

SECTION

7

COLOUR THEORY
AND APPLICATION



Design For Life

Colour theory and application

INTRODUCTION

Welcome to Section 7. In this section, you will continue to learn more about colour as one of the most interesting design elements. Colour has a way of affecting everything we do in life. Have you wondered why you like a particular cloth or environment? Does colour influence your personal choices such as food, dress or places you visit? This section will help you to learn about the colour world. Understanding the concepts of colour theory as both physiological experience (***a phenomena controlled by light***) and physical experience (***a pigment or physical material that can change appearance of other physical materials***) will help you to use colours and explore its positive benefits in life.

Key Ideas

Learning this section will help you to gain knowledge of the following key ideas:

- Colours can influence emotions and moods.
- Pigment and spectrum colours have different properties.
- There are special meanings attached to colours in every culture.
- Colour is described as Hue which is also the name of the colour itself.
- Colours can be described or experienced as warm or cool.
- Apart from the Primary colours, all other hues are intermediaries.

COLOUR THEORY, COLOUR SCHEMES AND MOOD EXPRESSION COLOUR THEORY.

What is colour?

In art, colour is the most fascinating and expressive element. It captures, it narrates, and it stimulates. To understand colour better, it is essential to know the properties of colours: hue, value, and intensity.

Hue refers to the colours themselves, for example, red, blue or yellow. Those are the basic colours that we are all acquainted with. Hues belong to the colour wheel, which is a wheel containing different colours arranged in a circular manner. Primary colours—red, blue and yellow – are those that cannot be obtained through fusion of other colours. When two primary colours are mixed, secondary colours such as green, orange, and purple/violet are produced.

Value describes the degree of lightness or darkness in a particular colour. Whenever you try to form a colour and then add white to it, you will create a lighter version called a tint.” A classic example is pink, which is simply a lightened version of red. On the contrary, when black is added to a colour, it is called a “shade.” Consider the contrast between a clear day where the sun is shining and the opposite of that which we call overcast. The same hue will be more intense when the sun is out than when there are clouds. This is how value works with colour.

Intensity refers to how light or dark or pale or saturated a colour might be. Bright colours come across as very bold and bright, like red in an apple or yellow in a sunflower. Dull colours are rather soft or neutral, like grey green, or pale brown. A colour can be diluted by mixing it with the colour that does not correspond to it in the colour wheel. For example, a greenish hue is said to reduce the brightness of red.

As you understand these properties, you can begin to think innovatively while using the colour to enhance the appeal of your artwork more.

Colour Wheel

A colour wheel is a circular diagram that shows the relationship between different colours. It helps artists and designers understand how colours work together and how they can be mixed to create new colours. The colour wheel is made up of three main types of colours: primary, secondary, and tertiary. The colour wheel also explains the relationships of colours for example complementary colours opposite one another on the colour wheel for example red and green it allows you to create colours that complement one another and expect blue-green under one colour. It helps designers and artists to understand and create multiple colours that suit each other for any purpose ranging from computer graphics, mural painting, textile design, poster designing, or even dressing up.

Click on this link to explore the [COLOUR WHEEL](#).

Colour Theory

Colour theory is how we perceive colours as well as why we put colours in a certain order or arrangement and how that colour works with the surrounding colours. To begin with, think of colour as language. Just as words give us the emotion of happiness or sorrow or bathed in excitement, colours also possess the same characteristics and can change our moods. This is where colour theory comes into play, we learn what is blending and how to combine colours.

Primary colours are red, yellow, and blue. It is the primary colours that are further combined to make all the other colours. Secondary colours are derived from equal ratios of primary colours. For example, red and yellow when combined, orange is produced, yellow and blue gives green, white, red and blue gives purple or violet. With the help of these secondary colours, we are able to achieve greater complexity. We then call these tertiary colours like red orange or blue green when you add a primary colour to a secondary one.

Colour mixing might be approached from its very basic concept which involves the combination of colours; however, there is more to colour theory than that. One key concept in colour theory is the colour wheel which is the arrangement of colours in a circle usage. The scales seen on the wheel allow the user to fathom the temperature a particular shade is. The warm colours include red, orange and yellow which are noticed to be so active while less warm colours such as blue, green and purple are more soothing.

Colour theory encompasses terms such as hue, value and intensity. Colour value tells how dark or how light the colour (hue) is. The degree of brightness or dullness of a colour is also portrayed as intensity. For example, a bright yellow has a lively feel whereas dull yellow has one that is more passive.

In art and design, because the theory of colour helps people visualise their ideas, it becomes necessary to learn it. Whether it is in painting, design of costumes or arrangement of space, what colours are used is very important as it will influence the feeling and the ideas that a person intends to convey.

Colour Scheme

A colour scheme is a method that basically describes how colours work together in a systematic manner. Colour schemes are essential consideration in any artistic and design endeavour and in everyday activities too. It is much like choosing the right colours to go with a particular outfit, like in the way one dresses for an occasion.

A colour scheme is derived from the colour wheel. The colour wheel is a manual used for organising and identifying colours. Despite the fact that there exist colour schemes that complement each other, there also exist colour schemes that audibly contrast to bring about a variety of colour uses. Colour schemes are vital tools that we use in enhancing consistency, design order, and once in a while, they also produce a sense of thrill in our work.

The most common types of colour schemes are monochrome, complementary, analogous, triadic, tetrads, and split complementary schemes. Every other scheme is employed by choosing a particular set of colours from the colour wheel, but differently.

Getting familiar with these colour schemes will give you confidence when making decisions in art and design, such that you will be in control of the atmosphere as well as convey a message efficiently.

Some Colour Schemes

Complementary Colour Scheme

The complementary colour scheme applies to colours that are positioned opposite each other in the colour wheel. For example, blue-orange, red-green, yellow-purple. These pairings are called complementary since their relative positions next to each other produce some sense of equilibrium and enhance each colour sharply. This type

is commonly used in arts and designs so as to attract attention or create an element of visual interest.



Figure 7.1: Complementary Colour Scheme

Everywhere in nature we see occurrences of complementary colours. For example, a sunset with its warm orange colour can have a soft blue seascape as its backdrop. You will come across complementary colours elsewhere too; red and green co-occur during Christmas and no one bats an eye.

Designers and artists alike need to carefully consider colour proportions while employing any complementary schemes. For instance, both colours when combined in excess can create a suffocating effect. There is always one colour that dominates while the other is used as a ‘pop’ such as accent in a room. For instance, in a mural, blue will be the overall colour, and orange will be used in small spots to catch the viewer’s attention.

Split-Complementary Colour Scheme

With an additional twist, a split-complementary colour scheme resembles a complementary scheme. It employs one base colour and the two hues next to its directly complementary colour on the colour wheel. For instance, if orange is your base colour and blue is your foundation colour, your split-complementary scheme would consist of the two hues adjacent to orange, red-orange and yellow-orange.

With less tension, this colour scheme offers the same amount of contrast as a complementary colour scheme. Because it can accommodate a greater variety of hues while still preserving contrast, it’s a more adaptable choice. Because of this, it’s a fantastic option for novices or anybody looking to experiment with striking colour combinations without going overboard.

Since a split-complementary scheme adds visual appeal without being overly harsh, it is frequently used in web design, advertising, and fashion. For instance, to provide variation and depth to the design of a website, you may utilise accents of red-violet and red-orange in addition to green as the primary hue.

Analogous Colour Scheme

An analogous colour scheme is a scheme that makes use of colours which are adjacent to one another on the colour wheel. These colours tend to have an underlying colour, thus making them work together on a design. An example of an analogous colour scheme is red, red-orange, and orange and other one is blue, blue-green, and green.



Figure 7.2: Analogous Colour Scheme

As these colours are close to each other in the colour wheel, they are easy to combine and are pleasing to the eye. Hence, they are perfect for creating beautiful and serene spaces in designs, clothing, or even house décor. Quite often, the fans of nature see these enhancement colours in landscapes, for instance the gradual change of green leaves into a blue sky, or in ‘near harmattan’ trees – the varying clearness of red and orange.

When using such colours it is better to apply it in threes where two colours may only serve as an enhancement to the dominant colour. This helps in creating equilibrium rather than creating a dull consistent appearance. For example, in a landscape painting you can choose green as an accent with other shades of blue and yellow to add some variation and vibrancy.

Triadic Colour Scheme

Three hues that are equally spaced out across the colour wheel are used in a triadic colour scheme. Using the colours red, yellow, and blue together is one of the most popular triadic schemes. Because the three colours complement one another rather than competing with one another, triadic schemes are renowned for their lively and well-balanced appearance.

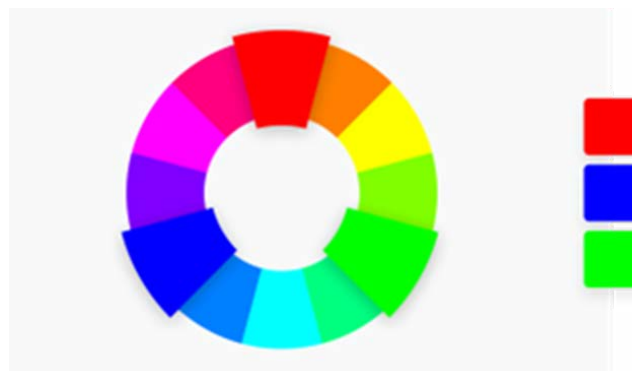


Figure 7.3: Triadic Colour Scheme

For designs that are vibrant and energising, this kind of scheme is perfect. A triad scheme may give your artwork a more lively, eye-catching feeling. To achieve harmony and balance, for instance, in a painting, you may choose a triadic colour scheme in which each hue has an equal part to play.

It's crucial to designate one hue as the dominant one and the other two as supporting when utilising a triadic colour scheme. By doing this, the hues are prevented from overpowering the spectator and competing with one another. When creating a poster, for instance, you may use yellow as the primary hue and accent colours like red and blue to get a striking, eye-catching design.

Tetrads

On the colour wheel, a tetrad is a set of four hues that are equally distanced from one another. Depending on how they are arranged, they can be connected by lines to make a square or a rectangle. Tetrads are a kind of colour scheme that are used in design and art to provide balance and harmony to a wide variety of hues.



Figure 7.4: Tetrads

There are two main types of tetrads:

Rectangular tetrads: On the colour wheel, these four hues create a rectangle. Red, yellow, green, and blue, for instance, make a tetrad that is rectangular. Rectangular tetrads give your design greater variation and contrast by combining a mixture of warm and cold hues.

Square tetrads: Each colour is evenly separated from the others in this arrangement since the four hues create a square. Purple, blue-green, yellow-orange, and red are a few examples. Similar to the rectangular tetrad, the square tetrad has an equal distribution of cold and warm hues, but the uniform spacing guarantees that each colour has an equal amount of contrast.

Employing four distinct hues can occasionally result in a cluttered or overpowering design, therefore it's crucial to carefully regulate the colour balance when employing tetrads. To prevent this, it's common practice to utilise one colour as the main hue and the others to support it. Tetrads are an excellent compositional element to add depth and complexity, particularly when creating a design that will stand out and have a lot of visual interest.

Monochrome

In a work of art or design, monochrome refers to the use of just one colour, or several hues, tints, and tones of one colour. The Greek terms “mono,” which means one, and “chroma,” which means colour, are the roots of the English word “monochrome”.



Figure 7.5: Monochrome

An artist uses variations of a single hue to provide depth and contrast to a monochromatic piece of art or design. By changing the colour’s value (lightness or darkness), these changes can be achieved. When a designer or an artist works with blue, for instance, they can add black to make darker blues (called shades) or white to create lighter blues (called tints). To generate tones of the same shade, they might also combine the colour with grey.

A monochrome design is nevertheless incredibly expressive, even when it just employs one colour. A lot of tints, hues, and tones have the ability to effectively communicate shape, emotion, and mood. For example, a monochrome painting in blue tones may be calming or depressing, whereas a monochrome painting in red tones could be passionate or powerful.

For illustration, painting, photography, and logo design, monochrome is frequently utilised. It makes it possible for painters to concentrate on shape, texture, and composition without being sidetracked by a variety of hues, producing a cohesive and harmonious result.

Click on this link to explore the various colour schemes. [COLOUR SCHEMES](#)

Expression of Mood in Colour Scheme

Colours evoke emotions in addition to being purely visual. Our moods and feelings are influenced by the colours we see on a daily basis. Using this knowledge, designers and artists may produce artworks that elicit a range of feelings, from excitement and joy to peace and melancholy. An artwork, a space, or a fabric may all be made to evoke a specific feeling by using the appropriate colour scheme.

Warm hues, such as orange, yellow, and red, are recognised for their energising, passionate, and upbeat qualities. Together, in a warm colour scheme, they might evoke feelings of warmth, enthusiasm, or even violence. For instance, yellow is frequently connected to optimism and happiness, whereas red is frequently connected to love, danger, or rage. Warm colour schemes can be employed in artwork to convey intense or joyful emotions, as in a brilliant sunset picture.



Figure 7.6: Examples of warm colour scheme

1. An acrylic painting of three warrior girls from the Asante tribe, with vibrant arm colours in shades of red, orange, and yellow. Their energy and strength are captured through the dynamic composition and cultural richness in the backdrop.
2. A vibrant and elegant logo for “Koozzie Foods,” featuring a warm and welcoming cartoon of an African woman holding a ladle. The warm shades of red, orange, and yellow create a striking and timeless design, perfect for representing hospitality and delicious food (Images by Y.B. Ampadu, 2024).

Conversely, cool hues like purple, green, and blue often have a soothing, relaxing impact. To create a calm and quiet atmosphere, a cool colour palette is frequently employed. For instance, blue is a common colour for bedrooms and other relaxing spaces since it is frequently connected to serenity and peace. Green is associated with growth and nature, which may invigorate and renew us.

Consider how colours complement one another when selecting a colour scheme to convey a certain mood. Black, white, and grey are examples of neutral hues that are frequently used to soften or balance colour schemes. Grey, for instance, may help calm down and give a bright, lively colour palette a more refined vibe. Similarly, employing white or black may produce contrast and heighten the visibility of other colours.



Figure 7.7: Examples of composition dominated by cool colours

1. A green dominant palette and palette knife technique bring out the textured richness of the forest scene, capturing the tension between the African hunter and the unsuspecting deer.
2. An elegant and striking logo design for “Kozzie Cars,” featuring shades and tints of blue with a stylised Ferrari (Images by Y.B. Ampadu, 2024).

The secret to producing art and design that effectively communicates is an understanding of how colours impact mood and emotions. You can evoke the appropriate feelings and establish the tone for your design by selecting the appropriate colour scheme. The colours you use will have a significant effect on how your audience perceives your work, whether you’re trying to convey mystery, tranquillity, or enthusiasm.

Activity 7.1: Understanding the application of art and design elements and principles

You can do this independently or with a group of your peers at home or at school.

Do the following:

1. Search for the meaning of colour by reading from this learning material, dictionary, or any other available source, including online.
2. Ensure to read from at least three different sources and compare them by identifying the contexts used to explain the meaning of colour in each of them.
3. Reflect on what you have read and come out with your personal understanding of the meaning of colour.
4. Write down your personal understanding of the meaning of colours.
5. Advance your learning by searching to identify at least 10 terminologies associated with the concept of colour.
6. Search for suitable examples to express what colour means to and present your write-up to peers and teachers for review.

PIGMENT COLOURS AND COLOURS OF THE SPECTRUM

The concept of colour can be explored further. There are two concepts of colour in terms of physical property and psychological experience which are influenced by light. This content area will help you to clearly understand these concepts, how they are made and their uses.

The Concept of Pigment Colours

A pigment is a substance that gives other materials colour by selectively absorbing some light wavelengths and reflecting others. In other words, the particular light wavelengths that are reflected back to our eyes determine the colour we see in a pigment. Pigments are widely used in a broad range of art forms, notably painting, textiles and pottery, in addition to commercial uses such as printing and cosmetics.

In the past, minerals, plants, and animals were the sources of pigments. A broader and more vibrant range of colours are now available due to the production of synthetic pigments. Pigments may be used to impart long-lasting colour effects on a variety of surfaces, including paper, canvas, cloth, and other materials. Pigments are necessary for producing opaque, long-lasting colours because, in contrast to dyes, they remain on the surface of a material.

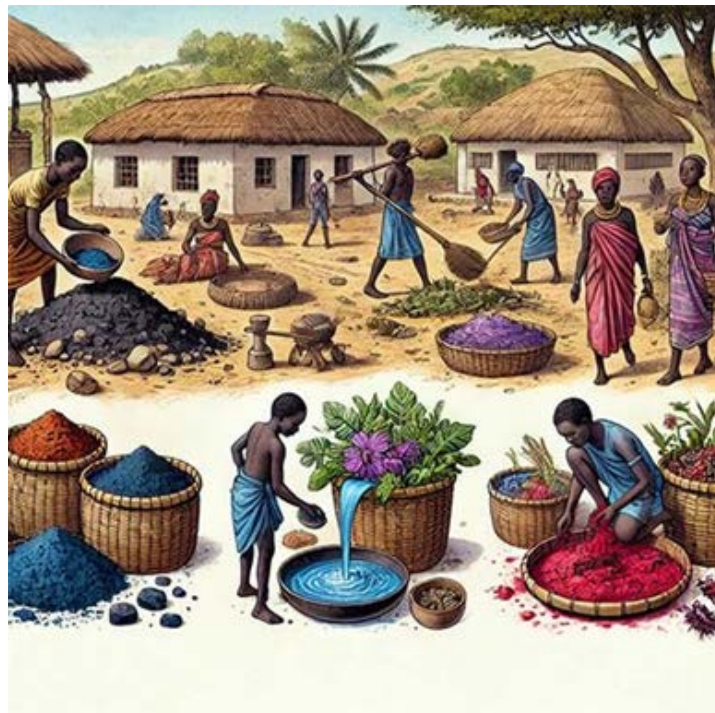


Figure 7.8: This illustration depicts how mineral, plant, and animal pigments are obtained in a rural African setting. It showcases villagers sourcing ochre from the earth for mineral pigments, harvesting plants like indigo for plant pigments, and extracting dyes from insects or molluscs. for animal pigments. This traditional process highlights the cultural and practical significance of natural pigments in art and craftsmanship (Image by Y.B. Ampadu, 2024).

When applied to a surface, pigments—finely powdered substances—create colour. To give something an appealing appearance and significance, these colours are employed in art, design, and decorating. When combined with a binder such as water, acrylic, or oil, pigments acquire a distinct character as opposed to dyes, which dissolve in liquids.

Pigment colours are important in visual art because they allow artists to explore a variety of possibilities. From the rich, earthy tones of natural pigments to the brilliant, dramatic hues of synthetic pigments, artists used pigments to express emotion, create symbolism, and portray the environment around them. Each pigment reflects light in a particular way, which is why certain colours look brighter or more brilliant than others.

The concept of pigment hues also encompasses the notions of permanence and fading. Natural pigments, for example, tend to last longer than synthetic pigments, which may fade when exposed to light. Understanding how pigments interact with light, binders, and surfaces enables artists to select the ideal materials for their work, ensuring that the colours remain brilliant and true throughout time. Pigment colours have played an important role in maintaining the visual history of human expression across civilisations, including Ghana.

The Concept of Colours of the Spectrum

When visible light passes through a prism, it splits into its component colours, which are referred to as spectrum colours. Sir Isaac Newton notably explored this phenomenon discovering that white light is made up of a series of colours known as the visible spectrum. When light passes through a prism, it refracts or bends and splits into several colours: red, orange, yellow, green, blue, indigo, and violet. These are the colours of the spectrum that are frequently associated with rainbows.

The colours of the spectrum are determined by the wavelengths of light. Each colour corresponds to a distinct wavelength, with red being the longest and violet being the shortest. This sequence is constant and may be observed in a variety of natural phenomena, including rainbows and light refraction through glass. Red is at one end of the spectrum, with a wavelength of around 700 nanometres, while violet is at the other end, with a wavelength of around 400 nanometres.

Understanding the colours of the spectrum is critical in art and design since they serve as the foundation for all other colours we perceive. Artists employ these colours in a variety of ways, combining them to create new colours, tints, and tones. For example, combining red and yellow results in orange, a colour that falls between the two on the spectrum. In Ghanaian art and culture, colours of the spectrum frequently have symbolic meanings, with each colour symbolising a distinct emotion, status, or spiritual belief.

Furthermore, the idea of the spectrum is fundamental to understanding how light and colour interact. Objects do not have colour on their own; instead, they reflect certain wavelengths of light. A red object, for example, absorbs all other wavelengths while reflecting only red light back to the eye. The combination of light and colour is what makes spectrum colours so exciting in science and art. Artists, particularly those in Ghana, who understand this principle may use colour and light to produce more bright, dynamic, and meaningful works.

How Pigments and Spectrum Colours are Made

Pigment sources have developed over time, beginning with naturally occurring pigments and advancing to current manufactured alternatives. Natural pigments are derived from three primary sources: minerals, plants, and animals.

1. **Mineral pigments** are among the earliest products utilised by mankind. These include hues like red ochre, which is formed from iron oxide, and ultramarine, which was traditionally manufactured from the valuable stone lapis lazuli. Natural minerals were commonly employed in Ghana to generate red, yellow, and brown hues for artistic and ceremonial purposes. These mineral-based pigments are frequently extremely robust and light-resistant, making them ideal for long-lasting artworks and products.
2. **Plant-based pigments** have also been extensively used. Indigo, a colour derived from the indigo plant, was used for fabric dyeing and painting purposes. In certain civilisations, the vibrant greens, yellows, and blues of diverse plants have been employed to colour textiles, sculptures, and even ceramics. These pigments are less stable than minerals and must be carefully prepared to avoid fading.
3. **Animal sources**, however less common, have also contributed to pigment production. For example, the deep red pigment known as carmine was historically created from the crushed carcasses of certain insects. Although these natural sources were the major source of colours for millennia, recent advances have resulted in synthetic pigments that can match or even outperform the brilliance and endurance of natural pigments. These new colours have expanded painters' capabilities while remaining true to the historical tradition of natural pigment sources.

Presently, synthetic pigments are produced for creating a broader spectrum of colours with higher durability. These pigments are created using chemical components that mimic or improve natural pigments. Titanium dioxide, for example, is used to make beautiful white colours, whereas vivid reds, blues, and greens are produced by combining other chemical compounds. These synthetic pigments provide a greater consistency in quality and are generally less expensive than their natural alternatives.

Spectrum colours, unlike pigments, are created by refraction of light rather than the manipulation of physical elements. When white light passes through a prism, it bends and splits into different wavelengths, resulting in the visible spectrum. This happens because various wavelengths of light move at different rates when they pass through a glass or water. The longest wavelength, red, bends the least, whereas the shortest wavelength, violet, bends the most.

The colours of the spectrum can also be seen in phenomena like rainbows or through diffraction, where light bends around an object. Artists and designers, particularly in the field of digital art, use their understanding of light to modify colours on a screen. By mixing different wavelengths of light, they can recreate the full spectrum of colours that we see in nature.

Uses of Pigment and Spectrum Colours in Design

Pigment and spectrum colours are important in both artistic and practical applications throughout many cultures, including Ghana. Their applications are diverse and important in sectors like visual art, design, and everyday life. Pigments, for example, are used to create anything from fine art paintings to fabrics and ceramics, whereas spectrum colours impact how we perceive light, shadow, and depth in a variety of visual media.

Pigments play an important role in the creation of long-lasting and significant works in art and design. Artists use the vibrant colours of natural and manufactured paints to portray thoughts, emotions, and myths. For example, in traditional Ghanaian painting, paints originating from minerals and plants are used to create symbolic images of gods, ancestors, and the natural world. Colours like red and yellow have strong implications for many ethnic groups, representing life, strength, and fertility. Pigments have also been employed in body art, notably at festivals and rituals when colour is used to communicate spirituality and social identity.

In addition to artistic applications, pigments are crucial in everyday functional objects. For example, in Ghana, pottery frequently has vivid decorations that not only enhance the product but also convey its cultural importance. Textiles like Kente are woven with vibrant colours to produce designs that represent numerous proverbs, historical events, or status. The colours used in these fabrics are frequently derived from natural sources and are carefully selected for their cultural and symbolic significance.

In contrast, spectrum pigments impact how we view our surroundings. Understanding spectrum colours is vital in industries such as design and architecture since it allows you to create visually appealing and psychologically successful settings. The use of light and shadow, and the way colours of the spectrum interact with one another, allows artists and designers to craft environments that evoke certain moods or feelings. For example, warm colours like red and orange are often associated with energy and warmth, while cooler colours like blue and green tend to evoke calmness and tranquillity.

Spectrum colours are widely used in education and science to teach basic light and optics concepts. Students can better comprehend essential ideas in physics and biology if they understand how colours in the spectrum are generated and interact with objects. Furthermore, spectrum hues are important in technologies such as photography, film, and digital media, where precise depiction of light and colour is required to create realistic visuals.

Pigment and spectrum pigments have a wide range of applications, including traditional art and cultural expression as well as current science and technology. Both pigments and spectrum colours enable us to communicate, create, and comprehend the world in ways that are beyond words, making them vital tools in human civilisation.

Activity 7.2: Understanding Colour as Pigment and of the Spectrum

You can do this independently or with a group of your peers at home or at school.

Do the following:

1. Search for the meaning of pigment and colours of the spectrum by reading from this learning material, dictionary, or any other available source including online.
2. Identify the similarities and differences between Pigment colours and Colours of the Spectrum using **Table 7.1** as a guide.
3. For each of the differences identified, write a brief description to justify the difference of similarity.
4. Organise and finish up your work by using manual or digital resources such MS Word, PowerPoint etc.
5. Present your work to peers for appreciation and review.
6. Improve your work using the comments from peers for filling in your digital or manual portfolios.

Table 7.1: Differences and similarities between Pigments and Colours of the Spectrum

	Similarities	Differences
Pigment Colours		
Spectrum Colours		

Activity 7.3: Exploring How Pigment and Spectrum Colours are Made

You can do this independently or with a group of your peers at home or at school.

Do the following:

1. Explore any means of creating and observing spectrum colours by trying the following;
 - a. Place a bucket under a running tap.
 - b. Switch on a flashlight pointing towards the running water from the tap for a few minutes.
 - c. Critically observe to identify any changes you see e.g. any hue you see and write them down
 - d. Reflect on the role the flashlight plays on the running water when you flashed it on the running water.

- e. Record your observations on the appearance of the running water when the flashlight is on and off.
- f. Share your experiences with your peers.

Analyse the images below and discuss it with your peers what you think about them in terms of Spectrum or Pigment colours



Figure 7.9: Colours of spectrum and Pigment

Activity 7.4: Exploring the Uses of Pigment and Spectrum Colours in creating designs

You can do this independently or with a group of your peers at home or at school.

Do the following:

Use the information recorded about pigment and spectrum colours in Activity 7.4 to try the following;

1. Create a table using Table 7.2 as a guideline.
2. Search by observing works of artists in your community or through the internet
3. Identify the various uses of both Pigment and Spectrum Colours for creating designs.
4. Record your findings and present them to your friends for discussion and review.
5. Improve your work using the feedback from your friends and file the final work for future reference.

Table 7.2: Uses of Pigment and Spectrum Colours in creating designs

Pigment Colours	Spectrum Colours

Try this challenge:

Using your understanding of the concepts of colour as a pigment and colours of the spectrum;

1. Develop a concept map with illustrations that explains uses of colour as a pigment and spectrum for creating designs.
2. Use any digital tools to enhance the concept map.
3. Present the digital concept map to peers for review.
4. Use the feedback from your peers to improve the concept map and share on your social media platform.

PIGMENT COLOURS AND COLOURS OF THE SPECTRUM OCCUR IN NATURAL AND HUMAN-MADE OBJECTS

Colours play an important role in how we see and understand the world around us. The colours we see in nature and in human-made objects come from pigments and the spectrum of light.

Pigments are substances that give objects their colour by absorbing some light and reflecting the rest. The colours of the spectrum refer to the different colours that light can be separated into, such as red, blue, and green. In both natural objects like trees, flowers and fruits, and human-made objects like clothes and paints, the colour we see depends on how the pigment inside the object interacts with light. This interaction creates the beautiful range of colours we see every day.

Pigment colours in both natural and man-made objects are produced by their interaction with light. In nature, pigments are present in plants, animals, and minerals. For example, chlorophyll, the green pigment in plants, absorbs red and blue light while reflecting green, which makes leaves appear green. Another pigment, melanin, is found in human skin and hair, giving them brown or black colour by absorbing light. Similarly, carotenoids, found in carrots and some leaves, reflect orange and yellow light, giving them their characteristic colour. Man-made pigments, on the other hand, are created through chemical processes and are used to add colour to a variety of objects, including clothes, paints, and plastics. For instance, dyes produced in factories create vibrant colours like red and blue for fabrics and plastics. Additionally, metal oxides, such as titanium dioxide, are used to produce white pigments, commonly found in paints and cosmetics.

How Pigment and Light Colours Are Used

Uses of Pigment Colours in Events/Manufacturing

- **Textiles and Fashion Industries:** In clothing and fabric production, pigments are used to dye materials in different colours. This helps designers create beautiful and vibrant clothes, shoes, and accessories.
- **Visual Arts:** Artists use pigments in paints to create colourful artworks. Whether painting on canvas, paper, or other surfaces, pigments allow artists to mix different colours and express their ideas clearly.
- **Ceramics and Pottery Works:** In pottery, pigments are added to clay or used as glazes to colour pots, plates, and sculptures. This makes the final product not only functional but also decorative.
- **Paintings of Walls:** In building construction and decoration, pigments are mixed into paints to colour walls, doors, and other surfaces. This is important for creating pleasant and attractive living or working spaces.
- **Commercial Printing:** Printers use four colours such as cyan, magenta, yellow, and black (CMYK) to print pictures and designs. This helps in creating colourful prints for posters, magazines, and product packaging.
- **Other Products:** Pigments are also used in products like toys, packaging, and home decorations, helping to make them more colourful and appealing to customers.

Uses of Light Colours in Events / Manufacturing

- **Computer Systems:** Computers use three main colours such as red, green, and blue (RGB) to create images on screens. This helps in making pictures and videos look bright and clear, which is useful for design, gaming, and watching videos.
- **Television Displays:** TVs also use RGB colours to show clear and colourful images. This helps make what we see on the screen look more real and enjoyable during movies or sports.
- **Photography Cameras:** Cameras capture light in different colours to create realistic photos. This helps photographers capture the true colours of the things they are taking pictures of.
- **Projectors:** Projectors mix red, green, and blue light to display bright and sharp images on large screens. This is helpful for school presentations, movies, or events.

Have you experienced any artistic spectrum colour display at theatre, musical concert, or in a music video before? How did you feel about the lighting/ or stage light designs?

Reflect on these images and discuss what you think about them with your friends.



Figure 7.10: Some uses of Pigment and Spectrum Colours

Activity 7.5: Manufacturing uses of Pigment and Spectrum Colours

You can do this independently or with a group of your peers at home or at school.

Do the following:

1. Explore your local environment/ community, internet, TV, etc to:
 - a. Identify various forms of events or manufacturing processes that involve the use of pigment and spectrum colours.
 - b. List and categorise the events and manufacturing process (e.g. according to the type colours, purpose, uses, etc.)
 - c. Analyse and note the characteristics of the pigment and spectrum colours used in the event and the manufacturing process.

2. Identify and describe how the Pigment and Spectrum colours have been used in the event and or the manufacturing process.
3. Organise your findings into a comprehensive report (the report may include pictures, diagrams, charts, etc.)
4. Make a presentation of your report for your peers to review.
7. Use the feedback from peers to improve the report and file it for future reference.

DRAWINGS RELATING TO CONTOURS AND FORMS

Now that you have gained knowledge and understanding about design elements and principles, you should begin to put this knowledge into practice to develop personal and collective skills in creating designs. In this focal area, we shall explore the available tools and materials for drawing.

Concept of Drawing

Drawing is one of the oldest forms of artistic expression. It is a universal language that transcends words, cultures, and time. Every line drawn on paper is a thought made visible, a personal vision that speaks to the viewer. As a first-year senior high school student in Ghana, understanding the concept of drawing will open doors to developing your creativity, observation skills, and ability to communicate ideas visually.

What is Drawing and Why is Drawing Important?

Drawing is the act of making marks on a surface, usually with a tool such as a pencil, pen, charcoal, or even a finger on sand. It is more than just doodling or sketching; it is the foundation of all forms of visual art. In essence, drawing allows you to record your thoughts and express them in a way that others can see.

Drawing plays a significant role in developing many essential skills for students.

1. **Fosters Creativity:** The benefit of drawing is that it allows you to extend your thoughts and imagination and develop new ideas and concepts. It also helps you explore new creative solutions that assist you in extending your creative abilities.
2. **Improves Observation Skills:** Drawing involves creating an interrelated series of lines and shapes to represent the subject you are drawing. The concentration required increases your awareness within your field of vision and focus and increases your ability to recognise patterns, textures, and subtle differences in the environment. This skill is beneficial across various disciplines.
3. **Boosts Memory and Cognitive Development:** The act of drawing requires concentration and the recall of visual information, which strengthens memory. It also engages both sides of the brain, enhancing cognitive skills such as problem-solving and spatial reasoning.

4. **Enhances Communication:** Visual expression allows you to convey ideas, emotions, and stories effectively, especially when language falls short. Drawing serves as a powerful tool for sharing complex messages.
5. **Develops Motor Skills:** Drawing involves precise movements of your hands and fingers. This improves coordination and dexterity, all of which are vital for activities such as writing, sports, and even using technology.
6. **Encourages Emotional Expression:** Art, including drawing, provides a healthy outlet for expressing feelings. It helps reduce stress, promotes self-awareness, and fosters emotional growth.
7. **Develops Focus and Patience:** The process of creating a drawing requires sustained attention and perseverance. These qualities contribute to greater self-discipline and resilience in all areas of life.
8. **Promotes Problem-Solving Abilities:** Depicting objects, adjusting proportions, and capturing light and shadow involve critical thinking. These abilities are valuable in other academic and practical contexts.
9. **Supports Cultural Learning:** Drawing enables students to explore their cultural roots and appreciate artistic traditions from around the world. This deepens understanding and fosters respect for diversity.
10. **Foundation for Other Art Forms:** Drawing serves as the groundwork for disciplines such as painting, sculpture, design, and architecture. Mastering this skill opens doors to other creative pursuits.
11. **Encourages Holistic Growth:** Beyond creating images, drawing supports personal, academic, and professional development by enhancing critical skills and nurturing individual expression.

Types of drawing styles

1. *Caricature drawing*

Caricature drawings are representations that portray subjects in exaggerated or simplified forms. Characteristics of caricatures often involve the enlarging or shrinking of facial characteristics or the personifying of objects. Artists may employ caricature in animation, advertising, or graphic design.



Figure 7.11: Caricatures of African political figures

2. *Cartoon drawing*

Cartoon illustrations generally portray a more humorous or fanciful perspective on reality. Analogous to caricatures, they may employ exaggerated forms and colours to convey emotion or tone through imagery. Artists may employ cartoons in illustrations, animation, advertising, and graphic design.



Figure 7.12: A cartoon depictions of Ghanaian senior high school students (Image by Y.B. Ampadu, 2024)

3. *Comics*

Comics provide stories in action panels with cartoon-style graphics. Comics enhance their narrative using captions and voice bubbles. They range from a panel to a book in length and intricacy. Comics include graphic novels and Manga, a Japanese comic book with anime-like characters.



Figure 7.13: A comic strip featuring three Ghanaian women in traditional attire staring at the dwarf with a sack of gold (Image by Y.B. Ampadu, 2024).

4. *Editorial*

Editorial cartoons employ comics-style panel narrative to convey a joke or remark on politics or pop culture. They are generally one panel length, feature captions and other textual elements for clarification, and focus on one perspective.



Figure 7.14: Example of editorial cartoons of African political figures

5. *Figure drawing*

Figure drawings, or still-life drawings, are created by observing the actual subjects in the environment. Human models, fruit, automobiles, and wildlife can be these subjects. In figure drawing, artists depict the world as they see it. Figure drawing helps art students understand perspective, proportions, and shading.

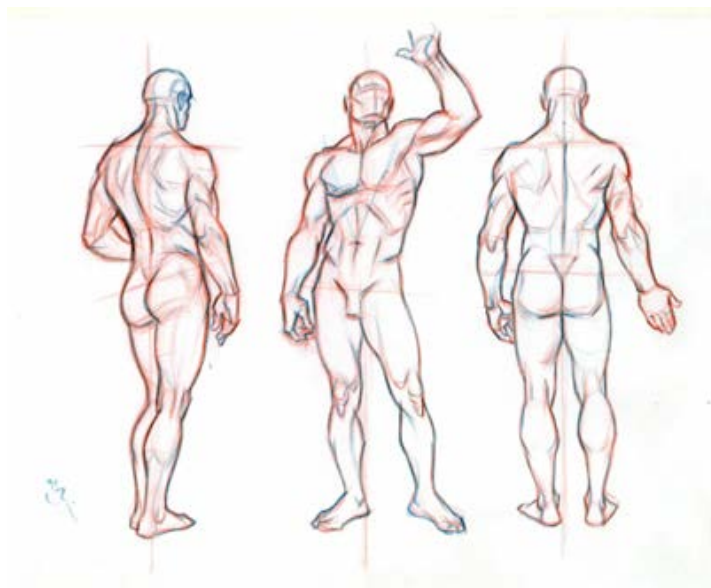


Figure 7.15: Full figure contour drawing

6. *Gesture drawing*

Gesture drawing, like figure drawing, draws from life. But gesture sketching aims to capture action, form, and stance. Modellers change postures every one to five minutes to show motion. Gesture drawings may be less detailed than other images since artists can capture less with shorter poses.



Figure 7.16: Gesture Drawing

7. *Perspective drawing*

Perspective drawing, often known as 3D or anamorphic drawing, lets artists construct three-dimensional pictures on paper. This form of drawing considers distance, space, light, volume, surface, and scale to identify object relationships.



Figure 7.17: Illustrations showcasing both aerial perspective and linear perspective

8. *Photorealism*

Photorealism, often known as hyperrealism, is sketching anything so realistic it may be mistaken for a photograph. Artists may utilise this method for humans, animals, landscapes, cityscapes, and other natural things. Photorealism emphasises curves, shade, and details to make subjects appear genuine.



Figure 7.18: Photorealistic portraits of an African woman rendered in oil pastel on ingress paper. The soft strokes and vibrant colours enhance the depth and warmth of the artwork (Image by Y.B. Ampadu, 2024).

9. *Scientific illustrations*

Scientific pictures, sometimes referred to as diagrams, are made by artists to convey difficult ideas in a clear and understandable manner. They provide incredibly detailed still and moving depictions of scientific subjects like animals, the human body, and naturally occurring objects in the Universe.

10. *Scratchboard drawing*

Scratchboard drawing, also known as scraperboard drawing, is made with a cardboard sheet covered in a thin coating of clay and India ink. Artists use a sharp instrument, often known as a scratchboard nib, to slice through the ink and uncover the clay. The more lines they draw, the brighter the image appears. Scratchboard designs may be quite intricate, often resembling wood engravings.

11. *Silhouette drawing*

Silhouettes are graphics or designs depicting the outline of an item in a single colour or tone. Artists often construct these in black and white, with one colour serving as the backdrop and the other filling the silhouette. They lack features beyond the lines and curves in the outline and are commonly used to create profile portraits.

12. *Sketch drawing*

A sketch drawing is typically identified by its rougher edges and lines and less refined, more immediate appearance. Sketches are frequently made quickly and simply by artists, who may decide not to include certain detailed aspects that aren't necessary for the composition. Usually, they are employed to quickly convey a key idea or illustrate a functional notion.

13. *Technical drawing*

Technical drawing is the process of creating detailed drawings and diagrams to scale, often in 2D and 3D, that accurately outline the form of a design or product. These drawings can be used by contractors, electricians, engineers etc in the manufacturing processes for realising the designs or products.

Basic Drawing Mediums

Artists can use a variety of mediums to make drawings. These drawing mediums may include:

1. **Chalk** It is a powdered crayon composed of naturally occurring minerals. Manufacturers frequently include additional pigments to provide colours beyond red, white, and black. Chalk is an effective medium for mixing and shading, applicable on various surfaces. It is readily communicable between surfaces.
2. **Charcoal** It is a brittle black natural substance composed of carbon. In the realm of art, it is frequently available in the form of sticks or pencils. It is an exceptional instrument for shading and blending because of its capacity for effortless smudging.
3. **Coloured pencils** are wood shells coloured in the centre with wax, oil or pigment. They are available in an array of shades and colours. They mix smoothly and are less likely to smear than other materials.
4. **Wax crayons** Give drawings colour in a non-transferable manner. Wax Crayons are less prone to transfer surfaces due to their structure, but they are also more challenging to mix and shade.
5. **Graphite** is a metallic grey powder that is available in sticks and pencil form. It's frequently used for shading, blending, and line drawing. Just like some other media, it can move across different surfaces.
6. **Ink**, a liquid pigment that often fills sketching pens and markers. Ink may have a range of colours and consistencies when additives are added. For blending and line drawing, ink may be useful. When damp, it is transferable.
7. **Pastels** are sticks of pigment powder manufactured from substances based on water or oil. While they mix well, they can also transfer to other surfaces.

Common surfaces used for rendering Drawing Mediums

Some of the most common surfaces, supports and or substrates used by artists on which to create and render drawings and designs include:

1. Canvas
2. Ceramic
3. Industrial sheeting materials
4. Paper
5. Plaster
6. Wood
7. Digital

Drawing Contours

Contour drawing is a fundamental graphical technique in drawing that specifically emphasises the representation of the outline and contours of a subject. The term “contour” originates from the French word “outline,” and employs the technique of drawing the defining shapes, lines, and boundaries of an object, rather than emphasising on internal details like shading or texture. Contour drawing is used to cultivate observational competencies and improve hand-eye coordination, thereby establishing it as a fundamental practice in artistic training.

Key Characteristics of Contour Drawing:

1. **Emphasis on Line:** The main focus of contour drawing is on the unbroken line that outlines the shape of an object. The artist usually avoids lifting the pencil or pen off the paper while drawing, capturing the subject’s flow and form in one continuous stroke or a sequence of linked strokes. The purpose of the line is to be fluid and expressive, not exact or mechanical.
2. **Focus Observing:** When doing contour drawing, paying close attention to the subject is very important. Artists are advised to dedicate their focus on the object rather than on their drawing surface. This enhances the artist’s ability to interpret the form accurately while minimising distractions. Focusing on the shape of the subject allows the artist to create a more accurate and life-like depiction.
3. **Blind Contour:** This is a popular version of contour drawing where the artist sketches the subject without visually referencing the paper. This method enhances the ability to observe and improves the link between the artist’s perception and hand dexterity. Despite the appearance of distortion, the activity helps improve understanding of shape and proportion.
4. **Cross-Contour:** This is another drawing approach connected to contour drawing, where lines are drawn across the shape of an object instead of just its perimeter. These lines indicate the subject’s three-dimensional nature by tracing its surface curves, thus showing its volume and depth.

Importance of Contour Sketching

1. Contour drawing is beneficial for artists at all skill levels, including beginners and professionals. Certain advantages comprise:
2. **Improved Hand-Eye Coordination:** This exercise compels artists to synchronise their hand movements with their visual perception (what they see), enhancing the precision of their artwork.
3. **A Deeper understanding of Form:** By concentrating only on outlines, artists enhance their understanding of the subject’s structure and proportions.
4. **Foundation for other Techniques:** Contour drawing forms the foundation for more advanced drawing methods such as figure drawing, portraiture, and still life, emphasising the importance of grasping the basic shapes of the subject.

- Contour drawing is an essential artistic method that focuses on observation and using lines instead of shading and intricate details. By concentrating on the contours of an object, the artist develops a more profound comprehension of shape, framework, and scale. By practising blind contour and cross-contour drawing, this technique develops fundamental skills necessary for higher-level art techniques.

Types of contour drawing

Contour drawing, an essential art technique, is available in various styles, each offering a distinct method to portray the boundaries, shapes, and outlines of a subject. These various types have different functions, such as improving observation skills, studying form, or producing expressive line work. The main categories of contour drawing consist of:

1. Blind Contour Drawing

In a blind contour drawing, the artist draws the subject without looking at the drawing surface. The main goal is to observe the subject and translate it into continuous, uninterrupted lines. The artist's hand movements are driven solely by the visual information, not by the drawing itself. This technique improves manual dexterity and sharpens visual perception. As the artist is unable to make changes to the drawing based on what they see, it promotes a direct correlation between what is observed and what is sketched. The outcomes are frequently altered or overstated, yet this method is appreciated for its capacity to develop the artist's observation skills rather than for creating visually pleasing outcomes.



Figure 7.19: A blind contour drawing, capturing the spontaneous fluid style typical of the technique.

2. Pure Contour Drawing

The most fundamental form of contour drawing is pure contour drawing, which emphasises both the inner and outer edges of the subject. The artist is able to observe both the object being drawn and the surface being used, but their main concentration is on accurately tracing the lines of the object without adding shading or extra details. The main goal of this technique is to improve line quality and accurately represent the shape of the object. Typically, the strokes are intentional, uninterrupted, and simple, and the sketch portrays the fundamental forms and limits of the object.



Figure 7.20: Pure contour drawings of a hand, focussing on capturing the outer edges with a single continuous line

3. Cross-Contour Drawing

In cross-contour drawing, the artist creates lines that move along the shape's surface, tracing its curves to imply depth. The curved lines are often used to depict the object's form, and they aid in outlining shape and dimensions. This method enhances a drawing by showing the curvature of the object's surface in three-dimensional space. It is particularly beneficial in figure sketching, as cross-contours aid in depicting the body's anatomical structure and volume. Cross-contour lines can move vertically, horizontally, or diagonally over the form, forming a grid-like design to outline the shape and volume of the object. They track along the surface instead of just tracing its outline.



Figure 7.21: cross-contour drawings of a human foot, emphasising its three-dimensional shape with smooth, curved lines

4. Continuous Contour Drawing

In continuous contour drawing, the artist creates the entire drawing without lifting the pencil or pen from the paper. The line remains unbroken, moving across the surface to capture the subject's contours in one fluid motion. This technique encourages fluidity in drawing and helps the artist develop a sense of continuity and flow. It also forces the artist to think carefully about the structure and relationships

between different parts of the subject. The result is a single, uninterrupted line that traces the entire form. While the drawing may lack detail, it often conveys a strong sense of movement and unity.



Figure 7.22: Continuous contour drawings, each created with a single unbroken line to capture the essence and features of a face

5. Modified Contour Drawing

Modified contour drawing is similar to pure contour drawing, but the artist is allowed to glance at the paper occasionally. This slight modification permits some level of accuracy and control, as the artist can adjust the drawing to better reflect the subject. Modified contour drawing bridges the gap between blind contour drawing and more precise, observational drawing. It still emphasises observation but allows the artist to refine their work with visual feedback. The lines are still focused on capturing the contours, but the drawing may appear more accurate and less distorted compared to blind contour drawing.



Figure 7.23: Modified contour drawings of a human hand, focusing on expressive outlines and subtle internal details

6. Weighted Contour Drawing

Weighted contour drawing involves adjusting the thickness and intensity of lines to represent various elements of the form, like light, shadow, or the significance

of specific edges. This technique enhances the emotional depth and three-dimensional aspect of outline sketches. By changing the thickness of the line, the artist can imply dimension, weight, and source of light, resulting in a drawing that looks lively and realistic in 3D. Bolder, more intense lines could indicate shadowed areas or increased importance, while finer lines may show lighter or less noticeable boundaries. Various types of contour drawing are essential for artists and students, aiding in enhancing visual perception, developing hand-eye coordination, and gaining a solid grasp of form and structure.



Figure 7.24: Weighted contour drawings of a hand holding a pencil. The line weights emphasise the grip and form, providing depth and variation

5. Drawing of Forms

The concept of “drawing of forms” involves portraying 3D objects on a flat surface to show their size, shape, and perspective space. This technique is essential in different artistic disciplines, especially in sketching, colouring, and sculpting, and is crucial for achieving accuracy in visual depictions. Throughout history, artists have created various methods to successfully depict shapes, ensuring that objects look realistic, solid, and convincingly exist in space. Fundamentally, it involves shifting from two-dimensional, straight representations to creating objects that seem to have depth.

Key Elements in the Drawing of Forms

1. Line:

- a. Contour lines: Contour lines define the boundaries of a shape. By varying their thickness or smoothness, they can effectively indicate volume and mass. Contour lines in traditional drawing are typically emphasized in dark areas and lighter in areas of brightness.
- b. Cross-contour lines: Cross-contour lines are the lines that travel along the exterior of an object, tracing its shape and indicating its three-dimensional appearance. They are frequently employed in intricate figure drawing to improve the appearance of depth.

2. The contrast between light and darkness in art: Chiaroscuro

- a. The use of light and shadow is essential for making two-dimensional forms appear three-dimensional. This technique, known as chiaroscuro, involves the gradation of light from highlights to deep shadows, which gives objects their mass and volume. Mastering chiaroscuro allows artists to portray realistic depth. Hatching and cross-hatching are common techniques for shading. These involve the use of parallel or intersecting lines to create the illusion of tone, light, and shadow.

3. Perspective:

- a. Linear perspective: This technique involves creating depth by using converging lines (vanishing points) that guide the viewer's eye into the distance. Objects closer to the viewer are larger, while those further away appear smaller, helping create a sense of space.
- b. Foreshortening: It is a method used to give the impression that certain parts of an object are moving back in space. Being able to accurately draw figures at uncommon angles is an important skill in figure drawing, especially when portraying objects or limbs.
- c. Aerial (atmospheric) perspective involves using lighter edges and subdued hues to show objects in the distance, creating the impression that they are far away because of atmospheric conditions.

4. Proportion and Scale: Accurate and believable forms depend on having the right proportions. It is important to carefully examine and depict the proportions of different parts of a form, particularly in figure drawing. Artists frequently utilise the golden ratio and rule of thirds as compositional tools to maintain proportion and balance in their work.

5. Texture: The representation of texture contributes to building up the perception of three-dimensionality of a form. By control of the texture and the distribution of fine details such as roughness or smoothness, lustre or dullness, artists can show how light behaves on the object with regard to its surface characteristics.

6. Anatomy and Structure: In figure drawing the knowledge concerning human and or animal structure is very important in achieving the shapes required in the figures being drawn. Understanding the skeletal system, muscular system, and joints assists artists create proper anatomically correct proportions for figures.

There are various procedures that artists need to follow and one of them is the use of cylinders, spheres and cubes to give a rough structure of the figure before putting in details. This method was highly recommended during the period of renaissance as a basic method of drawing.

- Lights to strong and distinct mid-tones, which lengthen to darkness or blackness, which provides things with their weight and thickness. Chiaroscuro enables artists to capture the depth of an object, or a subject, depending with the results achieved.
- Cross-hatching is among the many methods that are used in shading and include hatching. These include the application of parallel or intersecting lines to depict the impression of tone, light in addition to shadow.

Techniques for Drawing Forms

1. **Gesture Drawing:** It is a fast and freehand style of drawing in which dynamics of the subject matter are drawn out, disregarding incidental features. It assists artists to visualise the big picture of a figure or an object and its different sections.
2. **Blocking In:** When drawing artists tend to use simple geometric forms to map out the coarse structure of a form as simply as they can. For example, one can reduce the human figure to cylinders (arms and legs), spheres (heads), and cubes (torso) and then add detail to it. This method is also effective in assuring that the proportions and orientation of the form is correct right from the go.
3. **Modelling:** This involves constructing layers of shading in a step-by-step manner in order to create an impression of a 3D image of an object that is rounded. The artist proceeds from light to dark, create layers of tones that suggest the form in space. Sfumato, a technique very typical for Leonardo da Vinci, is an example of this since transition between the areas of light and shade is gradual.
4. **Negative Space:** Understanding the space within and in between the shape or form, known as negative space, assists artists in correctly observing and forming shapes. This is especially important when capturing subjects like human figures that have limbs and some of which may cover more space than others; the relative position of limbs to other limbs and objects in an environment that the limbs are part of may help an artist in achieving a certain form of symmetry.

Drawing forms is a crucial competence of any artist who wishes to depict the 3D reality in 2D space. Some of the methods used include contour drawing, shading, aspects of perspective, and body structure that enables artists give out impressions of mass and volume on figures. Form drawing is essential in realistic and dynamic art and illustration; understanding and applying the rules and principles of form drawing are thus the foundations of art education and practice.

Types of Forms in Drawing

In drawing, various forms, in a variety of shapes and complexities, may be adopted to attain the realism and perception of depth and other desirable features in artworks.

These forms can be divided into some types:

1. Geometric Forms

Geometric shapes are precise and structured shapes that are characterised mathematically. Such forms are usually derived from simple geometrical concepts and have the further advantages of ease of measurement and reproduce-ability. They are basic in drawing since they act as basis to more advanced forms.

- a. **Cubes:** Written geometrically as squares in perspective, cubes are shapes with equal size and are used in learning proportion and space.
- b. **Spheres:** Smooth spherical shapes which, when drawn, may be enlarged to give the effect of curvature because of proper gradation of shade.
- c. **Cylinders:** These are also drawn based on circle but have been elongated or metamorphosed into a tube chart that is useful especially when drawing limbs or cylindrical figures.

- d. Cones: The tapering forms with the round base to represent such objects as trees, lamp shades, or parts of the human body such as the torso.
- e. Pyramids: A pyramid shaped form with triangular base and sides joined at a vertex.

Geometric forms are used in architectural drawings, industrial design, and studies of perspective. They are also foundational in figure drawing, where artists often break the human form into simplified geometric shapes to achieve correct proportions.

2. Organic Forms

Organic forms are more curved, free-form and may generally be more intricate than the geometric forms. These forms are characteristic for natural occurrence and are not as rigid in terms of shape, they are curved, folded, and are in many ways asymmetrical.

- a. Leaves, flowers, and plants: The above-mentioned organic forms are thus open and unbounded structures which exhibit variation.
- b. Human body: Whereas limbs such as arm and legs are simplified geometric shapes the figure as a whole is an organic free flowing form with curves and joints.
- c. Animals: Organic shapes with complicated curves and proportions constitute the animals' body, as well as the human body.
- d. Rocks and clouds: These organic shapes have unclear and unimaginable shapes whose fields are inconsistent with each other.

Organic forms are especially seen in figure drawings, landscape and still life paintings. They are usually very difficult to draw because of their irregular shapes and asymmetrical deviation which demands the artist to have a keen sense of measurement.

3. Abstract Forms

Examples of abstract forms include where real objects are depicted as being smaller or larger than their actual size, or in some cases the object may not be recognisable at all as it may be represented in a distorted manner. Precisely, abstract forms differ from geometric and organic forms in that the former are not necessarily associated with realistic depiction of the basic forms of objects. Such forms may still bear an easy reference to known shapes, but, at the same time, they may be obverse, simplified or abstracted.

- a. Simplified geometric abstractions: These are mere forms which are derived from the real objects, but these are simplified and sometimes geometry is used.
- b. Distorted organic forms: Perhaps, the natural forms are redefined in abstract art by distorting or enlarging them so that they may not easily be identified. Abstract forms occupy an essential place in the art of the modern and postmodern period, as well as in the art of the movements such as Cubism, Futurism and Surrealism. Others such as Pablo Picasso and Henri Matisse were innovative in their use of abstraction as a means of portraying emotions, ideas and conceptual interpretations as opposed to just realistic mimicking of forms.

4. Positive and Negative Forms

- a. Positive forms: These are the actual objects or subjects which are drawn on paper or other surfaces used during drawing. For instance, in a still life the fruit or vase is the positive forms.
- b. Negative forms (negative space): These are associated with the surrounding and the intervening area of a picture or the space shared between objects of the drawings. It is important to balance and be accurate in terms of composition so a designer must never overlook negative space. This way the proportions and the spatial relation between the object and its elements are easier to estimate since both positive and negative forms are in use.

Positive and negative form are most effective where objects' relation to its environment becomes an issue, like figure-ground organisation in graphic design or some modern paintings.

5. Representational Forms

Realism means a form of drawing that is as close to real life as possible and does not neglect proportions, mildness, shadows, or details. Representational forms are geometric or organic, or may be abstract, but their general requisite is to represent something that can be easily recognisable.

- a. Realistic portraits: In these, concern is put into how the form looks like in an attempt to be so close to the subject.
- b. Still life: This format should describe bottles, fruits, flowers, and most of the objects as if they were to be accurately proportional and embossed.
- c. Landscapes: Landscape from natural scene including mountains, trees and water are done with reference to light, distance and perspective.

Techniques of representation are a regular thing in antiquated and academic outlines, where it is normally expected that one should be capable of painting a representation of the surface of the object.

6. Implied Forms

Implied forms as the name suggests are those forms on the basis of which the forms have not been drawn direct but have been represented by the help of light, shade, or half outlines. The viewer's eye then draws the form based on the gaps observed and this leads to the creation of form.

- a. Gestural drawing: In gesture drawings, the artist may not encircle something and put down a verbatim outline of the edge, but the whole form is implied out of light and swift lines of work, implying some sort of movement and volume.
- b. Linework and shading: It is okay for some artists to complete some parts of a form and leave out others where he has use of shadows or reflections to complete the shape of the object drawn.

Implied forms are often employed in sketches, where the artist aims to create the sensation of an object without outlining it completely, in preliminary and fast studies, and in drawing when an artist experiments on minimalistic techniques.

The types of forms in drawing can be either simple or more advanced and can be of geometric shapes, organic forms, representational drawing, abstract forms, defined forms or implied forms. Knowledge of these categories enables an artist to build the aptitude of establishing three-dimensionality, space and volume, which in return

facilitates effectiveness and composition. Command of the use of these types of forms enables artists to come up with art masterpieces using textures, depth and emotion successfully in their artwork.

Activity 7.6: Applying design concepts to create drawings

As an amateur designer, how would you be able to create quality drawings to serve specific purposes? Here is a guide to follow independently or as a group:

1. Search around your immediate environment to identify items or resources that can be used for drawing such as sticks, charcoal, ashes, sand, clay, feathers, chalk, pencils, cardboards, paper, floor, wall, dry plantain leaves, plastics, etc.
2. Clean the resources identified using suitable disinfectants.
3. Explore by experimenting with the resources to draw outlines of basic shapes and forms such as circles, squares, triangles, pyramids, cones, etc. on any suitable medium (surface) of your choice.
4. Practise the act of drawing outlines of different shapes and forms both organic and inorganic forms and in various sizes.
5. Present your work to peers for their comments.
6. Use the feedback from your peers to improve your skills.
7. Keep practising to perfect the skills of drawing outlines of objects from observation in the natural and manmade environment.
8. Build a digital or manual portfolio of your outline drawings for future reference on your skill development progress.

REVIEW QUESTIONS

1. You have a contract to widely display the Ghanaian national flag in the sky above the independence square using illumination and gases. What type of colour are you likely to use and why?
2. Define the terms “pigment” and “spectrum colour.”
3. Identify the primary colours of the spectrum
4. List the basic elements of art.
5. Explain how the principle of unity can be achieved in a painting using colour.
6. Analyse the role of colour in creating a sense of mood or emotion in a piece of art.
7. Compare the use of pigment colours in traditional painting versus digital art.
8. Evaluate the effectiveness of a specific colour palette in a given artwork
9. How do design elements such as line, shape, and colour work together to create a sense of balance in a composition or rhythm in a composition?
10. With your knowledge of colour theory in terms of spectrum and pigment, write a position paper to critique the use of colour in a selected contemporary art piece, considering its functional, cultural, and historical contexts.

ANSWERS TO REVIEW QUESTIONS

- 1. Sample Answer Question 1:** Pigments are physical substances that absorb certain wavelengths of light and reflect others, creating colour. Spectrum colours, on the other hand, are created by the separation of white light into its component wavelengths, as seen in a rainbow. In this case, I would consider creating **red and yellow gases of spectrum colours**. This is because the colours would be produced by the interaction of light with the gases, causing them to emit specific wavelengths of light. The gases themselves are not pigments, but rather mediums that produce the desired colours when illuminated. By using red and yellow gases, I would be leveraging the principles of spectrum colours to create a vibrant and accurate representation of the Ghanaian national flag in the sky. The gases, when illuminated, would emit the specific wavelengths of light that correspond to red and yellow, ensuring a visually striking and recognisable display.
- 2. Sample Answer Question 2:** Pigment is a substance used to colour something.
- 3.** Spectrum colour on the other hand, is a colour created by splitting white light into its different wavelengths.
- 4. Sample Answer Question 3:** Red, yellow, and blue.
- 5. Sample Answer Question 4:** Line, shape, form, colour, texture, value, and space.
- 6. Sample Answer Question 5:** Unity in a painting can be achieved by using a harmonious colour palette, such as complementary or analogous colours.
- 7. Sample Answer Question 6:** Warm colours like red, orange, and yellow can create a sense of energy and excitement, while cool colours like blue, green, and purple can create a sense of calm and peace.
- 8. Sample Answer Question 7:** In traditional painting, artists use pigments to create colours on a physical canvas. In digital art, colours are created using light on a screen.
- 9. Sample Answer Question 8:** To evaluate a colour palette, consider whether it creates a desired mood, enhances the subject matter, and contributes to the overall composition.
- 10. Sample Answer Question 9:** Balance can be achieved by using symmetrical or asymmetrical arrangements of elements. Rhythm can be created by repeating elements or patterns.
- 11. Sample Answer Question 10:** This is a more complex question that requires in-depth research. For example, you may follow this basic outline:
 - Choose a contemporary artwork.
 - Analyse the colour palette and its effectiveness.
 - Consider the cultural and historical context of the artwork.

- d. Evaluate how the colour choices contribute to the overall meaning and purpose of the piece.
- e. Offer your critique based on your analysis.

EXTENDED READING

- <https://99designs.com/blog/tips/the-7-step-guide-to-understanding-color-theory/#1>
- How to make inorganic pigments: <https://youtu.be/zKFfs2qX-Fkc>
- How to make organic pigments: <https://youtu.be/XtwyeamFkBQ>
- <https://www.youtube.com/@ProkoTV>

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GLOSSARY

Blind Contour Drawing	A drawing exercise where the artist does not look at the paper while drawing.
Chiaroscuro	The use of strong contrasts between light and dark to create a sense of volume.
Composition	The arrangement of elements within a drawing.
Contour Drawing	A drawing method focusing on capturing the outline of an object.
Contour Line	A continuous line that defines the edges of a shape.
Cross-Contour Line	Lines that follow the curves of a form, giving it a three-dimensional effect.
Cross-Hatching	Shading by overlapping sets of parallel lines.
Ellipses	A curved shape that represents a circle viewed at an angle, commonly used to draw cylindrical objects.
Foreshortening	A technique to show depth by drawing parts of objects shorter than they appear.
Form	The three-dimensional representation of an object in space.
Gesture Drawing	A quick sketch that captures the basic form and movement of a subject.
Hatching	Shading using closely spaced parallel lines.
Light Source	The direction from which light is cast, affecting shadows and highlights in a drawing.
Line Quality	The thickness or thinness of a line, contributing to the sense of form and space.
Linear Perspective	A system of creating the illusion of depth using converging lines.
Mass Drawing	A drawing technique emphasizing broad forms and volume rather than detailed contours.
Modified Contour Drawing	A drawing technique allowing occasional glances at the drawing surface.
Negative Space	The empty or open space around objects in a composition.
Perspective	A method for depicting depth on a flat surface.
Positive Space	The area in a drawing occupied by the main subject.
Proportion	The relative size of elements within a drawing.
Rendering	The process of adding detail to a drawing, including shading and texture.
Shading	The gradual change from light to dark to create the illusion of depth.

Silhouette	A solid shape that represents the outline of an object.
Sketch	A rough, unfinished drawing often used as a preliminary idea.
Texture	The surface quality of an object in a drawing, either real or implied.
Thumbnail Sketch	A small, quick preliminary drawing used to plan a larger work.
Tone	The lightness or darkness of an area in a drawing.
Volume	The perceived space occupied by an object in a drawing.
Weighted Contour	A technique involving the use of varied line thickness to represent depth and importance

Acknowledgements



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