



MINISTRY OF EDUCATION

ART & DESIGN FOUNDATION

For Senior High Schools

TEACHER MANUAL



YEAR 1 - BOOK 2



NATIONAL COUNCIL FOR
CURRICULUM & ASSESSMENT
OF MINISTRY OF EDUCATION

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REPUBLIC OF GHANA

Art and Design Foundation **For Senior High Schools**

Teacher Manual

Year One - Book Two



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

ART AND DESIGN FOUNDATION TEACHER MANUAL

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INTRODUCTION

The National Council for Curriculum and Assessment (NaCCA) has developed a new Senior High School (SHS), Senior High Technical School (SHTS) and Science, Technology, Engineering and Mathematics (STEM) Curriculum. It aims to ensure that all learners achieve their potential by equipping them with 21st Century skills, competencies, character qualities and shared Ghanaian values. This will prepare learners to live a responsible adult life, further their education and enter the world of work.

This is the first time that Ghana has developed an SHS Curriculum which focuses on national values, attempting to educate a generation of Ghanaian youth who are proud of our country and can contribute effectively to its development.

This Book Two of the Teacher Manual for Art and Design Foundation covers all aspects of the content, pedagogy, teaching and learning resources and assessment required to effectively teach Year One of the new curriculum. It contains information for the second 10 weeks of Year One. Teachers are therefore to use this Teacher Manual to develop their weekly Learning Plans as required by Ghana Education Service.

Some of the key features of the new curriculum are set out below.

Learner-Centred Curriculum

The SHS, SHTS, and STEM curriculum places the learner at the center of teaching and learning by building on their existing life experiences, knowledge and understanding. Learners are actively involved in the knowledge-creation process, with the teacher acting as a facilitator. This involves using interactive and practical teaching and learning methods, as well as the learner's environment to make learning exciting and relatable. As an example, the new curriculum focuses on Ghanaian culture, Ghanaian history, and Ghanaian geography so that learners first understand their home and surroundings before extending their knowledge globally.

Promoting Ghanaian Values

Shared Ghanaian values have been integrated into the curriculum to ensure that all young people understand what it means to be a responsible Ghanaian citizen. These values include truth, integrity, diversity, equity, self-directed learning, self-confidence, adaptability and resourcefulness, leadership and responsible citizenship.

Integrating 21st Century Skills and Competencies

The SHS, SHTS, and STEM curriculum integrates 21st Century skills and competencies. These are:

- **Foundational Knowledge:** Literacy, Numeracy, Scientific Literacy, Information Communication and Digital Literacy, Financial Literacy and Entrepreneurship, Cultural Identity, Civic Literacy and Global Citizenship
- **Competencies:** Critical Thinking and Problem Solving, Innovation and Creativity, Collaboration and Communication
- **Character Qualities:** Discipline and Integrity, Self-Directed Learning, Self-Confidence, Adaptability and Resourcefulness, Leadership and Responsible Citizenship

Balanced Approach to Assessment - not just Final External Examinations

The SHS, SHTS, and STEM curriculum promotes a balanced approach to assessment. It encourages varied and differentiated assessments such as project work, practical demonstration, performance assessment, skills-based assessment, class exercises, portfolios as well as end-of-term examinations and final external assessment examinations. Two levels of assessment are used. These are:

- Internal Assessment (30%) – Comprises formative (portfolios, performance and project work) and summative (end-of-term examinations) which will be recorded in a school-based transcript.
- External Assessment (70%) – Comprehensive summative assessment will be conducted by the West African Examinations Council (WAEC) through the WASSCE. The questions posed by WAEC will test critical thinking, communication and problem solving as well as knowledge, understanding and factual recall.

The split of external and internal assessment will remain at 70/30 as is currently the case. However, there will be far greater transparency and quality assurance of the 30% of marks which are school-based. This will be achieved through the introduction of a school-based transcript, setting out all marks which learners achieve from SHS 1 to SHS 3. This transcript will be presented to universities alongside the WASSCE certificate for tertiary admissions.

An Inclusive and Responsive Curriculum

The SHS, SHTS, and STEM curriculum ensures no learner is left behind, and this is achieved through the following:

- Addressing the needs of all learners, including those requiring additional support or with special needs. The SHS, SHTS, and STEM curriculum includes learners with disabilities by adapting teaching and learning materials into accessible formats through technology and other measures to meet the needs of learners with disabilities.
- Incorporating strategies and measures, such as differentiation and adaptive pedagogies ensuring equitable access to resources and opportunities for all learners.
- Challenging traditional gender, cultural, or social stereotypes and encouraging all learners to achieve their true potential.
- Making provision for the needs of gifted and talented learners in schools.

Social and Emotional Learning

Social and emotional learning skills have also been integrated into the curriculum to help learners to develop and acquire skills, attitudes, and knowledge essential for understanding and managing their emotions, building healthy relationships and making responsible decisions.

Philosophy and vision for each subject

Each subject now has its own philosophy and vision, which sets out why the subject is being taught and how it will contribute to national development. The Philosophy and Vision for Art and Design Foundation is:

Philosophy: Learners of Art and Design Foundation would be empowered through visual literacy, critical design thinking, communication and collaboration, and digital literacy to create design solutions in a learner-centred environment leading to creative local and global citizenship.

Vision: Learners equipped with critical design thinking skills, innovative ideas, thoughts and competencies to create 21st century products and solutions through the application of Art and Design Foundation concepts, practices for life-long learning and world of work as responsible citizens.

SUMMARY SCOPE AND SEQUENCE

S/N	STRAND	SUB-STRAND									
			YEAR 1			YEAR 2			YEAR 3		
			CS	LO	LI	CS	LO	LI	CS 3	LO 3	LI 3
1.	The Creative Journey (From Caves To 21st Century)	Art Across Times	3	3	9	3	3	7	3	3	8
		Design History	1	1	2	1	1	2	1	1	2
2.	Aesthetics and Criticism	The world around us	2	2	6	2	2	6	2	2	6
		Making judgements	1	1	2	1	1	3	1	1	3
3.	Design For Life	Design thinking and composition	1	1	3	1	1	3	1	1	2
		Colour theory and application	1	1	3	1	1	3	1	1	3
		Relation of Forms	1	1	2	1	1	3	1	1	2
Total			10	10	27	10	10	27	10	10	26

Overall Totals (SHS 1 – 3)

Content Standards	30
Learning Outcomes	30
Learning Indicators	80

SECTION FIVE: ARTISTIC FORM AND CONTENT

Strand: Aesthetics and Criticism

Sub-Strand: Making Judgements

Learning Outcomes: *Analyse artistic forms and content to conduct art appreciation.*

Content Standard: Construct meaning by systematically evaluating artistic form and content.

INTRODUCTION AND SECTION SUMMARY

In our previous section, we were introduced to the meaning of form and content of an artwork. We also came across vocabulary that we may come across during our research and use when writing about artworks.

This section is intended to introduce learners to the rigours of art criticism. It takes learners through the steps involved in organising a successful critique. The steps discussed in this section include observation of artworks, focusing on details such as colour, texture, composition, and form for content information. The section also looks at the gathering of information about artists, their backgrounds and the historical context which helps with understanding the intentions and the socio-cultural circumstances surrounding the production of their artworks. The analysis of formal elements such as line, shape, colour, texture, space, and composition shared here is intended to help learners understand their contribution to aesthetic experience in artworks. The section also looks at the formulation of interpretation based on themes, symbols, and narratives related to broader artistic, cultural, or social issues, and contextualising artworks within their historical and cultural context, considering societal norms, political events, and artistic movements. Critiquing artwork involves assessing its strengths and weaknesses, supporting your critique with evidence, and comparing and contrasting the artwork to other works by the same artist, the period in which the artwork was done, or the movement to which it belongs to form a critical judgement on the artwork.

Weeks covered by this section are:

Week 15: Identify and categorise elements and constitutions of artistic content and forms.

Week 16: Analyse the combination of artistic form and content to make artistic decisions.

SUMMARY OF PEDAGOGICAL EXEMPLARS

The section's pedagogical approach for art and design criticism combines experiential, problem-based, and project-based learning, as well as collaborative learning and critical thinking, to develop critical judgement in these fields. Learners work together in groups to visit museums, galleries, and artist workshops to explore artworks or use visual resources such as images in books, photos and videos for their activities. This hands-on approach helps them identify and document the content, form, and other qualities in artworks. During the activities, they explore personal biases and cultural differences, promote respect for diverse beliefs and backgrounds reflected in artworks, and collaboratively investigate and curate a collection of artworks to deepen their understanding of artistic expression. Learners collaborate in small groups to compile and categorise elements of artistic form and content in selected works, analyse and share their observations to seek feedback, broaden insights, and foster peer-to-peer learning. Additionally, they create mind maps to illustrate their understanding of artistic form and content. This enhances critical thinking, problem-solving, and vocabulary by encouraging thoughtful analysis and improving interpretation and evaluation

abilities. These pedagogical approaches help learners develop critical judgement capacities by engaging analytic questioning from diverse perspectives on selected artworks to encourage a deeper appreciation for visual expression and complexities.

ASSESSMENT SUMMARY

Assessment strategies for evaluating competencies for making judgements in art and design cover all levels of Depth of Knowledge (DoK) to accommodate varying levels of proficiency. At Level 1, which involves recalling and reproducing facts, oral responses are sometimes accepted, while Level 2, focusing on concept building and conceptual understanding, requires effort and demonstration of understanding. For higher competencies, Levels 3 and 4 entail strategic thinking and extended critical thinking and reasoning. At these levels, more challenging tasks are assessed to ensure that every learner's needs are addressed, including group assignments which look at the strengths and weaknesses of individual learners within a group situation. In practical tasks, learners categorise and explain the components of form and content in art and design, often making annotated notes on images to highlight these aspects. Additionally, they create concise slide presentations to showcase their understanding of form and content in various artworks. Another activity involves creating a mind map to explain the relationships between form and content in art and design. Learners also generate reports analysing the artworks they have studied, drawing insights from the charts, mind maps, and categories they have developed. Assessment of these activities is intended for learners to deepen their comprehension, analytical and communication skills on artworks.

WEEK 15

Learning Indicator(s): *Identify and categorise elements and constitution of artistic content and forms.*

Theme or Focal Area: Steps to Writing Appreciation and Interpretation of Artworks

When we appreciate artworks or critique them, we look, we see, and we think about what we discover in them. We then go on to describe, interpret, analyse and evaluate the work. We support our conclusions about the work through observations and research based on what we find in the artwork itself and on information that reflects the time and place of the production of the work. In short, art criticism is about interpreting and evaluating artworks based on techniques, style, symbolism, historical context and emotional impact, with steps to guide the process.

Writing an Appreciation (stages)

Stage 1: Making notes

Stage 2: Organising notes

Stage 3: Preparing a preliminary outline

Stage 4: Writing draft, Outlining draft

Interpreting Artworks Through:

- Initial careful observation of the artwork, paying attention to details such as colour, composition, texture, and form.
- Gathering information about the artist, including background, the associated art movement and the historical context within which they worked. This helps gain an understanding of what the artist intended to convey and the environmental influences on their work.
- Evaluating the formal elements of the artwork such as line, shape, colour, texture, space, and composition. This helps gain an understanding of how these elements contribute to the overall visual impact of the artwork.
- Formulating your interpretation of the artwork by considering the themes, symbols, and messages it conveys, and how these relate to broader artistic, cultural, or social issues.
- Contextualising the artwork within its historical and cultural setting. Consider how societal norms, political events and artistic movements might have influenced the artist's work.
- Making a critique of the artwork by assessing its strengths and weaknesses. Support your critique with evidence from your observations, research, and interpretation.
- Comparing and contrasting the artwork with other works by the same artist or by others from the same period or movement that used similar themes.
- Providing a context for your art criticism. Tailoring your language and level of detail for your audience, acknowledging a breadth of personal interpretation.
- Reaching a conclusion and summarising your analysis and evaluation of the artwork, highlighting key points and insights, and sharing final thoughts on its significance within art history and contemporary culture.

STEPS to Writing Appreciation and Interpreting Artworks

STEP 1

Look closely at the work of art and note:

- The form of the work
- Elements and principles in the work
- the context of the work
- the subject matter
- artistic choices that make up the artwork.

These are the artwork's basic characteristics, including the placement of elements like objects and figures, and the use of space and perspective, which are accessible to anyone who seeks to understand it.

STEP 2

Describe the artwork in some detail, considering the following questions to help with an analysis of the elements, content and form therein:

- What elements of art and design are used in the work?
- How are the elements of art and principles of design used in the work?
- What is the subject/context of the artwork?
- What themes and ideas are explored?
- What is the artist trying to convey?

Learning Task

1. Identify and document the elements of the form of selected artworks.
2. Identify and document the elements of the content of selected artworks.
3. Create mind maps depicting the relationship and interplay between artistic form and content, visually representing their connection in selected artworks.
4. Categorise and discuss elements of artistic form and content in chosen artworks.

Note:

In an attempt to ensure that learners identify, analyse and categorise artistic form and content in art and design works by renowned artists, teachers should provide support systems to facilitate learning among learners approaching proficiency, learners who are proficient, and learners of high proficiency level.

Pedagogical Exemplars

Experiential Learning; Group Work/Collaborative Learning: In mixed groups, visit museums, galleries, art shops, and artist's workshops, or watch videos and photos to identify and record the content, form and other observable qualities in art and design works.

Problem-based Learning; Group Work/Collaborative Learning: In small mixed groups compile and categorise elements of artistic form and content in selected art and design works. Groups present thoughts while others comment and add.

Project-based Learning; Group Work/Collaborative Learning: In convenient groups, generate a mind map of artistic form and content. Be aware of personal biases and stereotypes issues and also respect individuals of different beliefs, religions, and cultures.

Key Assessment

Level 1 Recall: Categorise what constitutes form and content.

Level 2 Skills of conceptual understanding: Create limited slide presentations to categorise form and content for appreciation in art and design.

Level 3 Strategic Reasoning: Making notes with pointers on a copy/picture of a selected art and design object, illustrating what constitutes form and content.

Level 4 Extended Critical Thinking: Create a mind map with snapshots of images to illustrate relationships between form and content in selected art and design work for appreciation.

WEEK 16

Learning Indicator(s): *Analyse the combination of artistic form and content to make artistic decisions.*

Theme or Focal Area: Elements of Artistic Form and Content

STEP 3:

Analyse elements, content and form in particular artwork(s) using the following headings:

- **Elements of Artistic Form** – artistic form consists of the materials, together with visual elements, techniques, styles and spatial relationships used by artists to create visual representations in art.
- **Medium and Techniques** – Consider the creative, expressive techniques used by artists in the selected mediums (eg oil painting, sculpture, photography, digital art, etc).
- **Visual Elements** – Consider visual elements such as line, shape, colour, texture, space, and composition that have shaped the appearance of the artwork and in turn influenced your perception.
- **Style and Aesthetics** – Consider distinctive artistic styles and aesthetics that reflect the artist's unique approach and contribute to the overall visual appeal and impact of the work.
- **Spatial Relationships** – Discuss how compositional elements in the artwork have been arranged to influence visual effects and viewer perception.
- **Elements of content** – Consider how the elements of artwork have been expressed visually through such means as narrative and/or emotions and/or conceptual ideas and/or symbolism and/or metaphors.

STEP 4:

Consider an artwork in some depth, interpreting how elements, content and form are combined.

Artistic form and content

The creative process involves combining artistic form and content. This requires experimentation and discovery. Trusting instincts and intuition, the interplay between form and content guides the creation of impactful and meaningful artworks.

Here are a series of helpful questions on combinations of artistic form and content to consider when reaching conclusions on the evaluation of artworks:

Conceptual Content

- How does the conceptual content of the artwork, including underlying ideas, themes, messages and concepts influence the way you understand the work beyond obvious visual appearance and techniques?
- How do the form and visual elements of the artwork contribute to establishing an emotional tone?
- What role do factors such as colours and the overall composition play in this regard?

Appropriate Form

- In your view did the artist make the right choice of artistic form (such as painting, sculpture, photography or digital art) for the content of the work?
- Can the use of signs, symbols and metaphors in works of art convey abstract concepts or complex emotions with deep layers of meaning?

Balanced Creativity and Intention

- In your view did the artist's creative intentions overshadow the intended message?
- Did creativity remain paramount in your selected artwork without overshadowing the intended content?
- Did you think that the creative decision-making by the artist aligned with the intended message of the work?

Step 5:

Evaluate the elements, content and form of the artwork in some depth to include the provenance of the work.

The purpose of evaluating the elements of form and content and their possible combinations in artworks is to analyse how artists or designers were able to create interpretations for intended audiences.

Audience

Evaluating artworks' emotional impact requires considering varied audience perceptions and responses.

Audience responses can be complex as they view artworks with their own personal intellectual and cultural backgrounds that inform their reactions to art forms. Particular art and design works will be interpreted in terms that make each particular work personal and different.

The following essential questions further explain the key focal area:

- How does the artwork represent the sources of its production?
- How does it compare with artworks from the same era and place?
- In your view was the artist successful? Explain your response.

Using discussions in elements of form and content from previous steps, support your responses with well-informed evidence.

How do you relate to the work, emotionally and intellectually?

Learning Task

1. Identify basic artistic forms and content.
2. Discuss and generate chart/table/mind maps to categorise elements of form and content in selected works.
3. Analyse and discuss the decisions that may have led to the combination of artistic forms and content in selected artworks.
4. Sort and categorise content and required elements to create comprehensive appreciation reports in response to selected artworks.

Note:

In an attempt to ensure that learners analyse and explain artistic form and content, and their interrelationships in art and design by renowned artists, teachers should provide support systems to facilitate learning among learners approaching proficiency, those who are proficient and their peers in high proficiency level.

Pedagogical Exemplars

Group Work/Collaborative Learning: Problem-based Learning: In small groups, investigate (AP) to archive a collection of works of art and design for appreciation.

Group Work/Collaborative Learning /Project-based Learning: In smaller mixed groups, (P) create a chart to categorise various form and content elements in selected art and design works.

Critical Thinking, Problem-Solving and Language Literacy: Learners sort and categorise content and required elements (HP) to create mind maps and comprehensive reports in response to selected art and design work.

Key Assessment

Level 1: Recall: Explain artistic forms and content

Level 2: Strategic Thinking: Categorise elements of form and content in selected works

Level 3: Level 2 Skills of conceptual understanding: Develop charts and mind maps to categorise various form and content elements in selected art and design works.

Level 4: Extended Critical Thinking: Create appreciation reports in response to selected artwork.

Section 5 Review

The lessons in this section emphasised the importance of understanding key components of artworks, as the basis for appreciating their meaning. Learners were made aware that, central to every artwork is a nuanced interaction between subject, form, and content; i.e. form, being the visual elements, figures, and the artwork's physical presence as a medium. The content, on the other hand, investigates the artist's intentions, emotional expression, and the cultural or historical background of the artwork. These elements collectively are the foundation of artistic expression and their resultant objects, inviting audiences on several journeys of interpretations.

Throughout history, artists have employed these components to communicate their ideas, emotions, and perspectives to varied audiences across time. The lessons also emphasised the development of essential competencies and skills crucial in art appreciation and criticism, and art and design creation. These include critical thinking, language literacies and communication, cultural competencies, problem-solving, and collaboration.

This section emphasised that knowledge of art and design demands a blend of creativity, technical proficiency, and critical thinking, especially in the appraisal of works of art. This synthesis enables individuals to create artworks that resonate with the audience and evoke meaningful responses.

References

From the Curriculum and other sources

- Copley, P., & Jansz, L. (1998). *Semiotics for beginners*. Icon Books (Penguin Group).
- Bassani, E. (2005). *Arts of Africa: 7000 Years of African Art*. Skira.
- Barrett, T. (1994). *Criticizing Photographs: An Introduction to Understanding Images*, Mayfield Publishing.
- Chandler, D. (1994). *Semiotics for beginners*.
- Chandler, D. (2022). *Semiotics: the basics*. Routledge

SECTION SIX: **ELEMENTS AND PRINCIPLES OF ART AND DESIGN**

Strand: **Design For Life**

Sub-Strand: Design thinking and composition

Learning Outcome: *In response to a given societal problem: apply elements and principles of art and design and design thinking to generate ideas visually, materially, spatially and in experiential environments. Use natural objects from the immediate environment.*

Content Standard: Demonstrate knowledge and application of elements and principles of art and design thinking in the real world (environment).

INTRODUCTION AND SECTION SUMMARY

This section focuses on design elements and principles of design and the design problem-solving process. The elements of art and design are basic building blocks, which are line, colour, tone, texture, shape, form, space etc. Artists and designers use these elements to express ideas. These principles of art are balance, rhythm, emphasis, harmony, variety, gradation, movement, and proportion. However, the use of the elements and principles of design involves a design thinking process. This process requires observation of human interaction with their environment and can provide insights to enable the creation of innovative solutions.

It is essential to clearly define the problem to ensure clarity and focus on the design process. Creating a design brief which clearly defines the problem and outlines the parameters within which it should be solved is an essential part of the designing process. The brief deals with idea generation and provides direction and advice on the source material for devising prototypes that address the problem. The prototype involves the iterative generation of artefacts intended to answer questions/problems dealing with form and function and leading to the final solution. This solution, in the form of the design prototype, must be evaluated and tested to assess its success or otherwise in addressing/solving the problem set by the brief.

The weeks covered by the section are:

Week 17: Identify and discuss the key elements and principles of art and design.

Week 18: Describe how the elements and principles of art and design are used to generate ideas artworks.

Week 19: Identify and discuss key elements and stages of the design thinking process.

SUMMARY OF PEDAGOGICAL EXEMPLARS

The teacher introduces the section concerning their previous knowledge of design concepts.

Learners are organised in mixed-ability groups to brainstorm, identify and discuss the key elements and principles of art and design concerning natural and human-made objects in their environment.

Learners should work individually to generate a manual/digital scrapbook of the key elements and principles of art and design in the natural and man-made environment. Additionally, in mixed-ability groups, learners should prepare a 3-minute video/photo presentation to explain the differences and similarities between the elements and principles of art and design found in natural and artificial objects.

Teachers are to be conscious of the weight of the tasks on learners so that learners are not stressed by the magnitude of the tasks. Proficiency level is essential in differentiation and must be applied by the teacher. Some learners may not perform to meet the expected task, others may work to meet the main objective(s), yet others may work beyond the expectations and requirements of tasks in this section.

ASSESSMENT SUMMARY

Formative assessment should be emphasised in all class engagement. Assessment should make provision for learners who are approaching proficiency, those who are proficient, and learners of high proficient level. As such, the teacher should consider the strengths and weaknesses of learners in the class concerning their levels of proficiency/ability. Outputs of learners in this section should include oral and written responses, the creation of scrapbooks, and presentations of 3-minute video or photo presentations to outline the distinctions and overlapping elements of art and design found in both natural and human-made items.

It is expected that depending on the strength of learners, workloads and assessments would be staggered. For instance, learners approaching proficiency can do 4 out of 10 (40%) assigned tasks, while proficient learners do 6 to 7 out of 10 (65%), for highly proficient learners do 9 to 10 out of 10 (100%) as their expected workloads for assessment. The foregoing percentages of achievement are not prescriptions per se but expectations for teachers' consideration.

WEEK 17

Learning Indicator: *Identify and discuss the key elements and principles of art and design.*

Theme or Focal Area: Key elements and principles of art and design

The elements of art and design are basic components, or building blocks: line, colour, tone, texture, shape, form, space etc. Artists and Designers use the elements of art to express their ideas.

Line refers to a continuous mark, of any length, made on a surface by mediums such as pens, pencils, brushes etc. Lines can be created by a moving point such as those made by a ballpoint pen moving across a sheet of paper. They might be horizontal, vertical, diagonal, or curved, etc. Certain feelings or sensations can be associated with these movements. Vertical, or straight up and down, suggests strength and stability. Horizontal, or from side to side, suggests calmness. The diagonal suggests tension. Curved suggests a graceful movement.

Colour is an element made up of three basic qualities: hue, intensity, and value. It is a reflection of the transmission of a particular wavelength from an object to the eye. Hue refers to the attributes of colour that allow an observer to classify it as red, blue, green, purple, etc and does not include white, black, and shades of grey. It is used to point out the difference between red and green, or blue and yellow. Intensity refers to the relative purity or brightness of a colour while value refers to that hue's lightness or darkness.

Tone refers to how dark or light a colour or a shade is perceived. In tonal drawings or paintings, the picture space is made using a range of lighter or darker shades of one colour. You can make a tonal drawing using pencil or charcoal. Build up the darkest shades by pressing harder with your pencil or working layers over another to get a denser shade. You might pick out highlights with an eraser, and then put in gradations of mark between the brightest and darkest shades.

Texture deals with the way things feel or look when touched or viewed. It may be smooth or rough, scaly or rugged, bumpy or woolly.

Shape refers to a two-dimensional area. Shapes are flat and limited to only two dimensions: length and width. But form depicts the three-dimensionality of an object. Two important features of form are mass and volume. Mass refers to the outward size and bulk of a form, but volume refers to the space within a form.

Space deals with the distance or area between, around, above, below, or within things/objects. It can be either three-dimensional or two-dimensional.

Learning Tasks

1. Identify the key elements of art and design that can be found in a selected household product designed for everyday use.
2. Analyse and record the key elements and principles of art and design in the natural and man-made environment.
3. Examine the differences and similarities between the elements and principles of art and design found in nature and manufactured objects.

Note:

In an attempt to ensure that learners understand, identify and discuss the key elements and principles of art and design, the teacher should provide support systems/materials to facilitate learning among learners approaching proficiency, learners who are proficient, and learners of high proficiency level.

Pedagogical Exemplars

Group Work/Collaborative Learning: Put learners in mixed groups and task them to brainstorm to identify and discuss the key elements and principles of art and design.

Self-directed Learning: Working individually, let learners generate a personal manual/digital scrapbook of the key elements and principles of art and design in the natural and man-made environment.

Experiential/Project-based Learning: Working in groups, task learners to prepare a 3-minute video/photo presentation to explain the differences and similarities between the elements and principles of art and design found in natural and artificial objects.

Key Assessment

Level 2: Concept Reinforcing and Skills Building: Identify and discuss the key elements and principles of art and design.

Level 3: Strategic Thinking: In oral and written form, identify selected natural objects from the immediate environment and organise them in a video presentation to address a social problem.

Level 4: Extended Critical Thinking: Create scrapbooks of the key elements and principles of art and design in the natural and human-made environment.

Level 5: Extended Critical Thinking: Create a 3-minute video or photo presentation to outline the distinctions and overlapping elements of art and design found in both natural and man-made items.

Theme or Focal Area: Key elements and principles of art and design

To organise different elements into a composition, the artist or designer employs certain principles or guidelines. These principles of art are balance, rhythm, emphasis, harmony, variety, gradation, movement, and proportion.

- **Balance:** Refers to how elements are combined to add a feeling of equilibrium or stability to a work of art. Balance can be of diverse kinds: symmetrical, asymmetrical, radial, etc. Symmetrical balance is a formal balance in which two halves of a work/design are identical; one half mirrors the other half. Asymmetrical balance is informal, with no defined symmetry.
- **Emphasis:** Emphasis deals with the element(s) stressed in a composition or design. Contrasting elements are sometimes used to direct the focus of the viewer in the composition.
- **Harmony:** Is achieved through the use of repetition and subtle, gradual changes.
- **Variety:** Refers to combining different elements to create intricate and complicated relationships. It is achieved through diversity and change.
- **Gradation:** Gradation refers to the process of combining elements by using a series of gradual changes in those elements. Examples of gradation include a gradual change from small shapes to large shapes or from a dark hue to a light hue.
- **Movement:** This is the principle through visual language to influence or direct the viewer's visual perception of a work of art.

- **Rhythm:** Rhythm is created by the conscious and careful placement of repeated elements in a work of art to cause a visual tempo or beat. These repeated elements invite the viewer's eye to glide smoothly from one to the next.
- **Proportion:** Refers to the inter-relationship of elements within a composition.

Learning Tasks

1. Learners working in mixed-ability groups identify natural and human-made objects and design a table to explain key elements and principles of art and design.

Image (drawing/ photograph/realia)	Elements identified	Principles applied

2. Learners working in mixed groups, explain through class discussion, key elements and principles of art and design. Additionally, they should create specific artworks for everyday use.

Pedagogical Exemplars

Group Work/Collaborative Learning: Learners in mixed-ability groups should identify and discuss the key principles of art and design through brainstorming.

Working individually: Working individually, learners should generate a manual/digital scrapbook of the key principles of art and design in the natural and man-made environment.

Experiential/Project-based Learning: Learners in groups should prepare a 3-minute video/photo presentation to explain the differences and similarities between the elements and principles of art and design found in natural and artificial objects.

Key Assessment

Level 1: Concept Reinforcing and Skills Building: Identify and discuss the key elements and principles of art and design.

Level 2: Strategic Thinking: In oral and written form, identify selected natural objects from the immediate environment and organise them in a video presentation to address an identified social problem.

Level 3: Extended Critical Thinking: Create scrapbooks of the key elements and principles of art and design in the natural and human-made environment.

Level 4: Extended Critical Thinking: Create a 3-minute video or photo presentation to outline the distinctions and overlapping elements of art and design found in both natural and man-made items.

WEEK 18

Learning Indicator(s): *Describe how the elements and principles of art and design are used to generate ideas for artworks.*

Theme or Focal Area: Identification and application of elements and principles of design

Reference to Previous Lesson

Concerning the previous lesson, identify and describe elements and principles of art and design that can be found in nature and human-made objects in your community.

Working with Elements and Principles:

Combining elements and principles has boundless variations that make the creation of art an exciting and great challenge for the artist. At any place or in any period, the learner can work with these basic tools and rules described earlier.

Elements of art and design: colour, value, line, texture, shape, form, and space.

Principles of art and design: balance, rhythm, emphasis, harmony, variety, gradation, movement, and proportion.

Learning Tasks

1. Choose four elements and create a design using simple art materials.
2. Discuss how the principles of art and design: balance, emphasis, harmony, variety, gradation, movement/rhythm, and proportion can be used in creating your design.
2. Display your design and describe how you used the principles in creating your design. (These activities deepen their citizenship, leadership, and anticipatory thinking skills.)

Pedagogical Exemplars

Experiential Learning: In small groups, let learners analyse designs and objects from the natural and human-made environment to determine the elements and principles of art and design that can be found in them. This can be done through educational trips to the immediate environment to pick and study found objects.

Structuring talk for Learning: In a class discussion, let learners deduce how the elements and principles of design have been used in the designs and objects from the natural environment.

Experiential/project-based Learning: In groups, guide learners to prepare a 3-minute video presentation to explain how the elements and principles of art and design can be used to develop ideas for making art and design work.

Key Assessment

Level 1: Skills of Conceptual Understanding: Analyse designs and objects from the environment to project the elements and principles of art and design that can be found in them.

Level 2: Strategic Reasoning: Analyse how the elements and principles of design have been used in specific designs.

Level 3: Strategic Reasoning: Produce a 3-minute video to explain how the elements and principles of art and design can be used to develop ideas for making art and design work.

WEEK 19

Learning Indicator(s): *Identify and discuss key elements and stages of design thinking process.*

Theme or Focal Area: Identification and application of elements and principles of design

Design thinking refers to the process of researching users' needs, developing ideas and creating art and design products based on challenging assumptions.

Design thinking is a non-linear process that focuses on collaboration between designers and users. It brings innovative solutions to life based on how real users think, feel and behave.

The design thinking process consists of phases/stages:

- Empathise,
- Define,
- Ideate,
- Prototype and solutions
- Test

Empathise: Research your customers'/users' needs.

Define: State the parameters of the problem.

Ideate: Challenge assumptions and create ideas.

Prototype: Start to create and provide solutions.

Test: Try out your solutions.

Design thinking focuses on customers/users of products/services. It may involve broad, multi-disciplinary influences. It also involves ideation with prototyping, and finding alternatives to address the problem(s).

It is important to note that these stages are a guide. The non-linear nature of design thinking indicates that the design team can carry these stages out simultaneously, repeat them and even track back to previous stages at any point in the design thinking process.

Learning Task

1. Identify the key elements and stages of the design thinking process used in creating objects and designs.
2. Analyse and record how the key elements and stages of the design thinking process can be seen in real-life situations.
3. Explore how to use the design thinking process in creating products to solve problems in the community.

Note:

In an attempt to ensure that learners analyse and explain visuality, meaning-making, and art and design production about art and design, the teacher should provide support systems to facilitate

learning among learners approaching proficiency, learners who are proficient, and learners of high proficiency level

Pedagogical Exemplars

Structuring Talk for Learning: In a class discussion, brainstorm the key phases of the design thinking process.

Empathise

Define

Ideate

Prototype

Test

Experiential Learning: In small groups, research and document design thinking processes in selected popular products on the Ghanaian market and discuss how they can be applied to similar problems in the community for class presentation.

Group Work/Collaborative Learning: In smaller groups, simulate the design thinking process in creating products to solve problems in the community.

Key Assessment

Level 1: Recall: Explain the term design thinking.

Level 2: Skills of conceptual understanding: Explain the key phases of the design thinking process.

Level 3: Strategic reasoning: Analyse the design thinking process to select popular products in the Ghanaian market.

Level 4: Extended critical thinking and reasoning: Create a product to solve selected problems in the community based on the design thinking process in selected popular products on the Ghanaian market.

Section 6 Review

The section delved into the world of art and design, exploring the fundamental elements and principles that make up the field. From the beauty of nature to the complexities of human creations, learners are introduced to the essential elements such as colour, line, and shape which serve as the building blocks of visual expression. These elements can be found everywhere, from common household items to architecture and automobiles, and even in the vibrant colours of paintings and design objects. Additionally, learners were taken through the principles of art and design, such as balance and rhythm to assist them in creating good compositions. These principles helped learners to create unity and movement in their various art and design activities. Furthermore, the section introduced learners to the concept of design thinking - a process that combines empathy and innovation to solve problems, in which they were open to clarity of thought, definition of identified problems, and brainstorming of ideas, to develop and refine design solutions through the creation of prototypes.

References

- Brommer, G. F. (2010). *Illustrated Elements of Art and Principles of Design: Hands-on Activities, Full-Color Reproductions, Descriptions of Each Concept*. Crystal Productions.
- Brown, T. (2020). *Design Thinking*, HBR's 10 Must Reads on Design Thinking. Harvard Business Review Press.
- Jackson, C., & Ciolek, N. (2017). *Digital design in action: Creative solutions for designers*. AK Peters/CRC Press.
- Lewrick, M., Link, P., & Leifer, L. (2020). *The design thinking toolbox: A guide to mastering the most popular and valuable innovation methods*. John Wiley & Sons.
- Lewrick, M., Link, P., & Leifer, L. (2018). *The design thinking playbook: Mindful digital transformation of teams, products, services, businesses and ecosystems*. John Wiley & Sons.
- Matsinde, T. (2015). *Contemporary Design Africa*. (No Title).
- Wakerly, J. F. (2008). *Digital Design: Principles and Practices, 4/E*. Pearson Education India.

SECTION SEVEN: COLOUR THEORY AND APPLICATION

Strand: **Design For Life**

Sub-Strand: Colour theory and application

Learning Outcome: *Use knowledge of colour schemes to interpret real-life situations in response to societal problems.*

Content Standard: Demonstrate understanding and application of colour theory, colour schemes, relationships and the mood they express in design

INTRODUCTION AND SECTION SUMMARY

This section introduces the learner to colour theory, which discusses the concept, rules and guidelines that artists and designers use to communicate with users through various colour schemes. It involves the body of practical guidance for colour mixing and their visual effects. Colour affects people in many ways, both mentally and physically. The colours chosen and applied for the design may form a colour scheme. The colour scheme could be complementary, analogous, triadic, or split complementary. Complementary colours are colours opposite each other on the colour wheel, for instance, red and green. Analogous colour schemes comprise colours that are next to each other on the colour wheel while triadic colour scheme uses colours that are evenly spaced around the colour wheel. The split-complementary colour scheme shows a variation of the complementary colour scheme that has a similar strong visual contrast to the complementary colour scheme but has less tension.

The section also introduces learners to the expression of mood in a colour scheme which takes diverse forms, depending on the choice of colour(s). By selecting the appropriate colour scheme, one can create a feel of elegance, tranquillity, and warmth, or convey an image of enthusiasm or playful youthfulness.

The weeks covered by the section are:

Week 20: Identify and explain colour schemes and the mood they express.

Week 21: Analyse and explain the use of pigment colours, spectrum colours, and environmental ideas in the creation of artworks.

Week 22: Exhibit/display drawings and designs that relate basic contours and forms in the environment using conventional and non-conventional materials.

SUMMARY OF PEDAGOGICAL EXEMPLARS

This section is designed to help learners explore the fundamentals of colour theory and its practical application in art and design. It offers a range of interactive, collaborative, and experiential learning activities that cater to different learning styles. Throughout the section, learners will work in groups to discuss and create charts that explore how different colours can convey diverse emotions. Learners will be taught to differentiate between colour theory and colour schemes. They will learn how to create video presentations that showcase how colour theory is used in packaging design. Additionally, learners will create charts to illustrate the difference between pigment colours and colours on the spectrum. They will also examine the fundamental features of these colours in small groups, investigate how colours are used in creating art and designs, and explore the environment to identify the characteristics of pigment colours and colours of the spectrum in natural and man-made objects. To further reinforce

their understanding, learners will create a scrapbook to show the difference between pigment colours and colours of the spectrum, and how they are used in the design of packaging for selected products. Finally, learners will engage in problem-based learning by generating a colour wheel and a colour mixing chart for pigment colours and colours of the spectrum. They will then use available tools and techniques to create art and design works that meet the social and emotional demands of the project.

ASSESSMENT SUMMARY

In connection with the pedagogical exemplars, formative assessment should be emphasised in this section. Assessment practices in this section should make provision for learners who are approaching proficiency, those who are proficient, and learners of high proficiency levels. As such, the teacher should consider the academic performance of learners in the class concerning their levels of proficiency/ability. Outputs of learners in this section should include oral and written responses, definitions of the terms in colour theory, colour scheme, and mood expression in art and design and explaining their differences. It is expected that depending on the capacities of learners, workloads and assessments would be staggered. For instance, learners approaching proficiency can do 4 out of 10 (40%) assigned tasks, while proficient learners do 6 to 7 out of 10 (65%), for highly proficient learners from 9 to 10 (100%) as their expected workloads for assessment. These figures are not prescriptions per se but suggestions for teachers' consideration.

WEEK 20

Learning Indicator: *Identify and explain colour schemes and the mood they express.*

Theme or Focal Area: **Colour Theory, Colour Schemes and Mood Expression**

Colour Theory

Colour theory refers to the concept of rules and guidelines which artists and designers use to communicate with users through pleasing colour schemes. It may also be considered as the body of practical guidance for colour mixing and the visual effects of a specific colour combination.

Colour Scheme

Artists or designers can use colour to energise or to cool down. Colour can be a most powerful design element if used effectively. Thus, colours affect people in many ways, both mentally and physically. The palette artists or designers choose may bring harmony to the design or it may destroy it. The colours chosen for the design form a colour scheme.

Some Colour Schemes**Complementary colour scheme**

Complementary colours are colours opposite each other on the colour wheel. Example: red and green). The high contrast of complementary colours creates a vibrant look especially when used in their raw state or saturation.



Figure 56: *Complementary colour scheme*

This colour scheme must be managed well so it does not disturb the eye. Though tricky to use in large doses, they work well when projecting something.

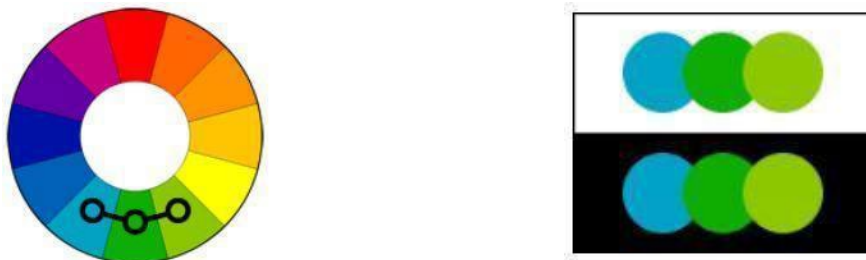


Figure 57: *Analogous colour scheme*

Analogous colour scheme

Analogous colour schemes involve colours that are next to each other on the colour wheel. They usually work well and create serene and comfortable designs. Usually, they occur in nature and are harmonious and pleasing to the eye.

Triadic colour scheme

The Triadic colour scheme uses colours that are evenly spaced around the colour wheel. They tend to be quite vibrant, even if one uses pale or unsaturated versions of the hues. To use a triadic harmony successfully, the colours should be carefully balanced.



Figure 58: Triadic colour scheme

Split-Complementary colour scheme.

The split-complementary colour scheme is a variation of the complementary colour scheme. In addition to the base colour, it uses the two colours adjacent to its complement. This colour scheme has a similar strong visual contrast to the complementary colour scheme but has less tension.



Figure 59: Split-Complementary colour scheme

Expression of mood in a colour scheme

This may take diverse forms, depending on the choice of colour(s). With colours, one can set a mood, attract attention, or make a statement. By selecting the right colour scheme, you can create a feel of elegance, tranquillity or warmth, or convey an image of enthusiasm or playful youthfulness.

Learning Tasks

1. Identify and discuss the colour schemes of both natural and human-made objects and make a chart of the colours and emotions they convey.
2. Discuss the emotions conveyed by the pigment colours, and spectrum colours, used by artists to create art and design works.
3. Analyse the differences between colour theory and colour scheme.
4. Examine how colour theory is used in the design of packaging for products to suit social and emotional demands.

Note:

In an attempt to ensure that learners analyse and explain visuality, meaning-making, and art and design production concerning art and design, the teacher should provide support systems to facilitate learning among learners approaching proficiency, learners who are proficient, and learners of high proficiency level.

Pedagogical Exemplars

Collaborative Learning; Talk for Learning: In a group discussion, distinguish between colour theory and colour scheme.

Experiential Learning/Problem-based Learning: In mixed groups, create a video or photo presentation that explains how colour theory is applied in the creation of packaging for selected products.

Key Assessment

Level 1: Recall: Define the terms colour theory, colour scheme, and mood expression in art and design. Accept oral and pictorial responses.

Level 2: Conceptual Understanding: Explain the differences between colour theory, colour scheme, and mood expression in art and design.

Level 3: Strategic reasoning: Create a video or photo presentation that explains how colour theory is applied in the creation of packaging for selected products.

WEEK 20 Continued

Learning Indicator(s): *Analyse pigment colours and that of the spectrum.*

Theme or Focal Area: **Pigment Colours and Colours of the Spectrum**

Pigments are colouring materials that are used in paints or dyes. These materials are obtained from nature from animals and plants. They can also be produced by the chemical industry. Paint is usually produced by mixing a pigment with a binder and solvent. It is the pigment that gives the paint its colour.

The pigment is finely ground powder from plants, the earth, stones, or minerals. The binder is a liquid that holds together the grains of pigment.

Colours of the spectrum (Light as the source of colour)

With light, people can perceive colours. In the dark people usually see nothing. White light is made up of all the colours of the rainbow. If a beam of light passes through a prism, different colours become visible. They are colours of the spectrum.

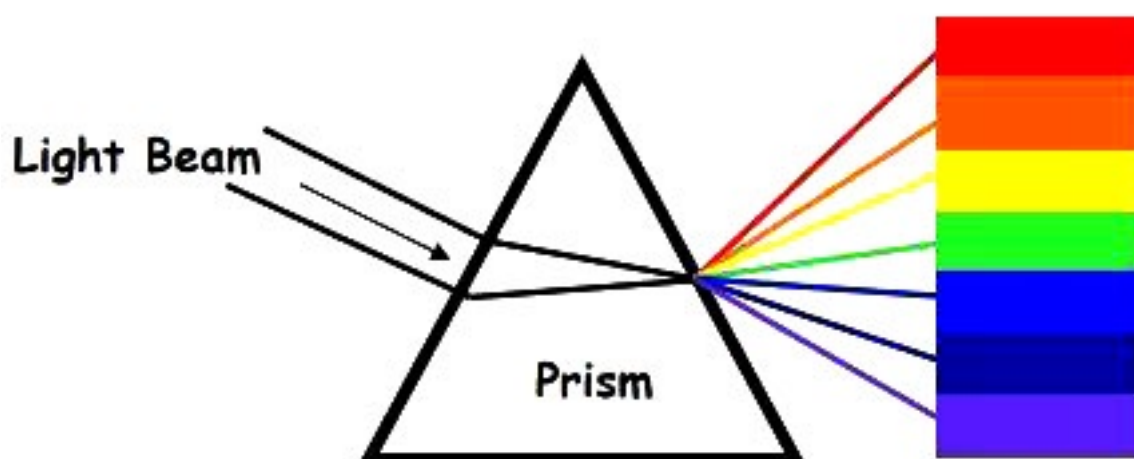


Figure 60: *Colours from the spectrum.*

Learning Task

1. Discuss the difference between pigment colours and colours of the spectrum.
2. Identify pigment colours and colours of the spectrum from objects in the environment.
3. Identify the characteristics of pigment colours and the colours of the spectrum.
4. Analyse how pigment colours and the colours of the spectrum are used in creating designs.

Pedagogical Exemplars

Experiential Learning/Structuring talk for learning: Individually, develop a chart to illustrate the distinction between pigment colours and colours of the spectrum.

Collaborative Learning: In small groups, examine the basic characteristics of pigment colours and the colour of the spectrum.

Explorative/Problem-based Learning: In small groups, investigate and explain how pigment colours and the colours of the spectrum are used in creating designs.

Key Assessment

Level 1: Recall: What are pigments? Give three examples of colours from a light source.

Level 2: Skills of conceptual understanding: Use any appropriate media to distinguish between pigment colours and colours of the spectrum.

Level 3: Strategic Reasoning: Research on the characteristics of a selected colour from pigment.

WEEK 21

Learning Indicator: *Analyse and explain the use of pigment colours, spectrum colours, and environmental ideas in the creation of artworks.*

Theme or Focal Area: Pigment colours and colours of the spectrum occur in natural and human-made objects

Colour is created by the interplay of light, colour-giving substances and the human eye. In this section, learners shall explore the environment/watch videos and photos to identify and record how pigment colours and colours of the spectrum occur in natural and man-made objects.

Some colours do not come directly from a light source. They are formed by an interplay of light, the human eye and colour-giving substances. Trees, flowers and fruits, human beings and animals, stones and even earth allow people to see numerous colours though they do not generate light themselves. They display colours through colour-giving substances.

These substances have the property to absorb a particular part of the spectrum and reflect another. If one sees a green object under white light, then this item contains a colour-giving substance which absorbs the yellow, orange, purple, blue and red components of the light. Only the green component is reflected in the eyes.

Learning Task

1. Explore how colour of pigments and colour of lights are used in at least three events or manufacturing.

Pedagogical Exemplars

Experiential Learning/Explorative Learning: Learners should explore the environment or watch videos and photos to identify, record and state the characteristics of pigment colours and colours of the spectrum occurring in natural and man-made objects.

Experiential Learning/Self-Directed Learning: In small groups, learners investigate to generate a manual/digital scrapbook to show the difference between pigment colours and the colours of the spectrum and how they are applied in the creation of packaging for selected products.

Problem-based Learning: In groups/individually, generate a colour wheel and colour mixing chart of primary, secondary and intermediate colours for pigment colours and colours of the spectrum and also use available tools and techniques as well as pigment colours, and spectrum colours, to generate artistic ideas to create art and design works to suit social and emotional demands.

Key Assessment

Level 1 Recall: State any three or four differences between colours from pigment and spectrum colours.

Level 2: Conceptual Understanding: Identify and explain how pigment colours and colours of the spectrum occur in natural and man-made objects.

Level 3: Strategic reasoning: Generate a colour wheel and colour mixing chart of primary, secondary and intermediate colours for pigment colours and colours of the spectrum

Level 4: Extended critical thinking and reasoning: Use available tools and techniques as well as pigment colours, and spectrum colours, to generate artistic ideas to create art and design works to suit social and emotional demands.

WEEK 22

Learning Indicator: *Exhibit/display drawings and designs that relate basic contours and forms in the environment using conventional and non-conventional materials.*

Theme or Focal Area: Drawings relating to Contours and Forms

There are innumerable drawing styles that can be studied and explored, each one conveying a different final product. Naturally, different types of drawing have set purposes, for example outlining composition ideas, sketching and illustration. These styles all call upon different skills from the artist. Some are quite detailed and meticulous, requiring a lot of patience, while others work well when the artist can be loose, free and creative with their strokes.

There are various forms of drawing:

Line Drawing: Doodling; Cartoon/contour; Pointillism; Photorealism / Hyperrealism; Architectural; Anamorphic; Fashion

Media is an important component of any drawing style. Having the right mediums, whether dry or wet, will partially dictate what you can—and cannot—do in a work of art. Architectural sketching, for instance, would be very challenging with vine charcoal though much easier to create with a precision drawing pen.

Continuous line drawing, where a single, unbroken line is used to develop the image, is mostly used as a creative exercise to develop confidence in drawing skills. Many continuous line drawings can stand on their own as finished works of art.

Learning Task

1. Explore the use of diverse materials (at least two) and use of tools (at least two) for drawings outlines and forms.

Pedagogical Exemplars

Experiential Learning; Self-directed Learning: Working individually, learners analyse selected objects in the environment to identify and record their basic forms using preferred drawing styles, materials and media.

Experiential Learning; Explorative Learning: Working individually, learners generate a chart to distinguish between conventional and non-conventional media and techniques for creative expression through drawing.

Project-Based Learning/Collaborative Learning: In small groups/working individually, learners use conventional and non-conventional materials as well as modern and industrial approaches to create compositions of objects in the environment using modern and digital media.

Key Assessment

Level 1: Strategic reasoning: drawing at least five (5) objects in the environment. Encourage learners to use resources such as real objects, videos, photographs, drawings, and environmental observations.

Level 2: Strategic reasoning: Analyse selected objects in the environment and record their basic forms using preferred drawing styles.

Level 3: Extended critical thinking and reasoning: Create a composition using manual or digital media by using both conventional and non-conventional materials.

Level 4: Extended critical thinking and reasoning: Create a composition using manual or digital media, with the aid of both conventional and non-conventional materials.

Section 7 Review

The activities in the section introduced learners to the subject of colour and its impact on people, both mentally and physically. The introductory lessons highlighted how colours chosen and applied for art and design form a colour scheme, which could be complementary, analogous, triadic, or split complementary. Learners became aware that complementary colours are opposite each other on the colour wheel. Analogous colour schemes comprise colours next to each other on the colour wheel, and a triadic colour scheme uses colours that are evenly spaced around the colour wheel. A split-complementary colour scheme is a variation of the complementary colour scheme that has a similar strong visual contrast but less tension. The section provided an in-depth understanding of colour theory and its practical applications in art and design.

References

- Fujimura, M. (2021). *Art and Faith: A Theology of Making*. Yale University Press.
- Gage, J. (1999). *Color and meaning: Art, science, and symbolism*. University of California Press.
- Mollica, P. (2013). *Color Theory: An essential guide to color-from basic principles to practical applications (Vol. 53)*. Walter Foster.
- Agoston, G. A. (2013). *Color theory and its application in art and design (Vol. 19)*. Springer.

SECTION EIGHT: COMPOSITION

Strand: **Design For Life**

Sub-Strand: Relation of Forms

Learning Outcome: *Design and create art and design works by relating basic contours and forms in the environment using modern and digital approaches.*

Content Standard: Demonstrate knowledge and skills in relating forms and objective drawing by using available media and techniques for creative expression.

INTRODUCTION AND SECTION SUMMARY

This section deals with the relation of forms in art and design generically referred to as basic design. It discusses value, which refers to the relative lightness or darkness of colours. Furthermore, the section explains the concept of tonal values, which refer to the creation of tones from extreme lightness to extreme darkness of a colour or colours. The use of gradations or tonal values in drawing is important to make the surfaces appear more realistic.

The learner should note that tonal value can also be determined by organising values ranging from white to black with all shades of grey in between. This range constitutes most of the value shades in a drawing or painting. Artists and designers need to identify light, middle tones, and darks to enhance their compositions as they apply relationships of forms.

Drawings, paintings, or photographs may have multiple tonal values. These tones provide more detail and make the subjects extremely three dimensional. On the other hand, an image may have only a few tonal values such as high, mid and dark tones which make the subject very illustrative and more two-dimensional.

The weeks covered by the section are:

Week 23: Compose appropriate tonal values and hues for forms in drawing.

Week 24: Compose appropriate tonal values and hues for forms in drawing.

SUMMARY OF PEDAGOGICAL EXEMPLARS

Basic design in art and design involves understanding the relationship between form, colour, and tone. The section emphasises experiential and self-directed learning to help learners understand the importance of tonal values and hues in creating 2-D and 3-D art and design works. In small groups, learners identify and record hues and tonal values in man-made and natural objects in their environment. Problem-based learning and project-based learning further allow learners to analyse and use appropriate tonal values and hues to create forms of objects in the immediate environment in the drawing. Learners' research and record of how tones, values and hues have been used to create forms of objects in the immediate environment in drawing help learners gain a deeper understanding of design principles. Finally, generating a 24-scale tonal value for primary and secondary colours of pigment and colours of the spectrum, and using appropriate hues and tonal values to create a composition of objects in the immediate environment for appreciation and criticism can help learners improve their design skills.

ASSESSMENT SUMMARY

The section prioritises formative assessment on activities such as identifying the tonal values in a photograph or drawing or explaining how tonal values are distributed in natural objects. These activities help learners to demonstrate their understanding of tonal values and hues in the environment. Activities that task learners to produce a tonal values scale on selected objects, and apply their knowledge of tonal values and hues to create a visual representation of the objects provide feedback on the accuracy and quality of the students' work and guide them to improve their skills. The section uses various assessment strategies, including summative assessment, to evaluate the learners' understanding and application of tonal values and hues in creating a work of art and design. One such strategy is that learners are asked to create a composition in polychrome and showcase it for critique. The evaluation criteria for this task will primarily assess the quality of the composition, the use of tonal values, and the overall results. Additionally, learners create a 24-scale tonal value for primary and secondary colours of pigment as well as colours of the spectrum. This will show their understanding of the concept of tonal values of various colours and how they can be presented on a scale. This task also aims to apply tonal values to colour. By using these strategies, the section ensures that learners develop a deep understanding of tonal values and hues and can apply this knowledge in their work.

WEEK 23

Learning Indicator(s): *Compose appropriate tonal values and hues for forms in drawing.*

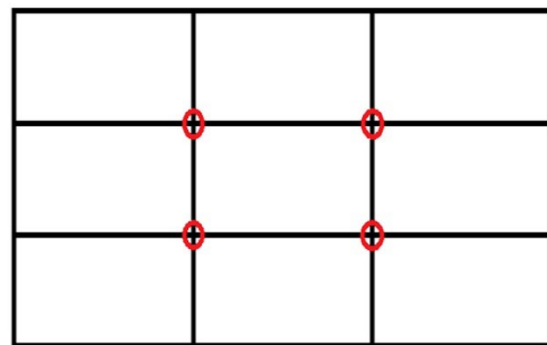
Theme or Focal Area: **Compose tonal values and hues for forms in drawing**

Understanding Composition

Composition is the arrangement of visual elements within a work of art. It is fundamental to drawing, determining how different parts of your work come together to form a cohesive and aesthetically pleasing whole. A good composition guides the viewer's eye through the piece, creates balance, and enhances the overall impact. It is to explore the basics of composition, including its key principles and practical tips to help create engaging drawings.

Key Principles of Composition

One essential principle is the Rule of Thirds. Imagine dividing your drawing into nine equal parts with two equally spaced horizontal and vertical lines. The rule suggests that, placing important elements along these lines or at their intersections, creates more interest and balance. Try, for instance, by placing your main subject off-centre rather than in the middle.



Rule of Thirds

Techniques-Rule-of-Thirds-in-Composition

Balance is a crucial element in drawing that refers to the distribution of visual weight in a composition. There are two main types: symmetrical and asymmetrical balance. Symmetrical balance involves evenly distributing elements on either side of a central axis, creating harmony and stability. Asymmetrical balance, on the other hand, balances different elements according to their visual weight (size, colour, texture) rather than being mirror images, resulting in interesting compositions. It is important to experiment with both types of balance to see how they affect your drawing.

Leading Lines are lines that guide the eye through the composition. They can be actual lines like roads or rivers or implied lines like the direction a person is looking. Use leading lines to draw attention to the focal point of your drawing and to create a sense of movement. Framing involves using elements within the composition to frame the main subject, helping to draw attention to the focal point and add depth. Use natural frames like trees, windows, or doorways to create focus on the main object.

Contrast involves using differences in light and dark, colour, texture, or size to create visual interest and draw attention to specific areas. Use contrast to highlight the focal point of your drawing and to create depth and dimension.

Practical Tips for Drawing Composition

Before starting your final drawing, create small, quick sketches (thumbnail sketches) to experiment with different compositions to see various arrangements to choose the best one. When starting a drawing project, it is beneficial to simplify your scene by concentrating on a few essential elements instead of including too much detail to maintain clarity and balance. Pay attention to the basic shapes and values (light and dark areas) in your composition - this can help create a strong foundation for your drawing.

Decide on the main subject of your drawing and make sure it stands out. Use the principles of composition to draw attention to this focal point. Practice observing and analysing artworks you admire, noting how the artists use composition principles to create balanced, engaging pieces.

Tonal Value

The skill of drawing and shading should be practiced in a conducive environment that is well ventilated and illuminated proper sitting arrangement, abundant supply of drawing materials as well as the psychological needs of pupils, should be well-catered for. To make drawings with shading and in three-dimensional forms, approaches to drawing with emphasis on critical observation and a clear understanding of all the details of the objects to be drawn should be considered.

All forms in nature fall into the cylinder, the sphere or the cube and a combination of them. Learners should be taught to study shapes in nature from familiar geometric shapes, gradually transforming them into solid geometric forms. By carefully observing objects, the amount of light reflected on it will help define the outlines and colour of the object, while the shade defines the form and bring out the volume as well as its shadow when tones are graded from white through greys to black.

Tonal value scale

Generally, value refers to the relative lightness or darkness of colours. For instance, in Fig. 62, the value of the ceramic vessel at the extreme right of the composition is darker than the fruit at the extreme left. However, it is not as dark as the vessel beside it. Tonal values refer to the creation of tones from extreme lightness to extreme darkness of a colour or colours.

Tonal value can also be done by organising values ranging from white to black. As shown in Fig. 61, number 1 is white and 8 is black. The shades of grey that are in between constitute most of the value shades in a drawing and or painting. It can be a very helpful tool for artists and designers to identify light, middle tones and darks to enhance their compositions.

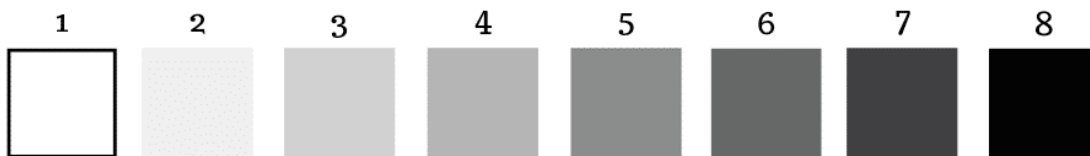


Figure 61: Tonal values scale (Source: Koehler, 2023).



Figure62: *Still Life Composition showing values in the objects.*

Learning Tasks

1. Use variety of drawing technique to generate a composition of objects
2. Generate concepts for 2-D and 3-D art and design works using appropriate tonal values and hues.

Pedagogical Exemplars

Experiential Learning; Self-directed Learning: Learners should mention the importance of tonal values and hues in the generation of concepts for 2-D and 3-D art and design works.

Experiential Learning; Self-directed Learning: In small groups, learners should identify and make notes on hues and tonal values in man-made and natural objects in their environment.

Problem-Based Learning/Project-Based Learning: Working individually and in smaller groups, learners should analyse how appropriate tonal values and hues can be combined successfully to create drawings of objects in the immediate environment.

Key Assessment

Level 1: Recall and Recording: Identify three (3) important tonal values and hues used in the conceptualisation of selected 2-D and 3-D art and design works. Refer to objects, videos, photographs, drawings, as well as environmental observations.

Level 2: Strategic reasoning: Identify natural objects and explain how tonal values are distributed on them.

Level 3: Extended critical thinking and reasoning: Using the concept of tonal values, produce a tonal values scale on selected objects.

Level 4: Extended critical thinking and reasoning: Create a composition in polychrome and display it for critique.

WEEK 24

Learning Indicator(s): *Compose appropriate tonal values and hues for forms in drawing.*

Theme or Focal Area: **Compose tonal values and hues for forms in drawing**

Most surfaces of objects appear uneven in colour/hues and value. When seen from a distance the colour of any surface or area appears to be a single colour. However, when directional light is introduced, objects show a gradation from one colour to another and from one tone to another. This is the result of a surface's reaction to the light source. In addition, there is the effect of colours and tones being reflected between the surfaces of objects casting further reflections and tones.

The use of gradations in drawing is important to make the surfaces appear more three dimensional and realistic. For example, shadows are graded to look darker towards their boundary with clear surfaces. In addition, the surface of the foreground element may gradually lighten as it approaches its boundary with the surface of the background element.

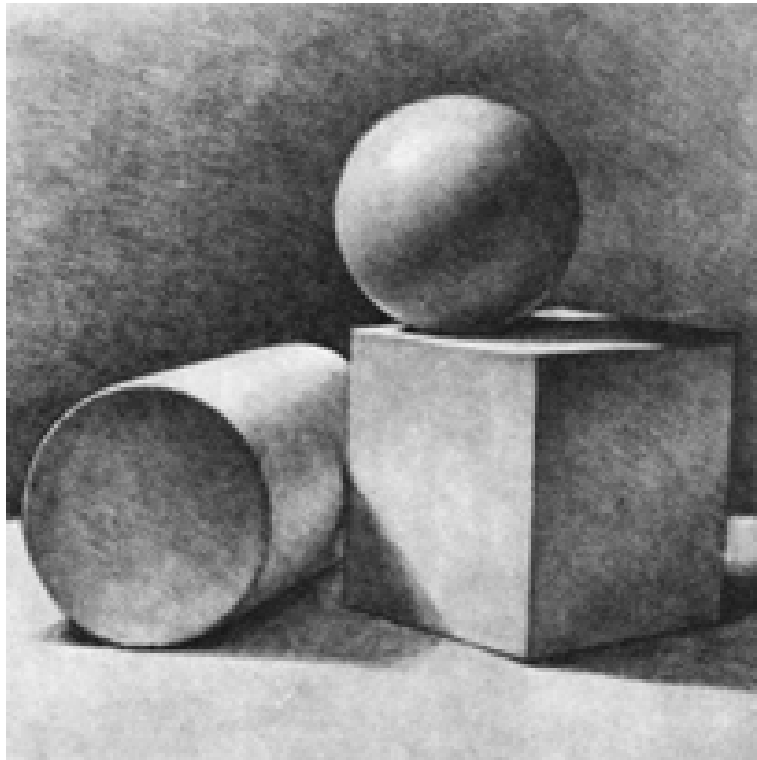


Figure. 64: *Tonal gradation in composition*

Learning Tasks

1. Explore how organic and geometric forms found in the environment can be used in composition drawing using tonal gradation and hue.
2. Use the skills in composition, tonal values and hue to explore how drawing can be used to produce models, and maquettes based on specific concepts.

Pedagogical Exemplars

Experiential Learning: Self-directed Learning: In smaller groups, research, and record how tones, values and hues have been used to create drawn forms of objects in the immediate environment.

Experiential Learning: Self-directed Learning: In small groups, generate a 24-scale tonal value for the primary and secondary colours of pigment and colours of the spectrum.

Problem-Based Learning/Project-Based Learning: Working individually and in smaller groups, use appropriate hues and tonal values to create a composition of objects in the immediate environment for appreciation and criticism.

Key Assessment

Level 1: Recall: State three differences between colour hues and tonal values.

Level 2: Strategic reasoning: Draw a 24-scale tonal value for the primary and secondary colours of pigment and colours of the spectrum.

Level 2: Extended critical thinking and reasoning: Using the concept of tonal values, produce tonal values scale on selected objects.

Section 8 Review

This review looks at the core concepts covered in our recent lessons, aimed at enhancing students' skills in visual arts and design.

Initially, we explored the relationship of forms, a fundamental concept in both fields, which addresses how different elements interact within a composition. Recognising this interplay is vital for creating works that are both balanced and visually appealing. Learners also examined the concept of value, which refers to the relative lightness or darkness of colours. Proficiency in this area enables artists to convey depth, form, and focus, thus intensifying the visual impact of their artworks. Additionally, learners discussed tonal values which pertain to creating a range extending from very light to very dark. This spectrum is crucial for imparting realism and dimensionality in drawings. The technique of gradation, or the smooth transition between these tonal values, was another focus. This method is essential for realistically depicting surfaces, aiding in the simulation of light and shadow effects.

Finally, we touched on the creation and integration of shades of grey among different tones. This skill is key for achieving the subtle variations needed in monochromatic artworks and for adding depth and detail to colour work.

Each topic we covered plays a vital role in art and design, providing students with the tools they need to effectively express their creative visions.

References

- Brommer, G. F. (2010). *Illustrated Elements of Art and Principles of Design: Hands-on Activities, Full-Color Reproductions, Descriptions of Each Concept*. Crystal Productions.
- *Mastering the Value Scale (Guide to Drawing, Making, & Using It in Art)* <https://www.watercoloraffair.com/>
- Yaun, D. K., Powell, W., Goldman, K., & Foster, W. (2008). *Art of Drawing People: Discover simple techniques for drawing a variety of figures and portraits*. Walter Foster.

- Loomis, A. (1947). *Creative illustration* (p. 300). Viking Press.
- Ryder, A. (1999). *The artist's complete guide to figure drawing: a contemporary perspective on the classical tradition*. Watson-Guption.
- Pope, A. (1949). *The language of drawing and painting*. Harvard University Press.

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