streamline Workflows

Centralised LMS as the Hub: The teacher can position the chosen LMS (e.g., Google Classroom) as the primary platform for all academic activities.

Integration

Assignment Submission: Students submit assignments directly through the LMS, linking to documents created in Google Docs or Microsoft Word.

Announcements and Calendar: Teachers post announcements and deadlines on the LMS, which can integrate with Google Calendar or other scheduling tools.

Offline-Online Synergy (Crucial for Ghana): this can be done through the following:

- a. **Concept:** Combine offline learning resources with online communication when connectivity allows.
- b. **Integration**
 - i. **iBox/Offline Content:** Students access core learning materials and interactive exercises offline.
 - ii. **Syncing when Online:** When internet access is available (e.g., during school hours, or at internet cafes), students can sync their progress, submit completed assignments, and participate in online discussions or live classes.
 - iii. **Blended Learning Models:** Design workflows that account for periods of both online and offline learning.

Interoperability Options for Enhanced Productivity

Cloud-Based Platforms

1. **Accessibility:** Students can access their work and communication tools from any device with an internet connection (computer, smartphone).
2. **Automatic Updates:** Cloud services are typically updated automatically, reducing maintenance burdens.
3. **Reduced Local Storage Needs:** Files are stored in the cloud, freeing up device storage.
4. **Relevance for Ghana:** Given varying device access, cloud-based solutions ensure students can pick up their work where they left off, regardless of the device.

Learning Tasks

Task: Using Integrated and remote virtual collaboration.

Instructions

1. Each learner selects a platform (Zoom, Google meet, facebook and zoom, Slack or Microsoft Teams depending on devices available).

2. Teacher guides step-by-step usage of the platforms for virtual lesson delivery.
3. Teacher demonstrates how to access and download learning resources from offline resources such as the iBox.

Pedagogical Exemplars

- **Whole class Discussion:** Engage learners in an open discussion on integration, interoperability, accessibility and inclusivity of communication tools and how they support remote work and virtual collaboration.
- **Think-Pair-Share:** Discuss the process of the integration and interoperability options for communication tools to streamline workflows and enhance productivity.

Key Assessment Level 4: Worksheet

1. A teacher uses WhatsApp to send assignment notifications, Google Classroom for assignment submissions, and Zoom for live lessons. The school wants to create a system where students can access everything from a single platform.

Which of the following best explains a comprehensive solution to improve this system through integration and interoperability?

- A. Switch to only using WhatsApp because most students already use it.
- B. Create a central learning portal that links Google Classroom, Zoom, and WhatsApp updates using automation tools.
- C. Stop using Zoom because live sessions use too much data.
- D. Use email for everything instead of multiple tools.

2. Suppose a school in Ghana implements an integrated platform combining Moodle for learning content, Hubtel SMS alerts for communication, and Google Sheets for tracking performance. A problem arises: students with no smartphones cannot access Moodle content.

Which of the following actions best demonstrates interoperability and inclusive design thinking?

- A. Replace Moodle with Facebook.
- B. Ignore those without smartphones; they can use printouts.
- C. Connect Moodle to SMS so text-based summaries of lessons can be sent to non-smartphone users.
- D. Require all students to buy smartphones.

3. You are leading a student project remotely. Your team uses Google Docs, WhatsApp, and Zoom. However, team members keep missing meetings and submitting different versions of the final document.

What is the most effective strategy to solve both issues using collaborative and interoperable tools?

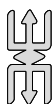
- A. Ask everyone to only communicate through WhatsApp.

- B. Hold more meetings every day to increase check-ins.
- C. Set up a shared Google Calendar for meetings and ensure all edits happen in one shared Google Doc with tracked changes.
- D. Assign one person to do all the editing and share it via email.

PLC Session 19

45 minutes	Planning & Reviewing the Learning Plan
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1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

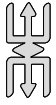
- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Plan the week's key assessment with your app
 - a. The key assessment for the week is **essay**. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the essay (NTS 3k-3q).

10 minutes	Content Exploration
-------------------	----------------------------

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)

- b. all teachers in the group work through a similar problem individually for 3–4 minutes
- c. the group then works through the problem together step by step
- d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- This part is not just about ‘How do I teach this?’ but how do I teach it for learners to understand?
- If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.
- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes

Enactment

6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - b. After the enactment, ask for structured feedback from the group
 - i. was the concept explained in a way that a learner with no prior knowledge could follow?
 - ii. were the examples grounded in contexts familiar to Ghanaian learners?
 - iii. did any misconceptions surface and if so, how were they addressed?

5 minutes

Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
 - a. transfer your chats into your learning planner template.
 - b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
 - c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

Section 3 Review

You enhanced your learning journey through the world of digital collaboration and communication. In week 17, you stepped into the fast pace of synchronous tools like Zoom and Google Meet, while also learning the flexibility of asynchronous platforms such as Gmail and Google Classroom. In week 18, you became a digital explorer, creating and securing accounts while protecting your data like a guardian of your online identity. By week 19, you were weaving tools together, integrating workflows and collaborating remotely with confidence. This adventure gave you the power to connect, protect and collaborate in the digital age.

MARKING SCHEMES FOR THE KEY ASSESSMENTS

WEEK 17

DoK Level 2

Criteria	Excellent	Good	Satisfactory	Need Improvement
Synchronous Tools Advantages	Clearly describes two advantages (e.g., real-time communication, immediate feedback, quick decisions). (1 mark)	Describes one or two advantages adequately. (1 mark)	Describes one advantage with basic clarity. (1 mark)	Limited or unclear description. (1 mark)
Synchronous Tools Disadvantages	Clearly describes two disadvantages (e.g., requires everyone online at same time, difficult for different time zones). (1 mark)	Describes one or two disadvantages adequately. (1 mark)	Describes one disadvantage with basic clarity. (1 mark)	Limited or unclear description. (1 mark)
Asynchronous Tools Advantages	Clearly describes two advantages (e.g., flexible timing, people can respond when ready, good for documentation). (1 mark)	Describes one or two advantages adequately. (1 mark)	Describes one advantage with basic clarity. (1 mark)	Limited or unclear description. (1 mark)
Asynchronous Tools Disadvantages	Clearly describes two disadvantages (e.g., slower responses, harder to make quick decisions, less personal). (1 mark)	Describes one or two disadvantages adequately. (1 mark)	Describes one disadvantage with basic clarity. (1 mark)	Limited or unclear description. (1 mark)
Scenario Examples	Gives two clear examples showing when each tool is best (e.g., brainstorming needs synchronous, progress reports use asynchronous). (1 mark)	Gives one or two examples with adequate clarity. (1 mark)	Gives one example with basic clarity. (1 mark)	Vague or missing examples. (1 mark)
Clarity and Organisation	Response is clear, well-organised, and easy to follow. (1 mark)	Response is mostly clear and organised. (1 mark)	Response is adequately organised. (1 mark)	Response is poorly organised. (1 mark)

DoK Level 3

Criteria	Excellent	Good	Satisfactory	Need Improvement
Scenario Description	Clearly describes the communication scenario with specific details (who, what, when, why). (1 mark)	Describes the scenario with adequate detail. (1 mark)	Describes the scenario with basic detail. (1 mark)	Vague or incomplete scenario description. (1 mark)
Analysis of Participant Needs	Identifies three or more specific needs (e.g., real-time feedback, flexibility, documentation, accessibility). (1 mark)	Identifies two or three participant needs. (1 mark)	Identifies one or two needs. (1 mark)	Limited identification of needs. (1 mark)
Tool Features Analysis	Analyses features of the recommended tool (e.g., synchronous/asynchronous, cost, ease of use, accessibility). (1 mark)	Analyses one or two features adequately. (1 mark)	Analyses one feature with basic clarity. (1 mark)	Limited feature analysis. (1 mark)
Recommendation Justification	Clearly justifies why this tool is best for this scenario. Explains how tool features match participant needs. (1 mark)	Justifies recommendation with good reasoning. (1 mark)	Justifies recommendation with basic reasoning. (1 mark)	Weak or unclear justification. (1 mark)
Consideration of Alternatives	Considers why other tools would not work as well. Discusses trade-offs. (1 mark)	Mentions why other tools might not be suitable. (1 mark)	Briefly mentions alternatives. (1 mark)	Does not consider alternatives. (1 mark)
Strategic Thinking	Shows sophisticated understanding of how communication tool choice affects project success. (1 mark)	Shows good understanding of tool impact. (1 mark)	Shows basic understanding of tool impact. (1 mark)	Limited understanding of tool impact. (1 mark)
Evidence and Examples	Uses specific examples to support recommendation (e.g., "Team members are in different time zones, so asynchronous is better"). (1 mark)	Uses examples to support recommendation. (1 mark)	Uses basic examples. (1 mark)	Limited or no examples. (1 mark)
Clarity and Organisation	Response is clear, well-organised, and easy to follow. (1 mark)	Response is mostly clear and organised. (1 mark)	Response is adequately organised. (1 mark)	Response is poorly organised. (1 mark)

WEEK 18**Question 1***Reason 1*

Description of a valid reason (e.g., credibility, professionalism, identity recognition) → 1 mark

Specific, relevant example showing how a professional username helps (e.g., “john.smith@school.edu is taken seriously compared to cooldude123”) → 1 mark

Reason 2

Clear description of a second valid reason (different from the first) → 1 mark

Specific, relevant example showing how a professional username helps → 1 mark

Structure

Logical connection between reasons and examples (answers are well-structured and easy to follow) → 1 mark

Question 2*Situation 1*

Identification of a valid situation (e.g., professional work vs. personal communication) → 1 mark

Explanation of why separation is important (e.g., maintains professionalism, avoids mixing personal and work messages) → 1 mark

Situation 2

Identification of a second valid situation (different from the first) → 1 mark

Explanation of why separation is important (e.g., protects privacy, prevents accidental sharing of personal details in formal settings) → 1 mark

WEEK 19**MCQs**

1. B
2. C
3. C

SECTION 4: WEBSITES & DIGITAL MEDIA ON THE WEB

STRAND: ICTS IN THE SOCIETY

SUB-STRAND: Connecting and Communicating Online

Learning Outcome: *Develop and use essential skills to identify, analyse and apply digital media elements within websites for effective communication, accessibility and creativity.*

Content Standard: Demonstrate knowledge and understanding of different website types, multimedia elements and accessibility principles in web design and online communication.

INTRODUCTION AND SECTION SUMMARY

In this section, learners will explore the world of websites and digital media, understanding how websites use graphics, audio, video and plug-ins to make information engaging and interactive.

By studying accessibility and copyright, learners will gain awareness of inclusive and ethical web design practices, ensuring that digital content can be accessed responsibly by everyone. This section spans Weeks 20 – 22 and equips learners with the foundational knowledge of website structures, multimedia use, and legal considerations for online content.

Focal Areas

- Week 20: Introduction to Websites and Digital Media on the Web
- Week 21: Plug-ins and Add-ons, Videos and Audios on the Web
- Week 22: Accessibility, Copyright, Licensing and Ethical Web Usage

SUMMARY OF PEDAGOGICAL EXEMPLARS

Exploratory learning in this section encourages learners to examine and classify different website types such as informational, e-commerce, social media, educational, and entertainment sites. Through guided group activities, learners will analyse how digital media elements enhance the functionality and attractiveness of websites.

Teachers will use demonstrations to show how videos, audio, and plug-ins are integrated into web content and how accessibility features such as captions, alt text and responsive design improve user experience. Learners will also engage in practical evaluations of real websites to assess interactivity and compliance with copyright laws. Visual aids, code snippets and live examples will reinforce understanding, while peer discussion and reflection promote critical thinking about ethical and accessible web design.

ASSESSMENT SUMMARY

Depth of Knowledge (DOK) is applied to promote analytical thinking and creative application of concepts in digital media and web design. Teachers should record assessments and submit them into the Student Assessment Portal (SAP) as per the recommended schedule below.

Recommended Assessments for Section 4:

Week 20: Discussion

Week 21: Presentation

Week 22: Homework

WEEK 20

Learning Indicator: Discuss the types of websites and digital media on the web (Graphics, Audio, Videos, Plug-ins)

Recap

- Year 2 Weeks 11 & 12: Describe the evolution of the internet and identify internet service providers and their functions.
- Year 2 Week 8: Explore the purpose and uses of smartphones, digital cameras, wearable devices, game devices, e-book readers, portable and digital media players

FOCAL AREA: TYPES OF WEBSITES AND DIGITAL MEDIA ON THE WEB

The content will focus on Types of Websites and Graphics on the Web

What is a Website?

A website is a collection of interconnected web pages, often dynamically served from databases and computed via web runtimes that may be accessed as individual web pages through a single URL on the internet using a client like browser.

Along with traditional material such as text, websites can also feature picture media such as images or videos, as well as other files.

Types of Websites

There are several broad categories of websites depending on their function and the type of organisation they are developed for.

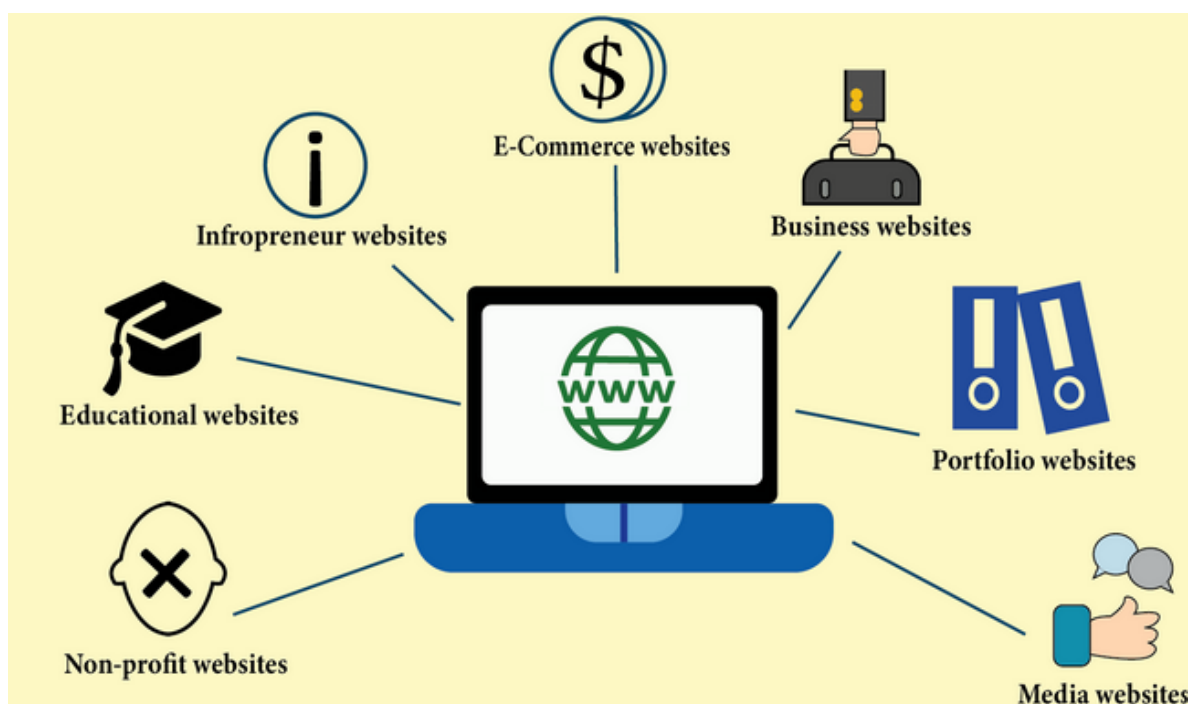


Figure 20.1: Types of Websites

1. E-commerce Website

A website that lets individuals purchase and sell goods, services, and digital products over the internet rather than at a real or physical store. A firm can use an e-commerce website to handle orders, receive payments, manage shipping and logistics, and provide customer care. These platforms often contain “.com” at the end, where “.com” means *commercial* and is commonly used by businesses. An example is Jumia, Tonaton, and <https://cardsonlinegh.com/> (where WAEC cards and placement cards are sold).

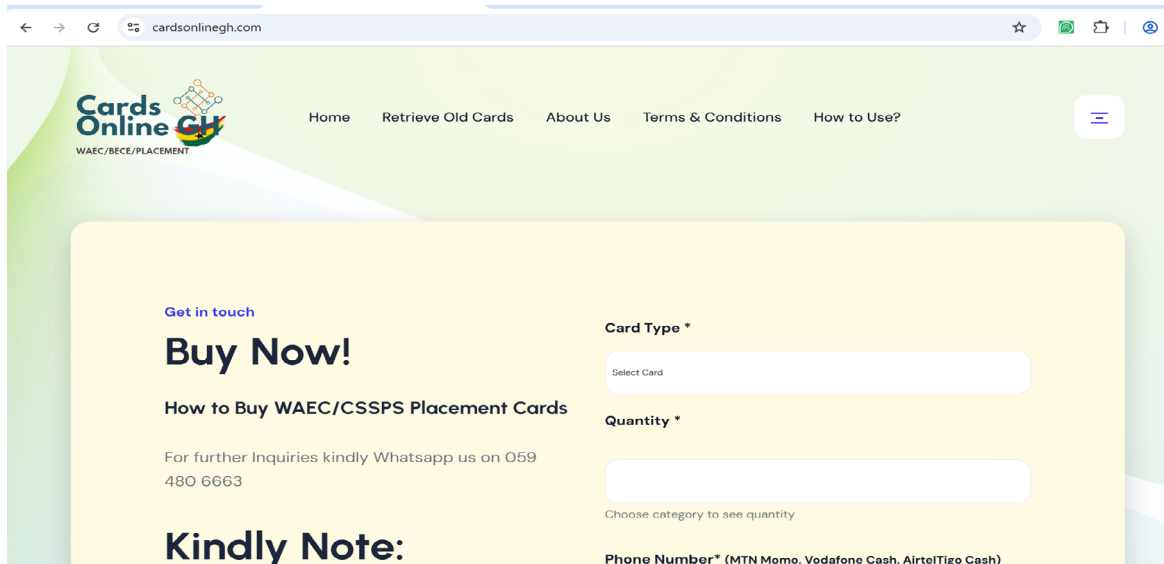


Figure 20.2: Example of E-Commerce websites

2. Educational Website

Educational websites may contain games, movies, or topic-related resources that serve as tools to increase learning and augment classroom training. These websites, especially in this day and age, serve to make the learning process more enjoyable and appealing to students. Examples include but not limited to Ghana learning Passport, **Edmodo**, and local e-learning platforms for BECE/WASSCE preparation (e.g., those offering past questions and tutorials). Khan Academy, Coursera, Duolingo, BrainPop. Many Ghanaian universities also offer e-learning portals.

They are essential for supplementing classroom learning, accessing past questions, and engaging in self-paced study.

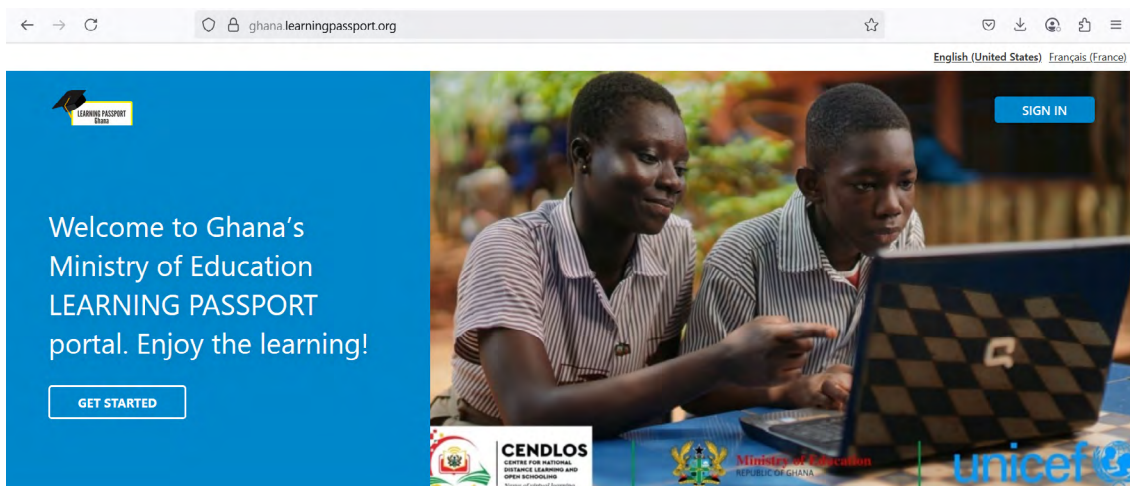


Figure 20.3: Ghana Learning Passport website

3. Business Website

A business website is typically used to give basic information about your organisation or as a direct platform for e-commerce.



Figure 20.4: Example of a Business website

4. Social Media Platforms

The main purpose is to connect people, share content (photos, videos, text), and build communities. Examples in Ghana: WhatsApp (very prevalent for instant messaging and group communication), Facebook, Instagram, YouTube, X, TikTok, Snapchat, Telegram etc. While often used for social interaction, these platforms can also be powerful tools for educational groups, sharing academic resources, and engaging in discussions. However, students must be mindful of distractions and responsible online behaviour.



Figure 20.5 Social Media Platforms

5. News and Media Websites

They are set up to provide current events, journalistic content, and public information. Examples include Graphiconline.com, MyjoyOnline.com, GhanaWeb, Citi Newsroom, BBC, CNN.

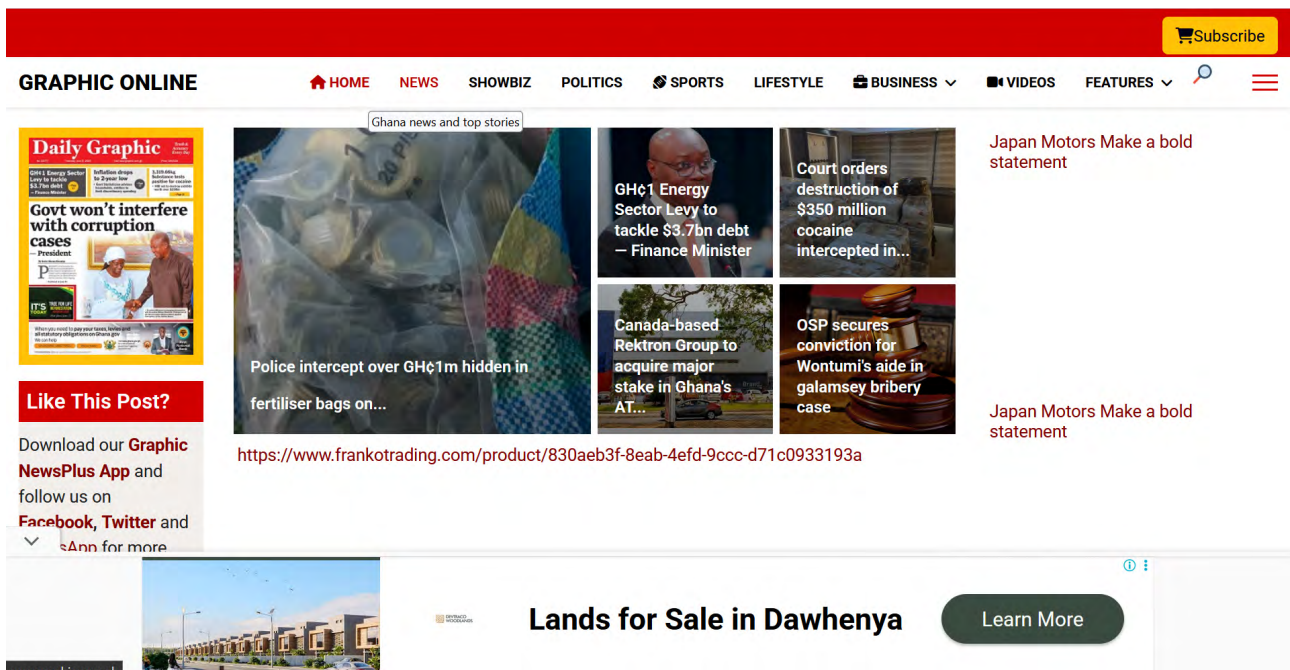


Figure 20.6 News and Media Website

6. Information/Reference Websites

They provide factual information, encyclopedic content, and research materials. Examples include Wikipedia, online dictionaries, academic databases, government websites (e.g., Ghana Education Service website). They are vital for research projects, homework assignments, and deepening understanding of various subjects. Students should always verify information from multiple reliable sources.

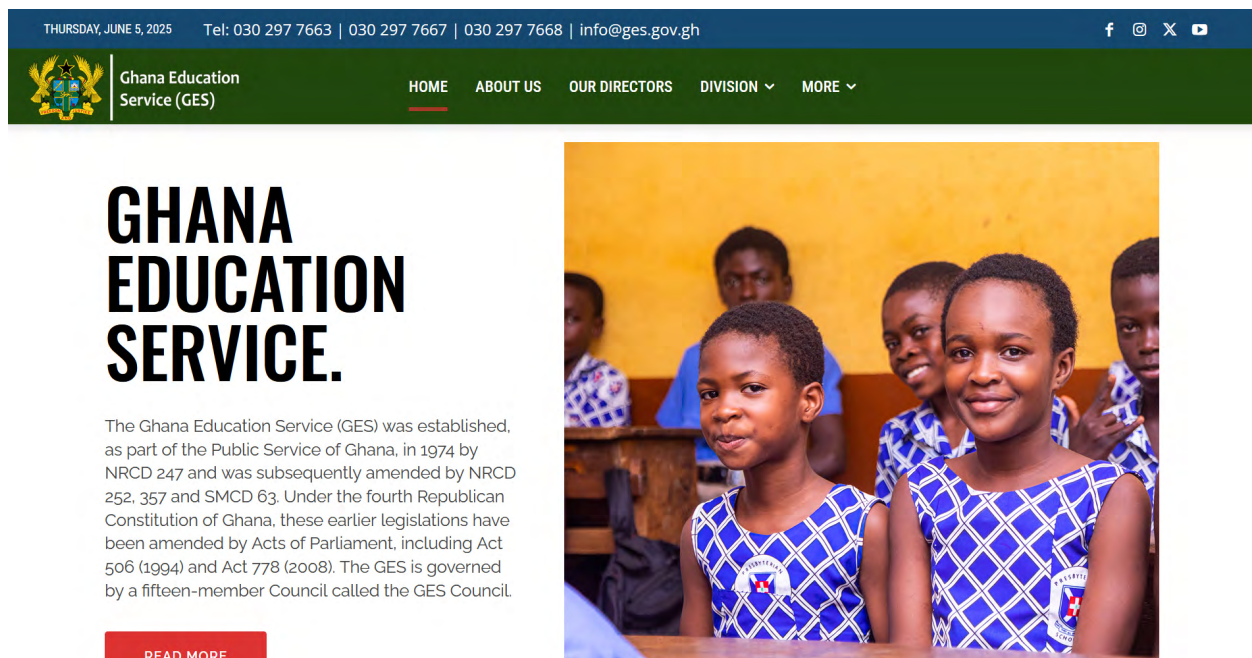


Figure 20.7: Information/Reference Website

7. Blogs and Personal Websites

People share personal opinions, experiences, specialised knowledge, or creative works on this blog. Mostly for individual writers, content creators, or small businesses showcasing their work.

8. Government and NGO Websites

Such websites provide public services, information, and updates from government bodies or non-governmental organisations. **Examples:** Websites for ministries, agencies, or NGOs operating in Ghana (e.g., KOICA Ghana). They provide and give access to official policies, job opportunities, public health information, or understanding civic processes.

Digital Media on the Web

Digital media refers to content that is created, viewed, distributed, or modified on electronic devices. On the web, it primarily includes:

Graphics (Images and Visuals)

Graphics can simply be described as any visual representation that is not text. This includes photos, illustrations, charts, diagrams, infographics, and animations.

Types of Graphics

- a. **Raster Graphics (Bitmaps):** They are images made of pixels (e.g., JPEGs, PNGs, GIFs). Ideal for photos and complex images. When scaled up, they can appear pixelated.
- b. **Vector Graphics:** Images made of mathematical paths and lines (e.g., SVGs, AI). They can be scaled to any size without losing quality, ideal for logos, icons, and illustrations.

Visuals significantly enhance understanding and retention. They can make complex information easier to grasp and make learning more engaging.

Learning Tasks

Task: Discussing the types of websites and digital media on the web (Graphics, Audio, Videos).

Instructions

1. Each learner selects a website (it can either be educational, e-commerce, personal blog, business etc.) depending on devices available.
2. The teacher provides step-by-step guidance on how to use the platforms.

Pedagogical Exemplars

1. **Peer Learning and Collaboration:** Learners collaborate to discuss and share knowledge on types of websites, graphics and audios on a webpage and their significance.
2. **Experiential learning:** In small groups of 4–6, ensuring a mix of abilities, skills, and gender where possible, practically guide learners to;
 - a. Explore different types of websites; informational websites (e.g., news sites, blogs), e-commerce websites (e.g., online stores, marketplaces), social networking sites (e.g., Facebook, Twitter), educational websites (e.g., online courses, educational resources), entertainment websites (e.g., streaming platforms, gaming sites), and corporate websites (e.g., company websites, portfolios) note down their purposes.

- b. Explore different types of graphics found on these websites (photographs, illustrations, icons, logos, buttons, banners, and infographics) and the importance of visual elements in enhancing the aesthetics, usability, and engagement of websites.
- c. Explore different types of audio content, including music, sound effects, podcasts, and voiceovers and their uses on websites to enhance user experience and engagement.

Key Assessment Level 3: Discussion

A group of final year students are tasked with designing an educational website for schools in Ghana. The website needs to include diagrams (graphics), pronunciation guides (audio), video tutorials, and interactive quizzes. However, many schools in Ghana have limited internet bandwidth and data access.

Analyse the following four approaches to organising digital media on the website. For each approach, evaluate its advantages and disadvantages in terms of supporting learning and managing data limitations. Then, recommend which approach would be most effective and justify your recommendation by explaining how it balances learning quality with data constraints.

1. Approach A: Embed all video tutorials to play automatically on the homepage to save time.
2. Approach B: Use low-resolution graphics and audio clips, offer videos as downloadable files, and use plug-ins like Google Forms for quizzes.
3. Approach C: Replace all video tutorials with long paragraphs of text to save internet bandwidth.
4. Approach D: Remove interactive quizzes to make the website load faster.

For your response

1. Evaluate the advantages and disadvantages of each approach
2. Identify which approach best supports learning while managing data limitations
3. Justify your recommendation with evidence-based reasoning
4. Discuss the trade-offs between learning quality and data efficiency

(10 marks)

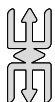
PLC Session 20

45 minutes

Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).

3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

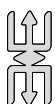
- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Plan the week's key assessment with your app
 - a. The key assessment for the week is **discussion**. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the discussion (NTS 3k-3q).

10 minutes

Content Exploration

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - b. all teachers in the group work through a similar problem individually for 3–4 minutes
 - c. the group then works through the problem together step by step
 - d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?
- If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.
- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes

Enactment

6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).

- a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
- b. After the enactment, ask for structured feedback from the group
 - i. was the concept explained in a way that a learner with no prior knowledge could follow?
 - ii. were the examples grounded in contexts familiar to Ghanaian learners?
 - iii. did any misconceptions surface and if so, how were they addressed?

5 minutes

Reflection

- 7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
- 8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
- 9. Remember to
 - a. transfer your chats into your learning planner template.
 - b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
 - c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 21

Learning Indicator: *Discuss the types of websites and digital media on the web (Graphics, Audio, Videos, Plug-ins)*

Recap

Year 2	Weeks 11 & 12: Describe the evolution of the internet and identify internet service providers and their functions.
Year 2	Week 8: Explore the purpose and uses of smartphones, digital cameras, wearable devices, game devices, e-book readers, portable and digital media players

FOCAL AREA: **BROWSER ARCHITECTURE, EXTENSIBILITY, AND MEDIA FORMATTING**

The content will focus on Plug-ins and Add-ons, Videos and Audios on the Web

Plug-ins (Browser Extensions/Add-ons)

Small software programs that add new features or enhance the functionality of a web browser (like Google Chrome, Mozilla Firefox, Microsoft Edge, Opera). They are installed directly into the browser, not onto a website.

They are installed to customise the Browse experience, block ads, manage passwords, translate pages, check grammar, enhance accessibility, or provide specific tools for web development or content creation.

Plug-ins can significantly streamline tasks, enhance learning efficiency, and improve the overall user experience by tailoring the browser to individual needs. However, students should be mindful of security and only install reputable plug-ins.

Videos

Videos are moving visual content, often accompanied by audio. They can be in the following formats: MP4, MOV, WMV, FLV. Videos are highly engaging and can convey information very effectively by combining sight and sound. They are particularly useful for demonstrating processes, showing real-world applications, and providing a dynamic learning experience. Many Ghanaian students rely on platforms like YouTube for academic enrichment.

Audio

Sound content, including spoken word, music, sound effects, and podcasts. Audio content can be saved in formats such as MP3, WAV, AAC, OGG. Audio content allows learning on the go (e.g., while walking or doing chores), caters to auditory learners, and can provide authentic speech examples for language studies.

Learning Tasks

1. Learners in groups select a website and evaluates the interactive nature in terms of videos, audios and plug-ins.
2. Teacher guides learners in the evaluation.

Pedagogical Exemplars

1. Discussion and Presentation: Learners will work in groups and use their constructed ideas from the previous lesson to create interactive multimedia (slide presentation) on:
 - The different types of video content, including promotional videos, tutorials, interviews, product demonstrations, and vlogs and their importance on websites.
 - Browser extensions and add-ons are software components that extend the functionality of web browsers. Examples include ad blockers, password managers, grammar checkers, translation tools, and productivity extensions. Modern web technologies such as WebGL, WebAssembly, and HTML5 APIs also extend the capabilities of websites and web applications.
2. Importance of responsive design in optimising websites for different devices and screen sizes.
3. Learner-led presentations: Learner (individual in a group) will be given the opportunity to lead the group to present their slideshow to the class, followed by a Q&A session. Teacher leads and makes input where necessary.

Key Assessment Level 3: Interface Design Audit Task and Presentation

Choose a website that you use regularly (e.g., your school website, a news website, a social media platform, or an educational website). Analyse how the website displays and functions on three different devices: a desktop computer, a tablet, and a mobile phone.

For each device, evaluate:

1. Layout – How is the content arranged? Is it easy to read? Are elements properly positioned?
2. Navigation – How easy is it to find information? Are menus accessible? Can you easily move between pages?
3. Content Display – How do images, text, and videos appear? Is everything visible without excessive scrolling? Are buttons and links easy to click?

Then, identify at least three areas for improvement:

1. Describe what currently doesn't work well on one or more devices
2. Explain why this is a problem for users
3. Suggest a specific improvement that would make the website better

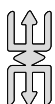
Finally, explain why responsive design is important for websites and how your suggested improvements would benefit different users.

(15 marks; allocate 5 marks each to Layout, Navigation, and Content Display criteria.)

PLC Session 21

45 minutes
Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



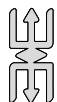
Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app
 - a. The key assessment for the week is **presentation**. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the presentation (NTS 3k-3q).

10 minutes
Content Exploration

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - b. all teachers in the group work through a similar problem individually for 3–4 minutes
 - c. the group then works through the problem together step by step
 - d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- This part is not just about ‘How do I teach this?’ but how do I teach it for learners to understand?
- If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.
- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes

Enactment

6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - b. After the enactment, ask for structured feedback from the group
 - i. was the concept explained in a way that a learner with no prior knowledge could follow?
 - ii. were the examples grounded in contexts familiar to Ghanaian learners?
 - iii. did any misconceptions surface and if so, how were they addressed?

5 minutes

Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
 - a. transfer your chats into your learning planner template.
 - b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
 - c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 22

Learning Indicator: Discuss the types of websites and digital media on the web (Graphics, Audio, Videos, Plug-ins)

Recap

- Year 2 Weeks 11 & 12: Describe the evolution of the internet and identify internet service providers and their functions.
- Year 2 Week 8: Explore the purpose and uses of smartphones, digital cameras, wearable devices, game devices, e-book readers, portable and digital media players

FOCAL AREA: TYPES OF WEBSITES AND DIGITAL MEDIA ON THE WEB

The content will focus on Accessibility Considerations, Copyright and Licensing

General Accessibility Principles (WCAG Focus)

Accessibility means designing websites so that everyone, including people with disabilities or limited digital access, can use and understand the content. In Ghana, this is especially important due to variations in internet access, electricity, devices, and physical abilities.

Why Accessibility Matters

1. It helps **students with visual or hearing impairments**.
2. It supports those using **basic phones, slow internet, or, older devices**.
3. It ensures **everyone**, regardless of location or ability, has **equal access** to learning content.

Key Accessibility Considerations by Media Type

Teachers should guide learners to always consider the following:

Graphics (Images and Charts)

1. **Use alternative text (alt text):** Add short descriptions that screen readers can read aloud for blind or visually impaired users.
2. **Avoid text in images:** If text is inside an image (e.g., a poster), also write the message in normal text on the website.
3. **Use high-contrast colours:** This helps people with low vision see images and charts more clearly.

Example: An image of the water cycle should include alt text like:

“Diagram showing water evaporation, condensation, and rainfall.”

Audio

1. **Provide transcripts:** Include a written version of audio files (e.g., voice notes, songs, spoken lessons) so people who can't hear or who have poor audio devices can still follow.

2. **Avoid autoplay:** Let users choose when to play audio, especially when they're using limited data or are in a shared space.

For example, Asante Twi, Akuapem Twi, Fante, Ga, Ewe, Gonja, Dagani, Dagaare, Nzema, Gurune, Kasem, Dangbe language audio lesson should also have them written with English translations.

Video

1. **Add captions or subtitles:** These help learners who are deaf or hard of hearing and those in noisy or quiet environments.
2. **Offer lower-quality download options:** So, learners with slow or expensive data connections can still access lessons.
3. **Provide a text summary:** This helps if the video can't load due to poor internet.

For example, a science video on photosynthesis should include English subtitles and a written summary of key points.

Plug-ins (e.g., online quizzes, interactive content)

1. **Ensure keyboard navigation:** Users with motor disabilities may rely on the keyboard instead of a mouse.
2. **Use simple, mobile-friendly plug-ins:** Avoid tools that don't work well on phones or low-end devices.
3. **Give clear instructions:** Interactive tools should have labels and tips to help learners understand what to do.

For example: An interactive drag-and-drop activity should also allow clicking for students who can't drag items.

Accessibility in the Ghanaian Context

Teachers should demonstrate to learners that in the course of designing their websites, they should take into consideration the following in the context of Ghanaian schools.

1. **Unstable internet** – provide **downloadable or offline options**.
2. **Limited devices** – design for **mobile-first** (most students use phones).
3. **Low digital literacy** – keep interfaces **simple and easy to understand**.
4. **Language barriers** – use **local languages** or translate content where possible.

Understanding Copyright and Licensing in Multimedia

What is Copyright?

Copyright is a law that gives the **creator of original content** (like music, videos, photos, or designs) the **exclusive right** to:

1. Copy
2. Share
3. Modify
4. Sell their work

It protects **multimedia content** on the web — such as:

1. **Graphics** (photos, infographics, logos)
2. **Audio** (music, podcasts, sound effects)
3. **Video** (YouTube clips, animations, movies)
4. **Plug-ins or code** (interactive quizzes, games)

What Happens if You Use Content Without Permission?

Teachers should let learners understand that if they copy or use copyrighted content **without the owner's permission**, it is called **infringement**, and it can lead to:

1. Legal actions or fines
2. Content being taken down (e.g., from YouTube or your school's website)
3. Academic consequences like losing marks for plagiarism

What is licensing?

Licensing is when the copyright holder gives others **legal permission** to use their work, often under certain conditions.

Types of Licenses You Should Know:

S/N	License Type	What It Means	Can You Use It for School Project
1.	All Rights Reserved	You cannot use it unless you ask for permission	✗ No, unless you get permission
2.	Creative Commons (CC)	Free to use, but with rules like giving credit	✓ Yes, with proper credit
3.	Public Domain	Free to use with no restrictions	✓ Yes, freely
4.	Royalty-Free	Can be used without paying each time, but may have a one-time fee	✓ Sometimes, depending on terms

Practical Tips for Students in Ghana

Teachers should guide learners to always adhere to the following Dos and Don't

Dos

1. Use content from websites that provide **free-to-use educational media**, such as:
 - a. **Pixabay, Pexels** (for images)
 - b. **Freesound.org** (for audio)
 - c. **YouTube Creative Commons** (for videos)
2. **Always give credit** to the creator if a license requires it.
3. Ask for permission if you're not sure.

Don'ts

1. Copy music, movies, or images from Google or social media without checking the license.
2. Use someone's voice or video clip in your project without their permission.
3. Remove watermarks or claim others' work as your own.

Learning Tasks

1. Learners in groups select a website and evaluates the Accessibility Considerations, Copyright and Licensing.
2. Learners in groups select different websites and other educational document to identify the various copyright conditions stated on their usage.
3. Teacher guides learners in the evaluation.

Pedagogical Exemplars

1. **Peer Learning and Collaboration:** Learners collaborate to discuss and prepare a slide presentation in groups on:
 - **Accessibility considerations** when incorporating multimedia content into websites and the importance of making websites inclusive and accessible to users with disabilities.
 - Copyright and licensing issues related to multimedia content on the web.
 - The importance of ethical and legal use of multimedia content, including proper attribution and obtaining permission when necessary.
2. **Learner-led presentations:** Learner (individual in a group) will be given the opportunity to lead the group to present their slideshow to the class, followed by a Q&A session. Teacher modulates and makes input where necessary

Key Assessment Level 2: Homework

Choose a website and analyse it for copyright concerns.

Part 1: Identify Copyright Concerns

1. Find at least three potential copyright issues on the website, such as:
2. Images or videos without attribution
3. Text copied without credit
4. Music or audio used without permission
5. Graphics without proper licensing
6. Missing copyright notices

For each issue:

1. Describe what it is
2. Explain why it's a copyright concern

3. Identify who is affected**Part 2: Propose Solutions**

For each concern, suggest how to fix it:

1. What should the website owner do?
2. What steps are needed?
3. How does this protect creators and the website?

Part 3: Reflection

Explain why copyright protection matters for:

1. Original creators and artists
2. Website owners
3. Website users

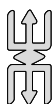
(15 marks)

PLC Session 22

45 minutes

Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
 - b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
 - c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).

**Note**

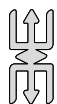
- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Plan the week's key assessment with your app

- a. The key assessment for the week is **homework**. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the homework (NTS 3k-3q).

10 minutes	Content Exploration
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5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - b. all teachers in the group work through a similar problem individually for 3–4 minutes
 - c. the group then works through the problem together step by step
 - d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?
- If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.
- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes	Enactment
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6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - b. After the enactment, ask for structured feedback from the group
 - i. was the concept explained in a way that a learner with no prior knowledge could follow?
 - ii. were the examples grounded in contexts familiar to Ghanaian learners?
 - iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection
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7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).

9. Remember to

- transfer your chats into your learning planner template.
- read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
- integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

Section 4 Review

This section on websites and digital media marked an important step in building digital fluency. We explored how graphics, audio, video and plug-ins transform information into engaging and interactive experiences. Attention was also given to accessibility, copyright, and licensing, highlighting the importance of inclusive and ethical design. Across weeks 20 to 22, the journey provided practical knowledge of website structures, multimedia integration and responsible content creation, equipping learners with skills to design web pages that inform and inspire responsibly.

MARKING SCHEMES FOR THE KEY ASSESSMENTS

WEEK 20

Rubric: Designing an Educational Website with Digital Media (Level 3)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Analysis of Approach A	Clearly evaluates both advantages and disadvantages of auto-playing videos. Explains that while it saves time, it uses excessive data and may frustrate users with slow connections. (1 mark)	Evaluates advantages and disadvantages with good reasoning. (1 mark)	Evaluates one or both aspects with basic reasoning. (1 mark)	Limited or unclear evaluation. (1 mark)
Analysis of Approach B	Evaluates advantages (low-resolution saves data, downloadable videos allow offline access, Google Forms is lightweight) and disadvantages (lower quality may affect learning). Shows sophisticated understanding of balancing quality and efficiency. (1 mark)	Evaluates advantages and disadvantages with good reasoning. (1 mark)	Evaluates one or both aspects with basic reasoning. (1 mark)	Limited or unclear evaluation. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Analysis of Approach C	Evaluates advantages (text uses minimal data) and disadvantages (removes visual and audio learning, less engaging, less effective for pronunciation guides). (1 mark)	Evaluates advantages and disadvantages with good reasoning. (1 mark)	Evaluates one or both aspects with basic reasoning. (1 mark)	Limited or unclear evaluation. (1 mark)
Analysis of Approach D	Evaluates advantages (faster loading) and disadvantages (removes important interactive learning tool, reduces engagement, limits assessment options). (1 mark)	Evaluates advantages and disadvantages with good reasoning. (1 mark)	Evaluates one or both aspects with basic reasoning. (1 mark)	Limited or unclear evaluation. (1 mark)
Recommendation of Best Approach	Identifies Approach B as most effective with sophisticated reasoning. Explains that it balances learning quality with data constraints by optimising file sizes while maintaining all media types. (1 mark)	Identifies best approach with good reasoning about why it is most effective. (1 mark)	Identifies an approach but reasoning may lack depth. (1 mark)	Does not clearly identify best approach or reasoning is unclear. (1 mark)
Justification with Evidence	Provides detailed, evidence-based justification explaining how the recommended approach supports learning while managing data limitations. References specific features (low-resolution, downloadable, plug-ins). (1 mark)	Provides good justification with reasonable evidence. (1 mark)	Provides basic justification with limited evidence. (1 mark)	Provides weak or unclear justification. (1 mark)
Discussion of Trade-offs	Discusses three or more trade-offs (e.g., quality vs. efficiency, accessibility vs. file size, engagement vs. bandwidth). Shows sophisticated understanding of competing priorities. (1 mark)	Discusses two trade-offs with good reasoning. (1 mark)	Discusses one trade-off with basic reasoning. (1 mark)	Minimal or unclear discussion of trade-offs. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Context Awareness	Demonstrates sophisticated understanding of Ghana's specific data limitations and how they affect web-site design. Considers real-world constraints. (1 mark)	Demonstrates good understanding of data limitations and their impact. (1 mark)	Demonstrates basic understanding of data constraints. (1 mark)	Limited awareness of context or constraints. (1 mark)
Strategic Thinking	Shows sophisticated understanding of how to balance multiple competing needs (learning quality, data efficiency, user experience, accessibility). (1 mark)	Shows good understanding of balancing competing needs. (1 mark)	Shows basic understanding of competing needs. (1 mark)	Limited understanding of competing needs. (1 mark)
Clarity and Organisation	Response is well-organised, clearly written, and easy to follow. Each approach is analysed systematically before making recommendation. (1 mark)	Response is mostly well-organised and clear. (1 mark)	Response is adequately organised but could be clearer. (1 mark)	Response is poorly organised or difficult to follow. (1 mark)

WEEK 21

Criteria	Excellent	Good	Satisfactory	Need Improvement
Analysis of Desktop Layout	Clearly describes how content is arranged on desktop, evaluates readability and element positioning with specific details. Shows understanding of desktop design principles. (1 mark)	Describes desktop layout with good evaluation of readability and positioning. (1 mark)	Describes desktop layout with basic evaluation. (1 mark)	Limited or unclear description of desktop layout. (1 mark)
Analysis of Tablet Layout	Clearly describes how content is arranged on tablet, evaluates readability and element positioning with specific details. Identifies differences from desktop. (1 mark)	Describes tablet layout with good evaluation and identifies some differences from desktop. (1 mark)	Describes tablet layout with basic evaluation. (1 mark)	Limited or unclear description of tablet layout. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Analysis of Mobile Layout	Clearly describes how content is arranged on mobile, evaluates readability and element positioning with specific details. Identifies significant differences from other devices. (1 mark)	Describes mobile layout with good evaluation and identifies differences from other devices. (1 mark)	Describes mobile layout with basic evaluation. (1 mark)	Limited or unclear description of mobile layout. (1 mark)
Evaluation of Navigation Across Devices	Evaluates how navigation functions on all three devices. Identifies which devices have accessible menus and which have problems. Shows understanding of navigation challenges. (1 mark)	Evaluates navigation on most devices with good reasoning. (1 mark)	Evaluates navigation on one or two devices with basic reasoning. (1 mark)	Limited evaluation of navigation. (1 mark)
Evaluation of Content Display Across Devices	Evaluates how images, text, and videos display on all three devices. Identifies visibility issues, scrolling problems, and button/link accessibility. (1 mark)	Evaluates content display on most devices with good reasoning. (1 mark)	Evaluates content display on one or two devices with basic reasoning. (1 mark)	Limited evaluation of content display. (1 mark)
Identification of First Improvement Area	Clearly describes a specific problem that doesn't work well on one or more devices. Explains why this is a problem for users. Suggests a specific, practical improvement. (1 mark)	Describes a problem with good explanation and suggests an improvement. (1 mark)	Describes a problem with basic explanation and suggests an improvement. (1 mark)	Limited description of problem or improvement. (1 mark)
Identification of Second Improvement Area	Clearly describes a second specific problem. Explains why this is a problem for users. Suggests a specific, practical improvement. (1 mark)	Describes a second problem with good explanation and suggests an improvement. (1 mark)	Describes a second problem with basic explanation and suggests an improvement. (1 mark)	Limited description of second problem or improvement. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Identification of Third Improvement Area	Clearly describes a third specific problem. Explains why this is a problem for users. Suggests a specific, practical improvement. (1 mark)	Describes a third problem with good explanation and suggests an improvement. (1 mark)	Describes a third problem with basic explanation and suggests an improvement. (1 mark)	Limited description of third problem or improvement. (1 mark)
Explanation of Responsive Design Importance	Clearly explains why responsive design is important (e.g., different devices, different user needs, accessibility, user experience). Shows sophisticated understanding. (1 mark)	Explains why responsive design is important with good reasoning. (1 mark)	Explains why responsive design is important with basic reasoning. (1 mark)	Limited explanation of responsive design importance. (1 mark)
Connection Between Improvements and User Benefits	Clearly explains how each suggested improvement would benefit different users on different devices. Shows understanding of diverse user needs. (1 mark)	Explains how improvements would benefit users with good reasoning. (1 mark)	Explains how improvements would benefit users with basic reasoning. (1 mark)	Limited explanation of user benefits. (1 mark)
Strategic Thinking and Analysis Depth	Demonstrates sophisticated understanding of responsive design principles and how they affect user experience. Shows non-routine reasoning about design challenges. (1 mark)	Demonstrates good understanding of responsive design and user experience. (1 mark)	Demonstrates basic understanding of responsive design. (1 mark)	Limited understanding of responsive design principles. (1 mark)
Clarity and Organisation	Response is well-organised, clearly written, and easy to follow. Analysis of each device is systematic. Improvements are clearly presented. (1 mark)	Response is mostly well-organised and clear. (1 mark)	Response is adequately organised but could be clearer. (1 mark)	Response is poorly organised or difficult to follow. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Specific Examples and Evidence	Uses specific examples from the website to support analysis (e.g., “The navigation menu disappears on mobile, making it hard to find pages”). (1 mark)	Uses good examples to support analysis. (1 mark)	Uses basic examples to support analysis. (1 mark)	Limited or no specific examples. (1 mark)
Comparison Across Devices	Clearly compares how the website functions differently on each device. Identifies patterns and relationships. (1 mark)	Compares devices with good reasoning. (1 mark)	Compares devices with basic reasoning. (1 mark)	Limited comparison across devices. (1 mark)
Evaluation of Trade-offs	Discusses trade-offs between different design approaches (e.g., desktop-first vs. mobile-first design, feature richness vs. simplicity). (1 mark)	Discusses some trade-offs with good reasoning. (1 mark)	Discusses one trade-off with basic reasoning. (1 mark)	Limited or no discussion of trade-offs. (1 mark)

WEEK 22

Criteria	Excellent	Good	Satisfactory	Need Improvement
Identification of First Copyright Concern	Clearly describes a specific copyright issue with concrete details. Explains why it's a concern. Identifies all affected parties. (1 mark)	Describes a copyright issue with good detail. Explains why it's a concern. Identifies affected parties. (1 mark)	Describes a copyright issue with basic detail. Explains why it's a concern. (1 mark)	Limited description or unclear explanation. (1 mark)
Identification of Second Copyright Concern	Clearly describes a second specific copyright issue with concrete details. Explains why it's a concern. Identifies affected parties. (1 mark)	Describes a second copyright issue with good detail. Explains why it's a concern. (1 mark)	Describes a second copyright issue with basic detail. (1 mark)	Limited description of second issue. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Identification of Third Copyright Concern	Clearly describes a third specific copyright issue with concrete details. Explains why it's a concern. Identifies affected parties. (1 mark)	Describes a third copyright issue with good detail. Explains why it's a concern. (1 mark)	Describes a third copyright issue with basic detail. (1 mark)	Limited description of third issue. (1 mark)
Understanding of Copyright Issues	Demonstrates sophisticated understanding of what constitutes a copyright concern. Shows awareness of legal and ethical implications. (1 mark)	Demonstrates good understanding of copyright concerns. (1 mark)	Demonstrates basic understanding of copyright concerns. (1 mark)	Limited understanding of copyright issues. (1 mark)
Solution for First Concern	Proposes a practical, specific solution. Explains what the website owner should do and what steps are needed. (1 mark)	Proposes a good solution with reasonable steps. (1 mark)	Proposes a basic solution with limited steps. (1 mark)	Proposes vague or unclear solution. (1 mark)
Solution for Second Concern	Proposes a practical, specific solution. Explains what the website owner should do and what steps are needed. (1 mark)	Proposes a good solution with reasonable steps. (1 mark)	Proposes a basic solution with limited steps. (1 mark)	Proposes vague or unclear solution. (1 mark)
Solution for Third Concern	Proposes a practical, specific solution. Explains what the website owner should do and what steps are needed. (1 mark)	Proposes a good solution with reasonable steps. (1 mark)	Proposes a basic solution with limited steps. (1 mark)	Proposes vague or unclear solution. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Protection of Creators and Website	Clearly explains how each solution protects both the original creator and the website owner. Shows understanding of mutual benefit. (1 mark)	Explains how solutions protect creators and website with good reasoning. (1 mark)	Explains how solutions protect creators or website with basic reasoning. (1 mark)	Limited explanation of protection. (1 mark)
Importance for Original Creators	Clearly explains why copyright protection matters for creators and artists. Discusses how it protects their work and rights. (1 mark)	Explains why copyright matters for creators with good reasoning. (1 mark)	Explains why copyright matters for creators with basic reasoning. (1 mark)	Limited explanation of creator protection. (1 mark)
Importance for Website Owners	Clearly explains why copyright protection matters for website owners. Discusses legal risks and reputation. (1 mark)	Explains why copyright matters for website owners with good reasoning. (1 mark)	Explains why copyright matters for website owners with basic reasoning. (1 mark)	Limited explanation of website owner protection. (1 mark)
Importance for Website Users	Clearly explains why copyright protection matters for users. Discusses trust, safety, and ethical use. (1 mark)	Explains why copyright matters for users with good reasoning. (1 mark)	Explains why copyright matters for users with basic reasoning. (1 mark)	Limited explanation of user protection. (1 mark)
Specific Examples from Website	Uses specific examples from the chosen website to support analysis (e.g., "The image on the homepage has no source attribution"). (1 mark)	Uses good examples from the website. (1 mark)	Uses basic examples from the website. (1 mark)	Limited or no specific examples. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Strategic Thinking and Analysis Depth	Demonstrates sophisticated understanding of copyright issues and their implications. Shows non-routine reasoning about solutions. (1 mark)	Demonstrates good understanding of copyright and solutions. (1 mark)	Demonstrates basic understanding of copyright. (1 mark)	Limited understanding of copyright implications. (1 mark)
Clarity and Organisation	Response is well-organised, clearly written, and easy to follow. Each concern and solution is presented systematically. (1 mark)	Response is mostly well-organised and clear. (1 mark)	Response is adequately organised but could be clearer. (1 mark)	Response is poorly organised or difficult to follow. (1 mark)
Awareness of Legal and Ethical Implications	Demonstrates sophisticated awareness of legal consequences and ethical responsibilities related to copyright. (1 mark)	Demonstrates good awareness of legal and ethical implications. (1 mark)	Demonstrates basic awareness of legal or ethical issues. (1 mark)	Limited awareness of implications. (1 mark)

SECTION 5: DEVICES FOR NETWORK SYSTEMS

STRAND: NETWORK SYSTEMS FOR TRANSMITTING INFORMATION

SUB-STRAND: Guided and Unguided Network Systems

Learning Outcome: *Develop and use essential skills to identify, describe and apply the functions of common network devices used for data communication and internet connectivity.*

Content Standard: Demonstrate knowledge and understanding of key network devices and their roles in transmitting, directing, and managing information within computer networks.

INTRODUCTION AND SECTION SUMMARY

In this section, learners will explore the devices that make network communication possible, including modems, routers, switches, hubs, access points, MiFi devices and smartphones used as hotspots. They will analyse the functions and interconnections of these devices and understand how data is transmitted securely across networks in homes, schools, and offices.

Learners will also compare wired and wireless connectivity, understand the differences between managed and unmanaged network devices, and apply this knowledge to real-world scenarios. This section spans Week 23, consolidating learners' understanding of network infrastructure and digital communication systems.

Focal Areas

- Definition and importance of network devices
- Common types of network devices (Router, Switch, Modem, Hub, Access Point, MiFi, Smartphone Hotspot)
- Comparison of wired vs wireless networking devices
- Application of network devices in real-world settings

SUMMARY OF PEDAGOGICAL EXEMPLARS

Exploratory learning enables learners to investigate and identify various network devices through demonstrations, illustrations, and hands-on observation. Teachers can display real networking hardware (such as modems, routers or access points) or visual representations for comparison.

Discussion-based learning will allow learners to describe the roles of each device, while group activities guide learners in analysing how these devices work together to establish and maintain internet connectivity. Learners will also engage in problem-solving tasks, such as designing a

simple school network or home internet setup, reinforcing their understanding of network topology and connectivity.

Demonstration and visual aids — including diagrams, tables and sample configurations — should be used to enhance conceptual clarity and link theoretical learning to practical use.

ASSESSMENT SUMMARY

Depth of Knowledge (DOK) is applied in assessing learners to ensure comprehensive understanding and application of networking concepts. Teachers should record all assessments and upload the results into the Student Assessment Portal (SAP).

Recommended Assessment for Section 5 (Week 23)

- Discussion and Practical: Identification and description of network devices.
- Class Exercise: Group-based presentation or network diagram illustrating device roles.
- Homework: Research or sketch a simple network layout showing at least four devices and their interconnections.

WEEK 23

Learning Indicator: Describe commonly used devices (e.g., broadband, modems, wireless access points, routers, hubs and switches)

FOCAL AREA: COMMONLY USED DEVICES

The content will focus on commonly used networking devices (e.g., broadband, modems, wireless access points, routers, hubs and switches).

Commonly Used Broadband Devices

Broadband devices allow multiple users to connect to the internet **at the same time** and enjoy **faster speeds** for activities like browsing, streaming, downloading, and online learning.

Modem (Modulator-Demodulator)

A **Modem** converts digital data from a computer into signals that can travel over telephone, fibre optic, or cable lines and back again.

Types of Modems

1. **DSL Modem** – connects to a phone line
2. **Cable Modem** – connects to a TV cable
3. **Fibre Modem** – connects to fibre-optic internet

Used in homes or offices (MTN Fibre Broadband, Telecel Internet, etc.)

The modem is like the gatekeeper to the internet.



Figure 23.1: Picture of a Modem

Router

A **router** distributes internet from the modem to multiple devices through **Wi-Fi** or **Ethernet cables**. It creates a **Wi-Fi network** for phones, tablets, and laptops, and can connect many users at once. It is used in most homes, schools, and cafes with internet access.

The router is like a “traffic director” for internet in your school or house.



Figure 23.2: *Picture of a Modem*

MiFi (Mobile Wi-Fi Hotspot)

These are small, portable wireless devices that act as a personal Wi-Fi hotspot. They use a SIM card to connect to a cellular network (like a smartphone) and then broadcast a Wi-Fi signal, allowing multiple devices (laptops, tablets, other smartphones) to connect to the internet simultaneously.

It is good for Students learning online, Homes without fibre or fixed broadband. **Popular brands in Ghana:** MTN TurboNet, Telecel MiFi, AT Ghana MiFi.



Figure 23.3: *Samples of MiFi used in Ghana*

Smartphones (as Hotspots)

For many Ghanaian students, their **smartphone** is their primary, and often only device for accessing the internet. These are versatile devices that combine a phone, a mini-computer, and an internet access point.

Most smartphones can share their mobile data by creating a **Wi-Fi personal hotspot**. It is handy for students in areas without routers or modems and provides the quickest way to connect a laptop to mobile internet. Your phone can also act as a mini MiFi device.

What is a Wireless Access Point (WAP)?

A **Wireless Access Point (WAP)** is a networking hardware device that allows Wi-Fi enabled devices (like smartphones, laptops, tablets) to connect to a wired network. Think of it as a

central hub that broadcasts a wireless signal, enabling all nearby compatible devices to get online without needing physical cables.

Core Function

WAPs create a Wireless Local Area Network (WLAN), allowing devices to communicate wirelessly with each other and, crucially, to access the internet if the WAP is connected to a broadband router.

How it Works

A WAP is typically connected via an Ethernet cable to a **router** (which brings the internet connection from an Internet Service Provider, ISP) or a **network switch** within an organisation.

Types of WAPs Relevant to Senior High School year 3 Learners in Ghana

1. Integrated WAPs (in Home Routers)

This is the most common type of WAP a learner would encounter at home. Most standard home Wi-Fi routers (provided by ISPs like Telecel Broadband, MTN, AT or when you buy a general Wi-Fi router) have a built-in WAP function. These devices combine a router, a WAP, and often a switch in one unit.

They provide Wi-Fi for all devices within a typical home or small office environment.

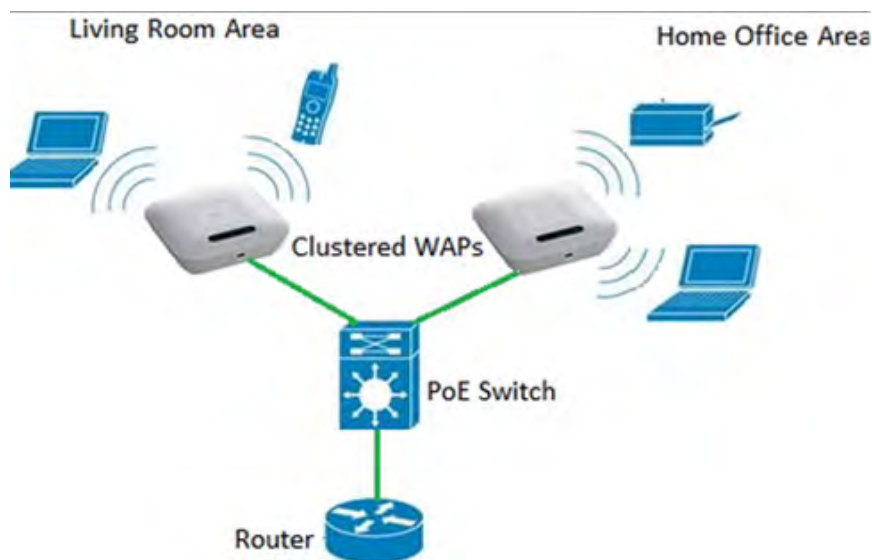


Figure 23.4: Integrated WAPs

2. Standalone WAPs

These are dedicated devices solely designed to provide Wi-Fi access. They don't have routing capabilities themselves but connect to an existing router or network.

Often found in larger settings like schools, universities, hotels, or large businesses. Multiple standalone WAPs are strategically placed to ensure strong Wi-Fi coverage across many rooms or large areas.

3. Mesh Wi-Fi Systems

These involve multiple WAPs (often called “nodes” or “points”) that work together to create a single, seamless Wi-Fi network across a larger area. They communicate with each other to extend coverage and improve signal strength.

Increasingly used in larger homes or educational institutions to eliminate Wi-Fi dead zones and provide consistent coverage throughout a building.



Figure 23.5: *Mesh Wi-Fi Systems*

Switch

A switch is essentially a multiport bridge that uses buffering and forwarding logic to enhance network performance and efficiency. A switch is a data link layer device. The switch can perform error checking before forwarding data, which makes it very efficient as it does not forward packets that have errors and forward good packets selectively to the correct switch port only. In other words, the switch divides the collision domain of hosts, but the broadcast domain remains the same.



Figure 23.6: *Switch*

Types of Switches

1. **Unmanaged Switches:** These switches have a simple plug-and-play design and do not offer advanced configuration options. They are suitable for small networks or for use as an expansion to a larger network.
2. **Managed Switches:** These switches offer advanced configuration options such as VLANs, QoS, and link aggregation. They are suitable for larger, more complex networks and allow for centralised management.
3. **Smart Switches:** These switches have features similar to managed switches but are typically easier to set up and manage. They are suitable for small- to medium-sized networks.
4. **Layer 2 Switches:** These switches operate at the Data Link layer of the OSI model and are responsible for forwarding data between devices on the same network segment.
5. **Layer 3 switches:** These switches operate at the Network layer of the OSI model and can route data between different network segments. They are more advanced than Layer 2 switches and are often used in larger, more complex networks.

6. **PoE Switches:** These switches have Power over Ethernet capabilities, which allows them to supply power to network devices over the same cable that carries data.
7. **Gigabit switches:** These switches support Gigabit Ethernet speeds, which are faster than traditional Ethernet speeds.
8. **Rack-Mounted Switches:** These switches are designed to be mounted in a server rack and are suitable for use in data centres or other large networks.
9. **Desktop Switches:** These switches are designed for use on a desktop or in a small office environment and are typically smaller in size than rack-mounted switches.
10. **Modular Switches:** These switches have a modular design that allows for easy expansion or customisation. They are suitable for large networks and data centres.

Hub

A hub is a basic networking device that works like a multiport repeater. It connects several devices together, such as in a star network layout where all computers link back to a central hub. However, hubs do not have the ability to filter or direct data — when a message is sent, it is broadcast to *all* devices connected to the hub, not just the intended recipient.

Because of this, all the devices share the same collision domain, meaning if two devices try to send data at the same time, a collision occurs. Hubs also lack the intelligence to choose the best path for sending data, which makes them inefficient and can lead to wasted bandwidth.



Figure 23.7: Hub

Types of Hubs

1. **Active Hub:** These are the hubs that have their power supply and can clean, boost, and relay the signal along with the network. It serves both as a repeater as well as a wiring centre. These are used to extend the maximum distance between nodes.
2. **Passive Hub:** These are the hubs that collect wiring from nodes and power supply from the active hub. These hubs relay signals onto the network without cleaning and boosting them and can't be used to extend the distance between nodes.
3. **Intelligent Hub:** It works like an active hub and includes remote management capabilities. They also provide flexible data rates to network devices. It also enables an administrator to monitor the traffic passing through the hub and to configure each port in the hub.

Learning Tasks

The content will focus on commonly used networking devices (e.g., broadband, modems, wireless access points, routers, network cards, hubs and switches).

1. Learners in groups discuss the uses of broadband, modems, wireless access points, routers, network cards, hubs and switches.
2. Learners differentiate between the hubs and switches and state their applications.
3. Teacher guides learners in their groups to differentiate between modems, hubs, switches and routers.

Pedagogical Exemplars

1. Discussion and Presentation: Learners will work in mixed ability groups (teachers identify abilities and position their sitting to ensure mixed ability) and use their constructed ideas from the previous lesson to create interactive multimedia (slide presentation) on commonly used devices for network systems (modem, broadband, wireless access point and Routers), their functions and their roles in enhancing communication on a network.
2. Learner-led presentations: Learners (individual in a group) will be given the opportunity to lead the group to present their slideshow to the class, followed by a Q&A session. Teacher modulates and makes input where necessary.

Key Assessment Level 3: Discussion

1. What is a switch and how does it function in a computer network?
2. What are the advantages of using switches over hubs in a network setup?
3. How does a switch help in improving network performance and managing data traffic within a network?

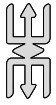
PLC Session 23

45 minutes

Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
 - a. explain the week's concepts in a practical way that will make it easier for learners to understand
 - b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
 - a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.

- b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
- c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

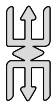
- Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.
- Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.

4. Plan the week's key assessment with your app
 - a. The key assessment for the week is **discussion**. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the discussion (NTS 3k-3q).

10 minutes

Content Exploration

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
 - a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
 - b. all teachers in the group work through a similar problem individually for 3–4 minutes
 - c. the group then works through the problem together step by step
 - d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?
- If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.
- Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.

30 minutes

Enactment

6. Enact a teaching activity based on your learning plan (NTS 1a-1b, 1e-1g, 2c, 2e, 2f, 3c-3j and 3o).
 - a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
 - b. After the enactment, ask for structured feedback from the group

- i. was the concept explained in a way that a learner with no prior knowledge could follow?
- ii. were the examples grounded in contexts familiar to Ghanaian learners?
- iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection
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7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
 - a. transfer your chats into your learning planner template.
 - b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
 - c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

Section 5 Review

This section highlighted the essential devices that power modern communication. Modems, routers, switches, hubs, access points, MiFi units and smartphone hotspots were examined to show how they connect and secure data across homes, schools, and offices. Key comparisons between wired and wireless systems, as well as managed and unmanaged devices, reinforced practical understanding.

MARKING SCHEMES FOR THE KEY ASSESSMENTS

Criteria	Excellent	Good	Satisfactory	Need Improvement
Identification of First Copyright Concern	Describes a specific copyright issue with concrete details. Explains why it's a concern. Identifies all affected parties. (1 mark)	Describes a copyright issue with good detail. Explains why it's a concern. Identifies affected parties. (1 mark)	Describes a copyright issue with basic detail. Explains why it's a concern. (1 mark)	Limited description or unclear explanation. (1 mark)
Identification of Second Copyright Concern	Describes a second specific copyright issue with concrete details. Explains why it's a concern. Identifies affected parties. (1 mark)	Describes a second copyright issue with good detail. Explains why it's a concern. (1 mark)	Describes a second copyright issue with basic detail. (1 mark)	Limited description of second issue. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Identification of Third Copyright Concern	Describes a third specific copyright issue with concrete details. Explains why it's a concern. Identifies affected parties. (1 mark)	Describes a third copyright issue with good detail. Explains why it's a concern. (1 mark)	Describes a third copyright issue with basic detail. (1 mark)	Limited description of third issue. (1 mark)
Understanding of Copyright Issues	Demonstrates sophisticated understanding of what constitutes a copyright concern. Shows awareness of legal and ethical implications. (1 mark)	Demonstrates good understanding of copyright concerns. (1 mark)	Demonstrates basic understanding of copyright concerns. (1 mark)	Limited understanding of copyright issues. (1 mark)
Solution for First Concern	Proposes a practical, specific solution. Explains what the website owner should do and what steps are needed. (1 mark)	Proposes a good solution with reasonable steps. (1 mark)	Proposes a basic solution with limited steps. (1 mark)	Proposes vague or unclear solution. (1 mark)
Solution for Second Concern	Proposes a practical, specific solution. Explains what the website owner should do and what steps are needed. (1 mark)	Proposes a good solution with reasonable steps. (1 mark)	Proposes a basic solution with limited steps. (1 mark)	Proposes vague or unclear solution. (1 mark)
Solution for Third Concern	Proposes a practical, specific solution. Explains what the website owner should do and what steps are needed. (1 mark)	Proposes a good solution with reasonable steps. (1 mark)	Proposes a basic solution with limited steps. (1 mark)	Proposes vague or unclear solution. (1 mark)
Protection of Creators and Website	Explains how each solution protects both the original creator and the website owner. Shows understanding of mutual benefit. (1 mark)	Explains how solutions protect creators and website with good reasoning. (1 mark)	Explains how solutions protect creators or website with basic reasoning. (1 mark)	Limited explanation of protection. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Importance for Original Creators	Explains why copyright protection matters for creators and artists. Discusses how it protects their work and rights. (1 mark)	Explains why copyright matters for creators with good reasoning. (1 mark)	Explains why copyright matters for creators with basic reasoning. (1 mark)	Limited explanation of creator protection. (1 mark)
Importance for Website Owners	Explains why copyright protection matters for website owners. Discusses legal risks and reputation. (1 mark)	Explains why copyright matters for website owners with good reasoning. (1 mark)	Explains why copyright matters for website owners with basic reasoning. (1 mark)	Limited explanation of website owner protection. (1 mark)
Importance for Website Users	Explains why copyright protection matters for users. Discusses trust, safety, and ethical use. (1 mark)	Explains why copyright matters for users with good reasoning. (1 mark)	Explains why copyright matters for users with basic reasoning. (1 mark)	Limited explanation of user protection. (1 mark)
Specific Examples from Website	Uses specific examples from the chosen website to support analysis (e.g., "The image on the homepage has no source attribution"). (1 mark)	Uses good examples from the website. (1 mark)	Uses basic examples from the website. (1 mark)	Limited or no specific examples. (1 mark)
Strategic Thinking and Analysis Depth	Demonstrates sophisticated understanding of copyright issues and their implications. Shows non-routine reasoning about solutions. (1 mark)	Demonstrates good understanding of copyright and solutions. (1 mark)	Demonstrates basic understanding of copyright. (1 mark)	Limited understanding of copyright implications. (1 mark)
Clarity and Organisation	Response is well-organised, clearly written, and easy to follow. Each concern and solution is presented systematically. (1 mark)	Response is mostly well-organised and clear. (1 mark)	Response is adequately organised but could be clearer. (1 mark)	Response is poorly organised or difficult to follow. (1 mark)

Criteria	Excellent	Good	Satisfactory	Need Improvement
Awareness of Legal and Ethical Implications	Demonstrates sophisticated awareness of legal consequences and ethical responsibilities related to copyright. (1 mark)	Demonstrates good awareness of legal and ethical implications. (1 mark)	Demonstrates basic awareness of legal or ethical issues. (1 mark)	Limited awareness of implications. (1 mark)

