

# FUNDAMENTALS OF ART & DESIGN

**GAME  
ARTIST  
EDITION**

**NOTES & WORKBOOK**

**Ts. Ummu Hani Binti Yusof**

# **ART AND DESIGN FUNDAMENTALS**

## **GAME ARTIST EDITION**

FUNDAMENTALS OF ART & DESIGN GAME ARTIST EDITION NOTES & WORKBOOK

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# ACKNOWLEDGEMENT



**Rhangga Putra,**  
Game Artist,  
Sony Interactive  
Entertainment  
Japan

I would like to express my deepest appreciation to Rhangga Putra for generously allowing me to use his remarkable artwork, drawings, paintings, photography, and 3D models in this book. His exceptional talent and creativity have greatly enriched the content of Fundamentals of Art and Design: Game Artist Edition. I am also deeply grateful for his dedication in reviewing the knowledge shared in this book. Rhangga Putra, a game artist at Sony Interactive Entertainment Japan, has been an invaluable contributor, and his support has played a significant role in bringing this work to life.

Thank you, Rhangga.

Regards,  
Ts. Ummu Hani Yusof

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# FOREWORD

This book is designed to be your companion in understanding the fundamentals of art and design and how it is related to game artists in a way that's easy to understand and fun to explore.

We focus on each art element and principle of design and explain them with clarity supported by related visuals made by game artists.

We also know that practice makes perfect. That's why we've included a workbook filled with exercises tailored for artists. These activities are practical, hands-on, and directly related to the task you'll be doing, helping you to immediately apply what you've learned.

Fundamentals of Art and Design for Game Artists are more than just rules and techniques. They're about expressing creativity and bringing your unique vision to life. This book is here to guide you through the technical aspects while also inspiring you to push the boundaries of your imagination.

So, dive in and explore. Have fun with the exercises, immerse yourself in the interactive features, and most importantly, enjoy the process of creating something truly extraordinary.

Warm regards,

Ts. Ummu Hani Binti Yusof  
Lecturer, Fundamentals of Art and Design  
Selayang Community College

## ABOUT THE AUTHOR



Ts. Ummu Hani Yusof is an academician and the Head of Programme Games Art at Kolej Komuniti Selayang. She has a Master's degree in Technical and Vocational Education, and a first-class BA (Hons) in Art and Design specializing in Graphic and Digital Media. She has over 17 years of experience and has been instrumental in shaping the curriculum for game art, animation, advertising, and extended reality, ensuring they meet industry standards. Ummu Hani is a certified professional in various digital tools, an accreditation panel member, and has a strong background in both teaching and administrative roles. Her contributions to research, curriculum development, innovation, and industry collaboration have made her a key figure in advancing creative multimedia education in Malaysia.

# INTRODUCTION

This book is designed to equip you with a solid foundation in art and design principles, tailored specifically for the dynamic field of game art creation.

We'll start with the basics: line, shape, form, color, texture, and value. Don't worry, we'll break everything down into simple, easy-to-understand terms, with lots of colorful examples to show how these elements come together to create amazing game art.

Next, we'll dive into the principles that guide how you use these elements: balance, harmony, variety, proportion, dominance, movement, unity, space and economy. These principles will help you make your game environments visually appealing and engaging.

Each chapter includes a workbook section with exercises for game artists like you. These hands-on activities will let you practice what you've learned, from sketching character concepts to designing intricate environments. They're practical and fun, helping you build your skills and confidence.

Throughout the book, we'll show you examples of how professional game artists apply these principles in their work. These case studies will give you valuable insights and inspiration, showing you how to take your designs to the next level.

Our goal is to help you understand the fundamentals of art and design deeply and to inspire you to push the boundaries of your creativity. Whether you're just starting out or looking to refine your skills, this book is here to support you every step of the way.

### GAME ARTIST EDITION

**Objective 1 : Understand the basics and importance of each element of art and how they can be manipulated in visual compositions.**

#### Theory Class

##### Introduction

- Briefly review the elements of art.
- Importance of manipulating elements to create a balanced composition.

##### Discussion

- Line: Varieties, direction, feeling, and how they guide the eye.
- Shape & Form: The difference between 2D and 3D, organic vs. geometric.
- Space: Positive and negative space, creating depth.
- Colour: Color wheel, temperature, value, intensity, and harmony. Contrast: How it captures attention and creates dynamic compositions.
- Texture: Tactile vs. implied texture.
- Value: Importance in defining form, creating emphasis, and mood.

##### Analysis

- Discuss famous works of art. Identify and interpret how artists manipulated various elements.
- Understand how changes in one element can impact the overall composition.

##### Closing

- Recap key points.
- Set expectations for the practical class.

Play  
time

### ACTIVITIES

**Objective: Hands-on practice with manipulating each element in various compositions.**

#### Practical Class

##### Session 1: Line, Shape and Form

- Activity 1: Drawing exercises focusing on various types of lines.
- Activity 2: Creating compositions using geometric and organic shapes.
- Feedback & Review: Discuss and critique work with peers.

##### Session 2: Space & Colour

- Activity 1: Drawing exercises that play with positive and negative space.
- Activity 2: Painting or digital design exercises focusing on colour harmony, contrast, and balance.
- Feedback & Review: Analyze the use of space and color in student works.

##### Session 3: Texture & Value

- Activity 1: Textured collage using various materials.
- Activity 2: Painting or shading exercises emphasizing value.
- Feedback & Review: Understand the tactile and implied textures and the use of value in compositions.

##### Session 4: Bringing it All Together

- Activity: Create a final piece of art, manipulating all the elements learned. This can be an open subject, allowing students to choose their focus, or a given theme/topic.
- Feedback & Review: Group critique focusing on how effectively they've used and manipulated the elements of art.

Materials Needed:

- Various drawing and painting supplies (pencils, inks, paints, brushes).
- Digital design tools.
- Collage materials for texture.
- Color wheels or digital resources on color theory.
- Examples of famous artworks for analysis.

Assessment:

- Continuous assessment during practical sessions based on participation, experimentation, and understanding of the elements.
- Final artwork assessment based on effective manipulation of art elements.



### GAME ARTIST EDITION

**Objective 2 : Understand the significance of the principles of design and their role in shaping effective visual compositions.**

#### Theory Class

##### Introduction

- Recap the principles of design.
- Stress the role of these principles in crafting powerful visual stories.

##### Discussion

- Harmony: Repetition: How it can create a sense of unity and strengthen the composition.
- Pattern: The repetition of elements to create consistency and rhythm.
- Variety: Using differences of elements to highlights and emphasis.
- Balance: Symmetrical, asymmetrical, and radial balance.
- Dominance/Emphasis: Creating focal points in designs.
- Movement: How elements can guide the viewer's eyes through the composition.
- Proportion: The relative size of elements and how they relate to each other.
- Economy: Explore minimalist art style
- Unity: How the elements come together for a cohesive look and feel.

##### Analysis

- Examine renowned works of art or design. Identify and interpret how designers/artists employed the principles.
- Understand the impact of adjustments in one principle on the overall composition.

##### Closing

- Recap main points.
- Set expectations for the practical class.

Play  
time

### ACTIVITIES

**Objective: Hands-on practice with manipulating each element in various compositions.**

#### Session 1: Balance & Contrast

- Activity 1: Design exercises that focus on creating symmetrical and asymmetrical balance.
- Activity 2: Crafting compositions that heavily lean into the principle of contrast.
- Feedback & Review: Group discussion evaluating the success of each design.

#### Session 2: Variety, Dominance/Emphasis & Movement

- Activity 1: Design tasks where students intentionally craft a focal point.
- Activity 2: Crafting compositions that guide the viewer's eyes in a specific direction or pattern.
- Feedback & Review: Discuss the effectiveness of guiding viewers and creating emphasis.

#### Session 3: Harmony (Pattern, Repetition) & Proportion

- Activity 1: Designing a piece heavily relying on patterns.
- Activity 2: Playing with repetition in designs and exploring the dynamics of proportion.
- Feedback & Review: Analyze the repetitive elements and their impact on the design's effectiveness.

#### Session 4: Unity in Composition

- Activity: Creating a holistic design where every element feels interconnected and part of a greater whole.
- Feedback & Review: Group critique focusing on the unity of the designs.

Materials Needed:

- Various art and design tools (pencils, paints, digital design tools, etc.).
- Reference materials on the principles of design.
- Examples of renowned art and design works for analysis.

Assessment:

- Continuous feedback during practical sessions based on the application, creativity, and understanding of the design principles.
- Final design assessment based on effective application of the principles.

### GAME ARTIST EDITION

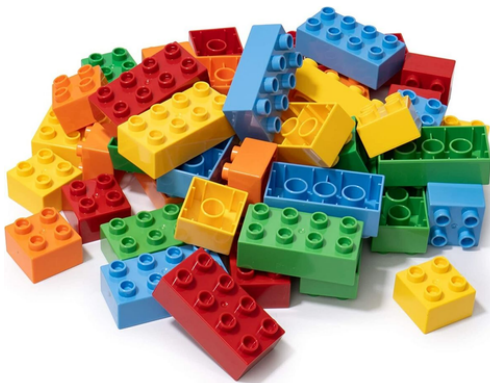
#### Course Learning Outcome 1:

Upon completion of this course, students should be able to; interpret art elements and design principles in artist work of art

## Why do we need to learn Fundamentals of Art?

We need to learn Fundamentals of Art because human need language to communicate ideas. Art uses a type of language to communicate ideas. The Art language is based on concepts called **The Elements and Principles of Design**.

## ELEMENTS PRINCIPLES OF ART OF DESIGN



Elements of Art is similar to building blocks, atoms or parts or speech (bound verbs, adjectives etc)

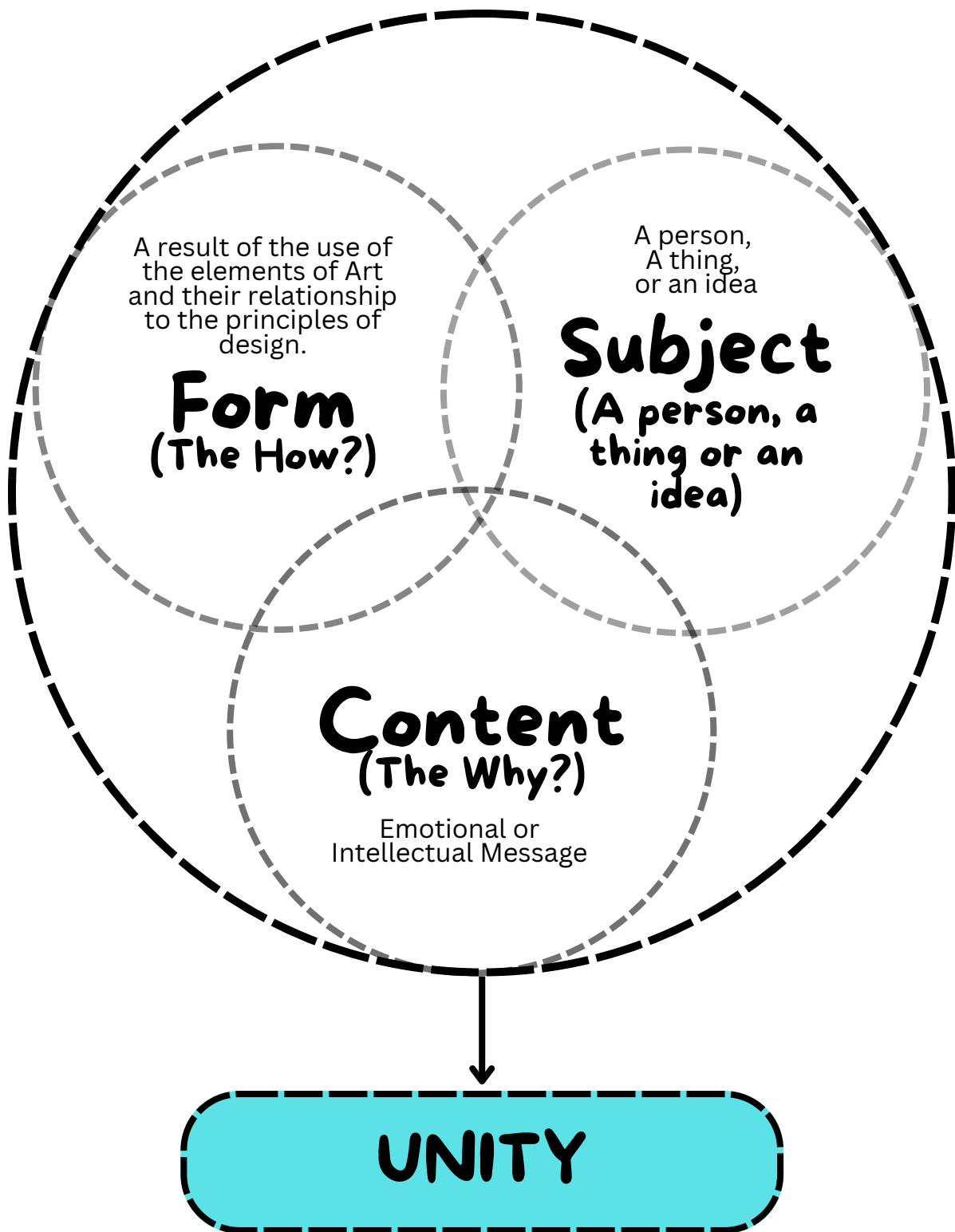


Principles of design is a blueprints for how to arrange the building blocks. Its like a chemical formulas or rules of grammar.

# Basic Components of a Work of Art

## NOTES

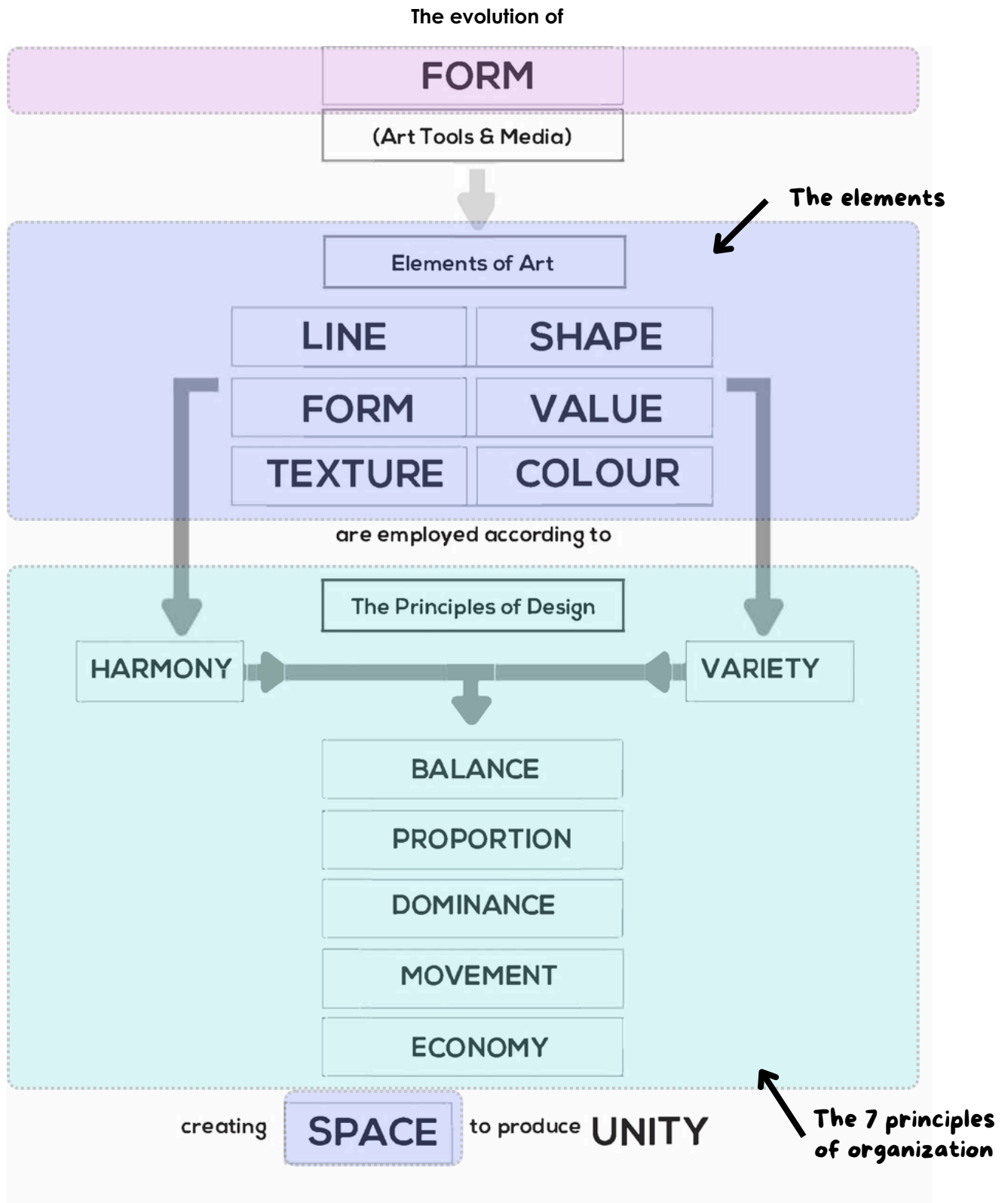
A work of art always has three essential components: subject, form and content.



# The Form and Visual Ordering

## NOTES

The emphasis on each component in the FORM may vary, their interdependence is so significant that none can exist without the others, nor can any be fully comprehended in isolation.



# **ART AND DESIGN FUNDAMENTALS**

**ELEMENTS  
OF ART**



### ELEMENTS OF ART

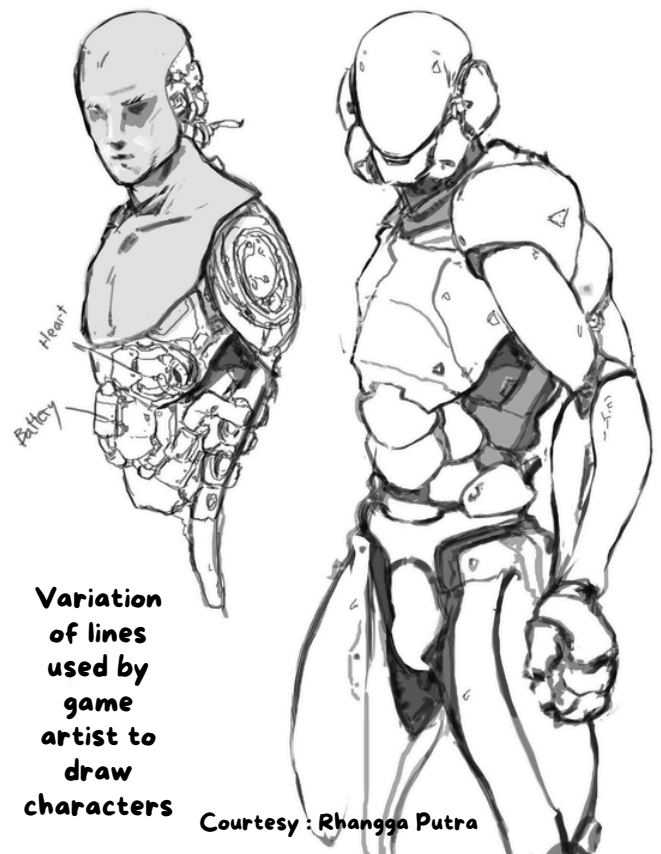
#### Lines

Lines are basic tools for artists. Line is a path created by a moving point, mark or object. Connecting any two points.

Lines are crucial in bringing together different parts of a design. They can be bold and clear or softly fade away. When new lines are added along an existing one, they guide the eye and create a sense of direction. Even invisible lines, known as subjective lines, play a vital role in connecting various areas of a composition. Designers often use these lines in grid systems to neatly organize text, logos, and other graphic elements.

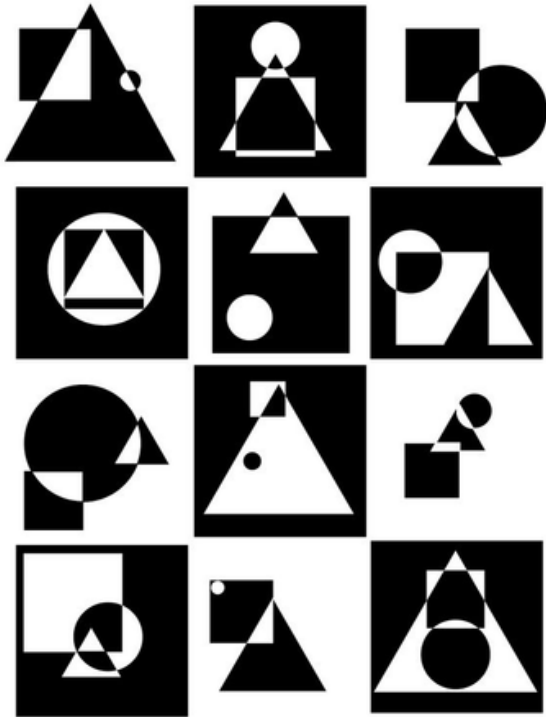
Lines can be used for:

1. Organize: to show where to colour in colouring books.
2. Direct: Follow the yellow brick road.
3. Separate: the lane lines on a highway.
4. Suggest an emotion: a jagged line of lightning can look violent.
5. Create a rhythm pattern or motion.



# The Elements of Art : Shape

## NOTES



### ELEMENTS OF ART

### Shape

The shape is a 2-dimensional area that is defined in some way from the space around it.

1. Geometric Shapes :  
Triangles, squares, rectangles, circles.
2. Organic Shape:  
(Natural & Abstract) Animals, plants, humans.

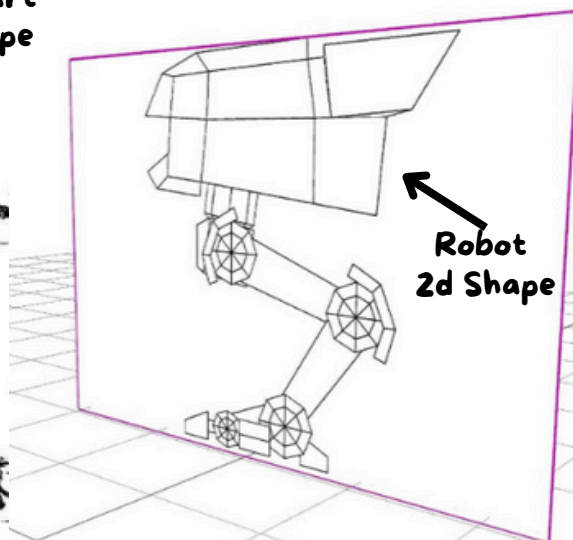
Shapes, like lines, create directional movement and act as organizational tools, forming cohesive relationships with other shapes. They guide the viewer's eye across a composition by pointing in specific directions or by using implied edges.

Irregular shapes can quickly form harmonious relationships by aligning their invisible edges.

Groupings of shapes can create tension or subconscious closure, and subjective edges allow controlled movement within the composition, guiding the viewer's eye effectively.

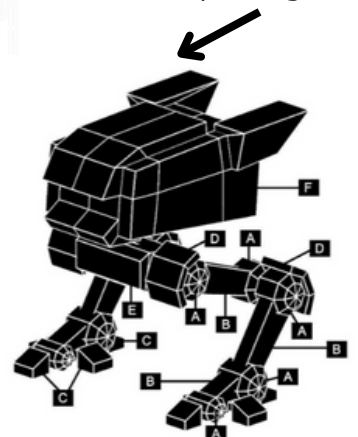


### Concept Art Robot Shape



### Robot 2d Shape

### Transform from shape to form 3d





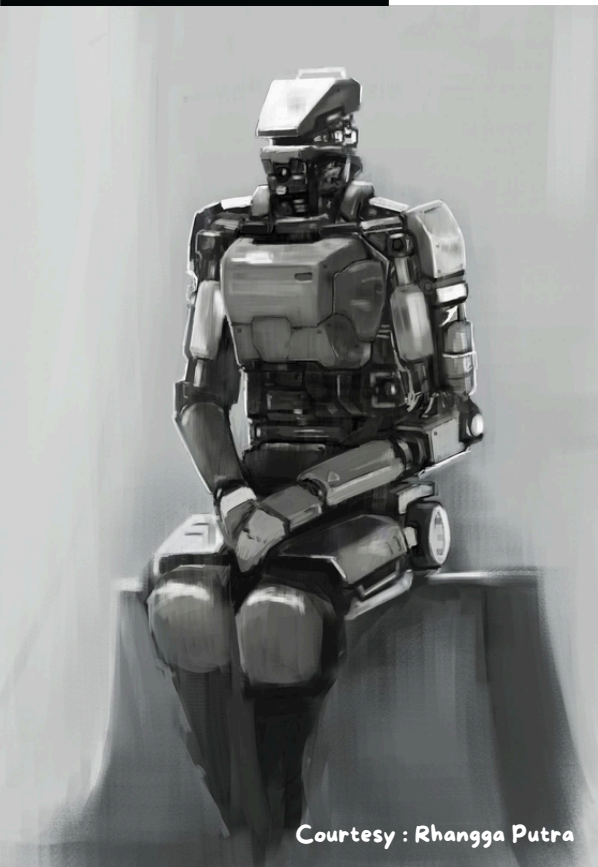
# The Elements of Art : Form or 3D Shape

## NOTES

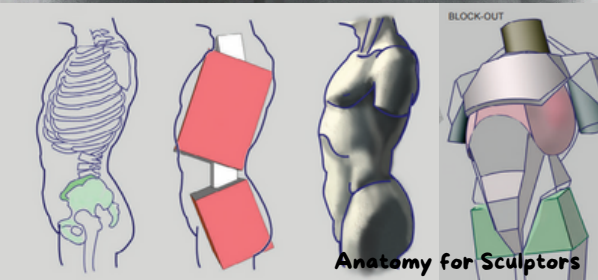
### ELEMENTS OF ART

### Form

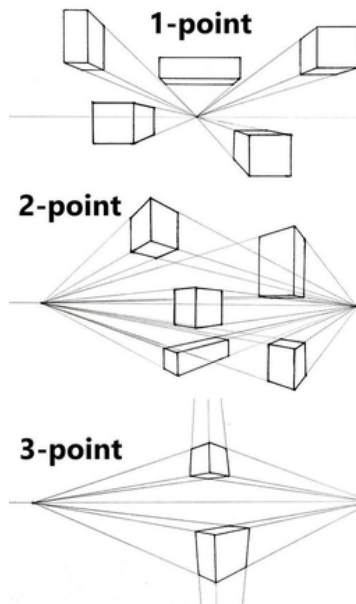
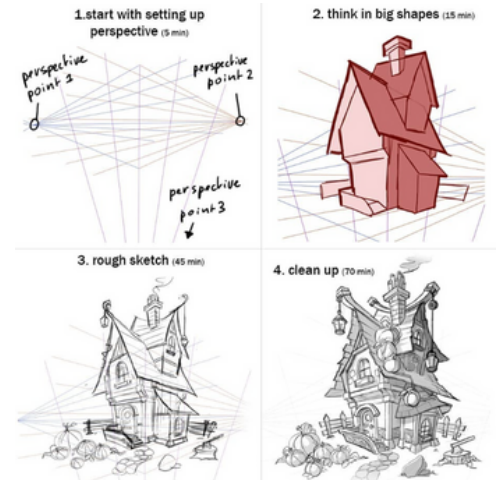
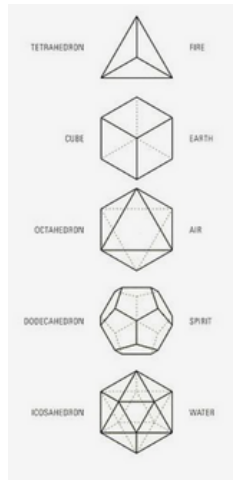
Anything that has height and width. Form is a 3-D shape or the illusion of 3 dimensions on a 2-D dimensional surface



Courtesy : Rhangga Putra



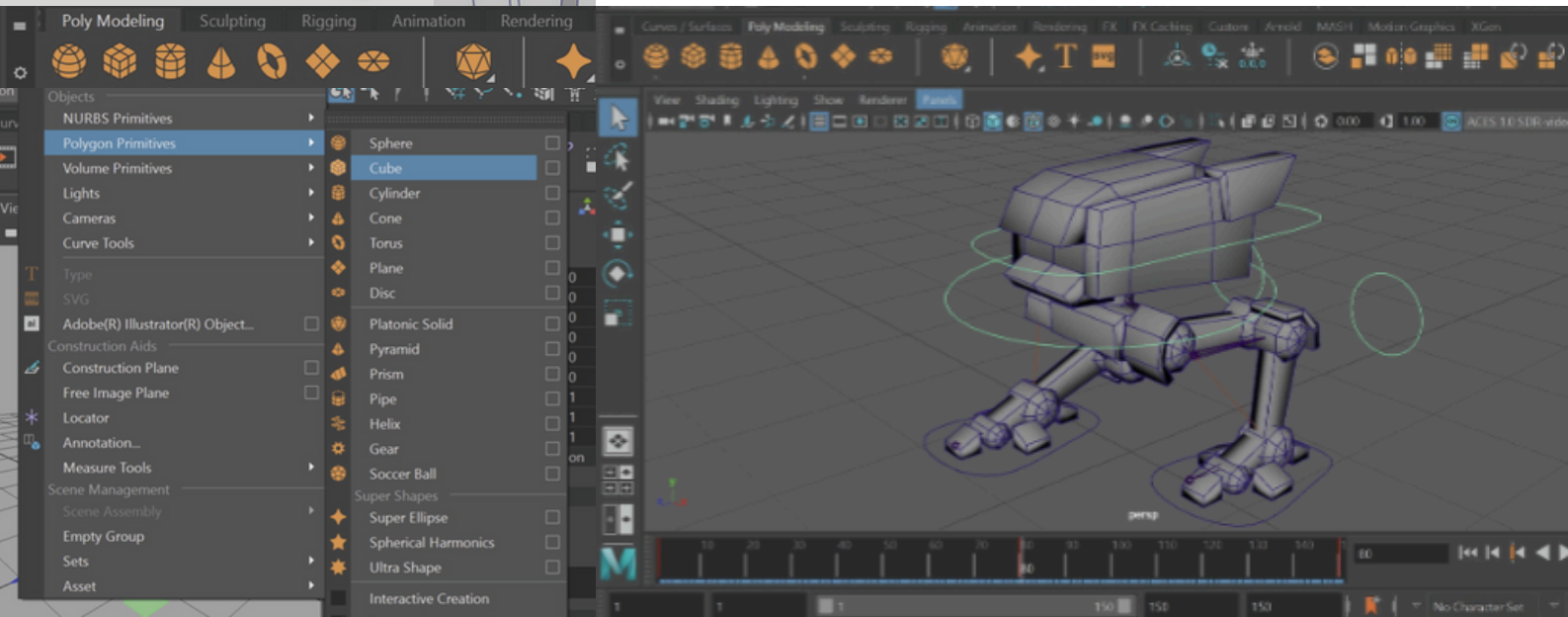
Anatomy for Sculptors



A combination of planes that show parallel edges in depth creates the illusion of mass (shape).

A combination of planes that show converging edges in depth (moving away from viewer) creates the illusion of mass (shape).

A combination of planes with edges converging toward the viewer creates the illusion of mass (shape).



# ELEMENTS OF ART

## The Elements of Art : Space

## NOTES

### Space

Space is the interval, or measurable distance or area between above, below, around, or within an object, point, or image. There is two types of space that can be suggested by the artist: decorative space and plastic space.

#### Decorative Space

Ornamenting or enriching but more importantly in art, stressing the two-dimensional nature of an artwork or any of its elements. Decorative art (space) emphasizes the essential flatness of a surface.



Jasper Johns, Numbers in color. 1959. Encaustic and newspaper on canvas. 66 1/2 x 49 1/2 in.

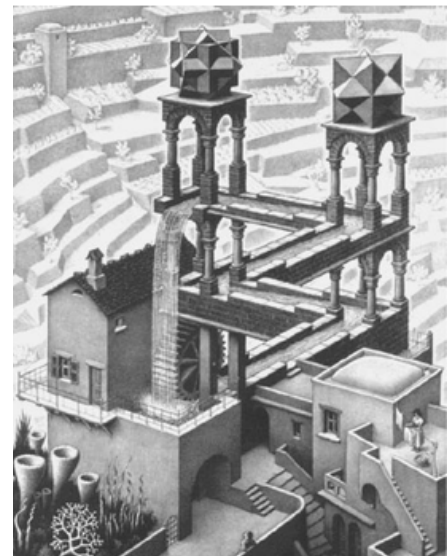
**Plastic Space:** The use of the elements to create the illusion of the third dimension on a two-dimensional surface. Three-dimensional art forms such as architecture, sculpture, and ceramics.

#### Plastic Space vs Isometric View

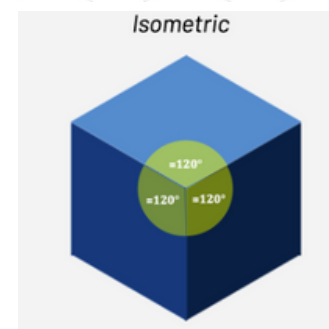
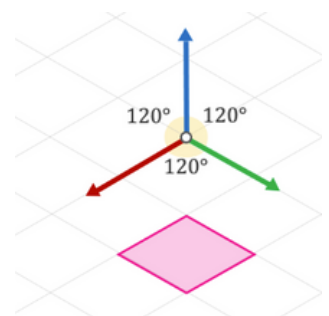
**Plastic space** refers to the manipulation of three-dimensional space on a two-dimensional surface. It involves creating the illusion of depth, volume, and form using techniques like shading, perspective, and the arrangement of elements within the composition. This term is often used **in fine arts** to describe the way artists manipulate space to create the illusion of depth and volume in their work.

**Isometric view** is a method of visual representation used **in design and game development**. It involves a projection technique where the view/camera is rotated to a 45-degree angle horizontally, 35.264 degrees vertically and the axes (x, y, z) are equally spaced at 120 degrees.

This creates a 3D appearance on a 2D plane. The isometric perspective is commonly used in strategy games, city builders, and RPGs, offering players a detailed and immersive view of the game world. Popular titles like Divinity: Original Sin 2 and Stardew Valley.



M.C Escher, Waterfall 1961 Lithograph, 15x11 in.





# The Elements of Art : Colour

## NOTES

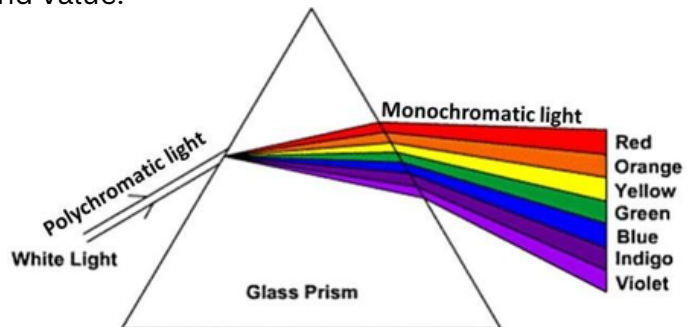
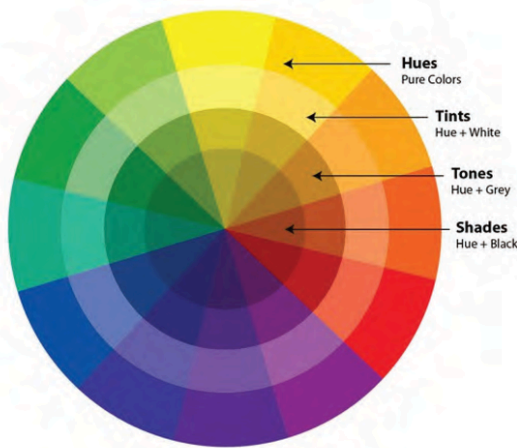


Courtesy : Rhangga Putra

## ELEMENTS OF ART

### Colour

Colour is the visual response to different wavelength of sunlight identified as red, orange, yellow, green, blue, indigo and violet; having the physical properties of hue, intensity and value.



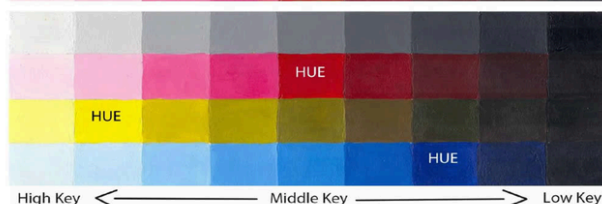
**Hue:** Designates the common name of a colour and indicates its position in the spectrum or on the colour wheel. Hue is determined by the specific wavelength of the colour in a ray of light.

**Intensity:** The saturation, strength or brightness of a hue. A vivid colour is a high intensity; a dull colour is of low intensity.

**Tints :** Hue+White

**Tones :** Hue + Grey

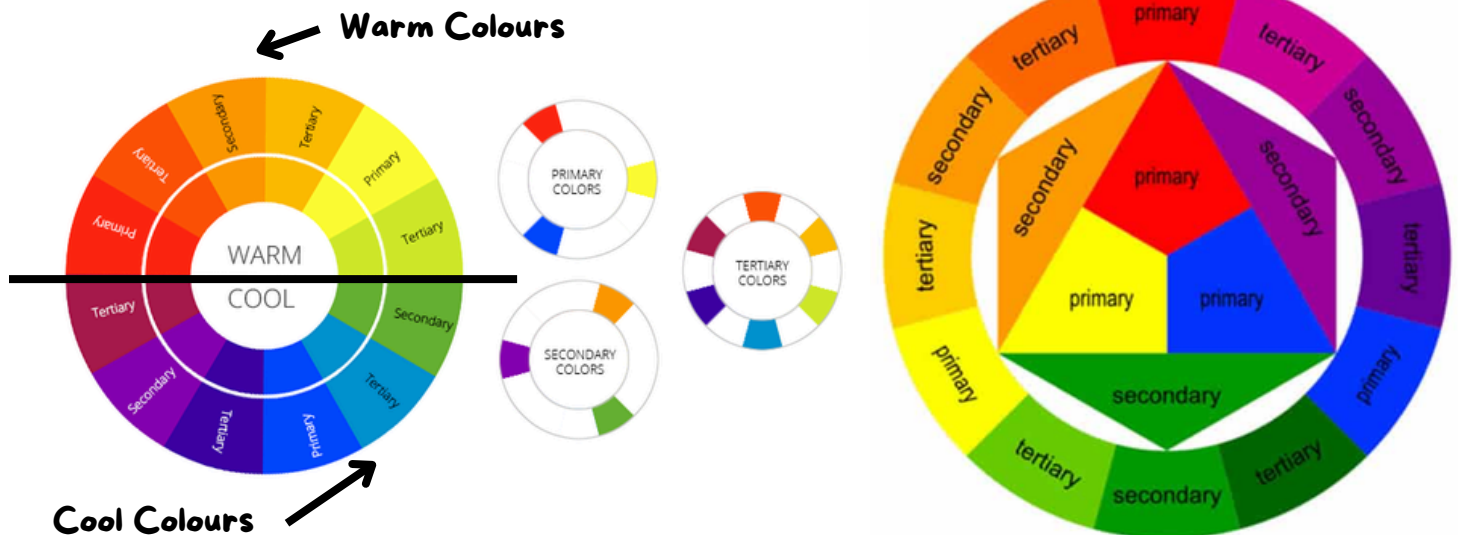
**Shades :** Hue + Black



### Colour Theory

Colour is available in pigment. Colours can be created by mixing two other colours. There are primary colours, secondary and tertiary colours.

Colour temperature classified into warm and cool colours. Single colour creates character, mood or emotional response. Artists create different relationships in colour to create harmony. The combination are often called complimentary, analogous triadic, tetradic, monochromatic and split complimentary.



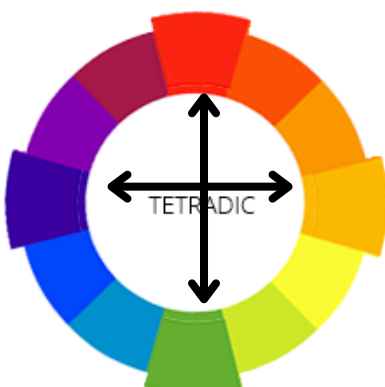
Opposite colors of wheel



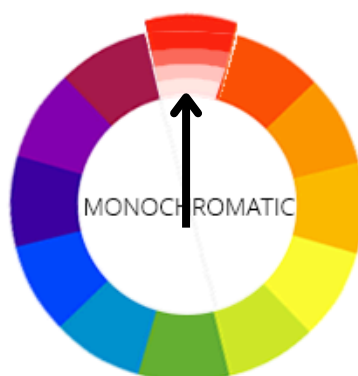
Contiguous colors of wheel



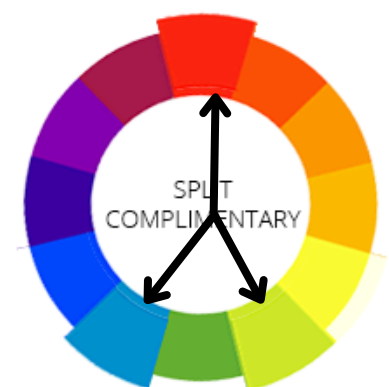
Colors that are equally apart



Two sets of Opposite colors



Different colors of a single Hue



Base Color plus two colors opposite to complementary color



# The Elements of Art : Value

## NOTES

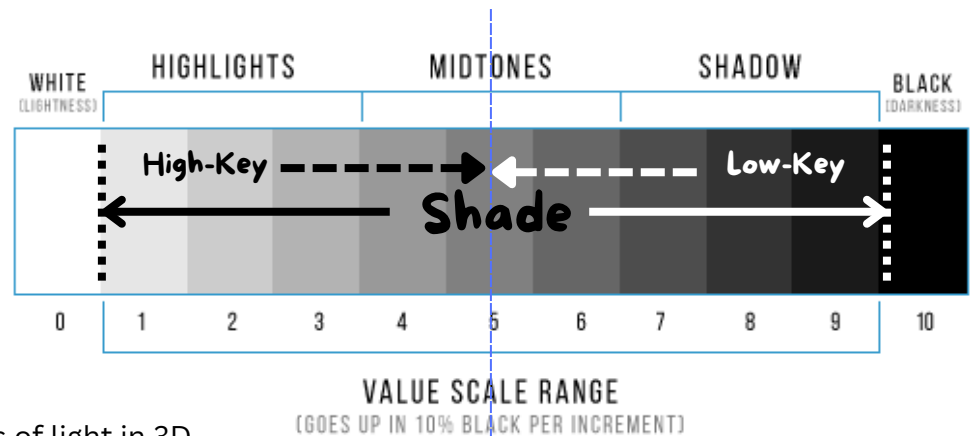
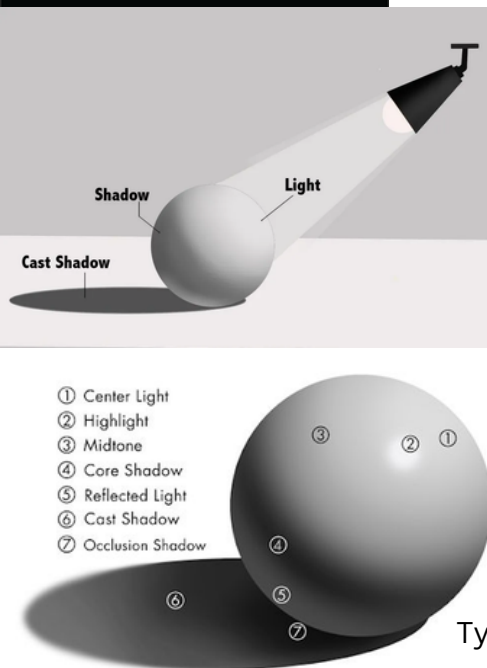
### ELEMENTS OF ART

### Value

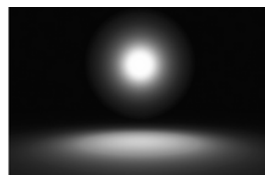
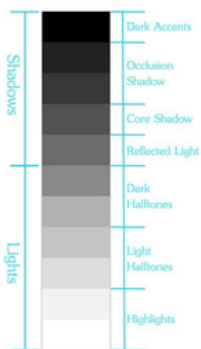
Value is the relative degree of light or dark. The characteristic of colour determined by the quantity of light reflected by the colour.

**High-key value:** A value that has a level of middle gray or lighter.

**Low-key value:** A value that has a level of middle gray or darker.



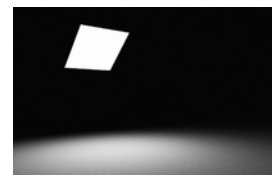
Types of light in 3D



Point Light



SpotLight



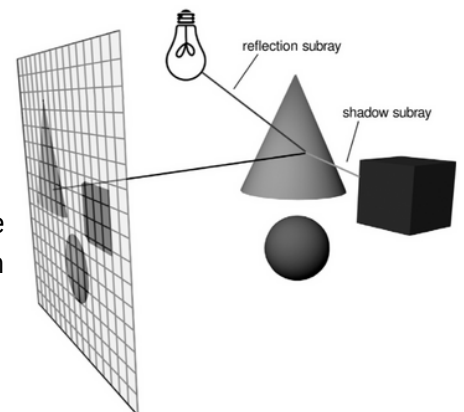
Area Light



Directional Light



Volumetric Light



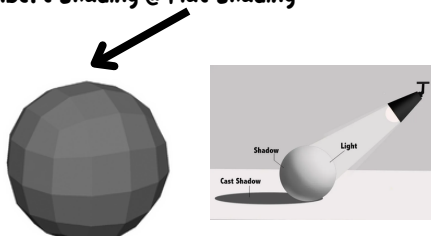
Ray Tracing can give realistic images output with longer time to render.

**Base Colour. Looks 2D with scanline renderer**

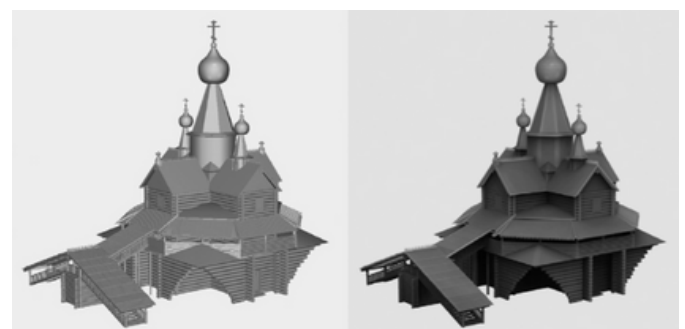


The colour of the object needs to be shaded the way it does in real life. The algorithm to add shading to object in computer graphic is called shaders.

**Lambert Shading @ Flat Shading**



Ambient Occlusion provide good ambient lighting shadows that are efficient and make object looks 3D



Without Ambient Occlusion

With Ambient Occlusion

### ELEMENTS OF ART

#### Texture

Texture is the surface character of a material that can be experienced through touch or the illusion of touch. Texture is produced by natural forces or through an artist's manipulation of the art elements.

There are four basic types of texture : actual, simulated, abstract and invented.

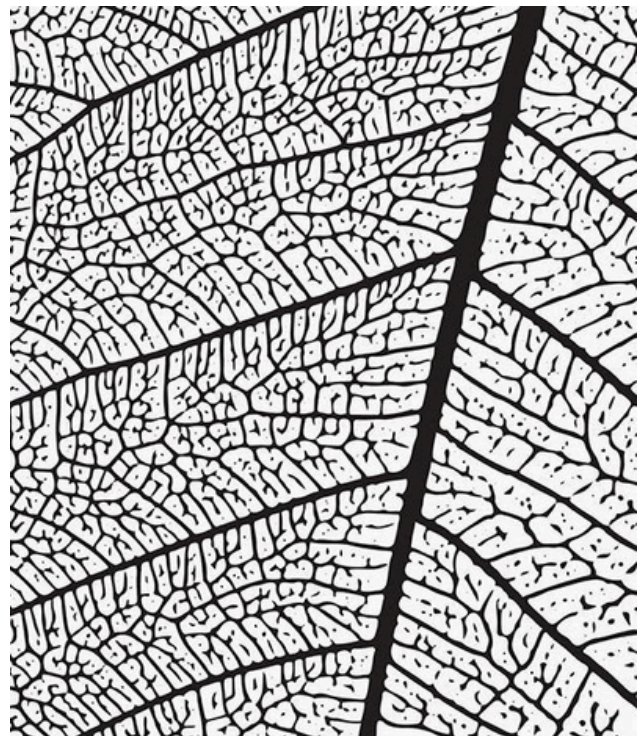
**Actual Texture:** "The Real Thing". A surface that can be experienced through the sense of touch (as opposed to a surface visually simulated by the artist.)



**Abstract Texture:** A texture derived from the appearance of an actual surface but rearranged and/or simplified by the artist to satisfy the demands of the artwork.



Roy Lichtenstein 1974  
-  
CUBIST STILL LIFE  
WITH PLAYING  
CARDS - Oil and  
magna on canvas  
(244 x 152 cm)



**Simulated Texture / Implied Texture:** A convincing copy or translation of an objects texture in any medium.

**Invented Texture:** A created texture whose only source is in imagination of the artist. Generally a decorative pattern, it should not be confused with abstract texture.



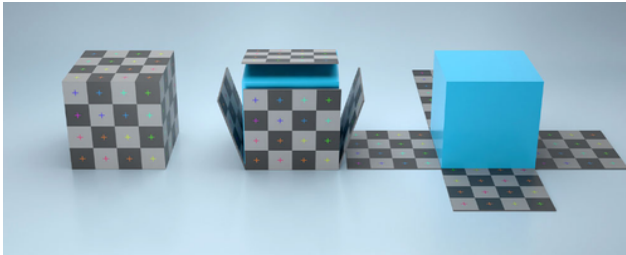
Abstract Art  
"Silverline" Mixed  
Media on Canvas  
Paul Mason



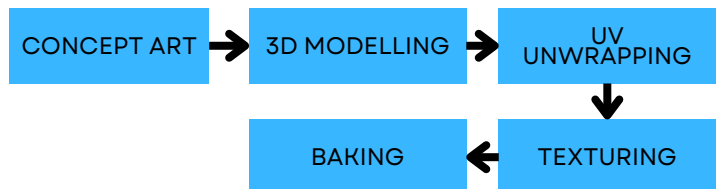
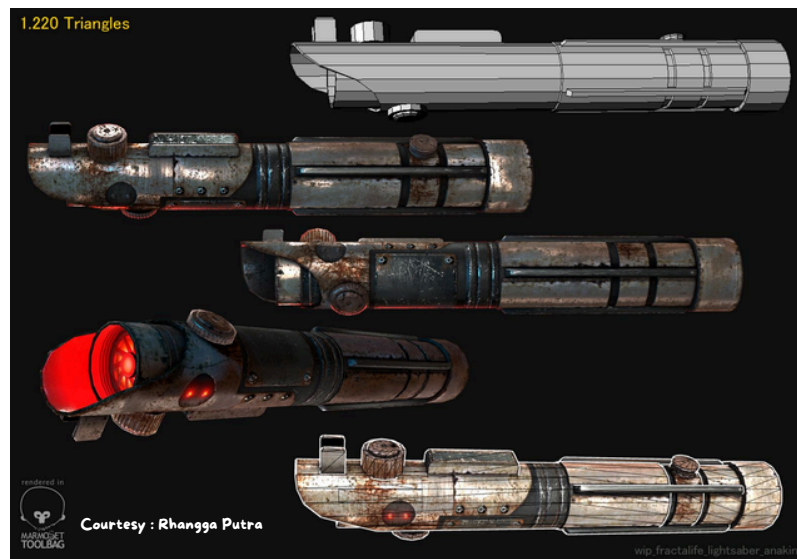
# The Elements of Art : Texturing

## NOTES

Texturing is considered as important as the modeling part. Texturing is the process in which we define the colour, roughness, metalness, height information, and other aspects of the surface of the model. All those aspects are images that can be mapped to the surface of the model with the UV we created.



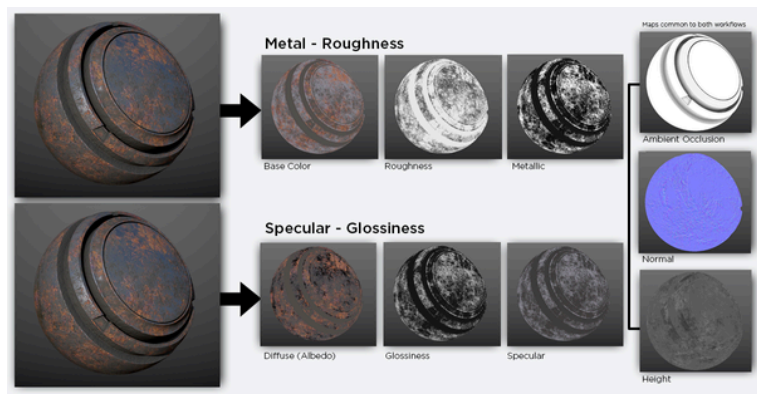
Textures are applied to a material. The material will use the information on the texture to determine the lighting and shading behavior of the model. What is the color of the surface? Is the surface shiny? Is it a metal? All those play a significant role in how the model looks.



In the modern workflow, texturing has to define all aspects of a material, like the color, roughness, and metalness. In the game industry, we use a standard called PBR to define a material. PBR stands for Physically Based Rendering. It enforces the result of the rendering to be physically correct by limiting the number of inputs allowed to be adjusted.

5 Attributes of PBR;

- Base Color
- Height
- Roughness
- Metallic
- Normal



# **ART AND DESIGN FUNDAMENTALS**

**PRINCIPLES  
OF DESIGN**



# ART AND DESIGN FUNDAMENTALS

## PRINCIPLES OF DESIGN

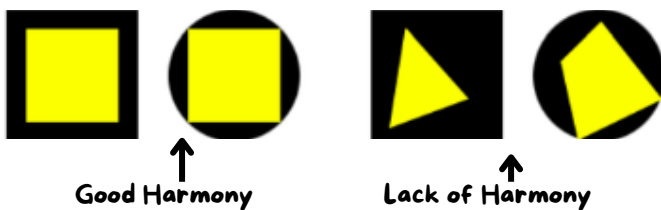
## NOTES

The principles of design determine what you do with each of the elements and how you do it. We called it **The Seven Principles of Organization**.

- Harmony
- Variety
- Balance
- Proportion
- Dominance
- Movement
- Economy

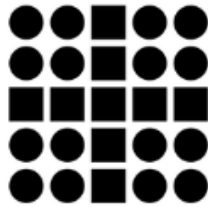
## Harmony

Harmony creates cohesiveness by stressing the similarities of separate but related parts. Harmony enhances unity in a work of art. Specifically uses the elements of art (ex: colour, texture, value) as a vehicle to create a sense of togetherness amongst otherwise separate parts.



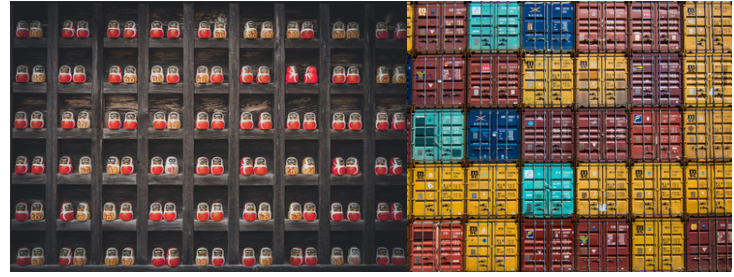
Harmony, whether created by repetition or rhythm, harmony becomes monotonous or boring, but properly introduced, harmony is a necessary ingredient of **unity**.

### Unity



## Repetition

The same visual effect was used a number of times in the same composition. Repetition may produce dominance, harmony, pattern or rhythm.



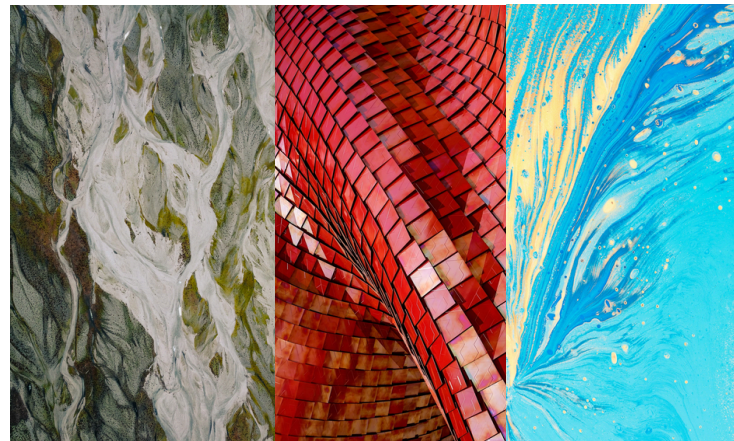
## Pattern

Pattern is any artistic design serving as a model for imitation. A repeated element and/or design that is usually varied and produces interconnections and obvious directional movements.



## Rhythm

Rhythm is established when the visual unit is repeated regularly. Rhythm is a sense of movement achieved by repeating visual units and using measured accents.



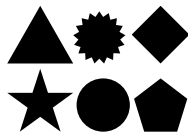


## Variety

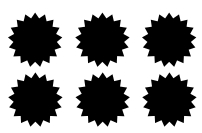
Variety arouses the viewers curiosity and holds their attention. By adding variation to the visual forces, the artist introduces essential ingredients (such as diversion or change) to sustain attention.

Variety causes visual separation. A pulling apart of related elements or images, differentiating and disassociating the components. This separation is achieved by the use of contrast and elaboration.

### Variety

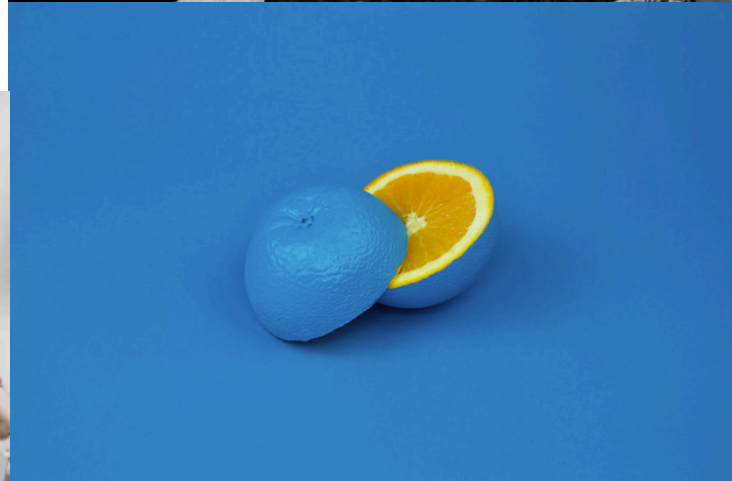


### Unity



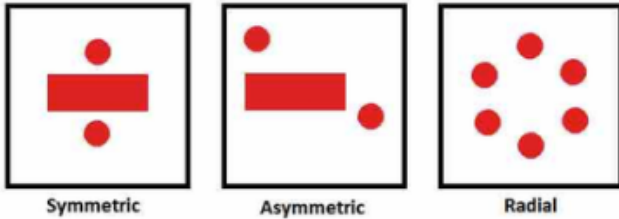
## Contrast

Contrast is when the elements are repeated in a way that makes them appear unrelated. . Example, a few wide lines in area of narrow ones. Red marks against green or extreme dark against extreme light.





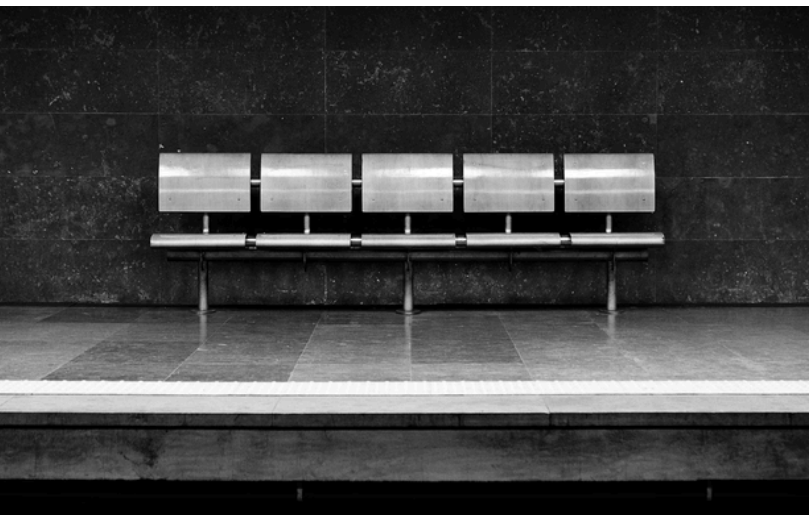
## Balance



Balance is a sense of equilibrium achieved through implied weight, attention or attraction by manipulating the visual elements within an artwork.

### Symmetrical Balance

The use of similar imagery on both sides of a central axis. The imagery on one side resembles that on the other but is varied to prevent monotony.



### Asymmetrical Balance

"Without symmetry". Asymmetrical balance is visually appears balanced based on un-matching objects or areas of visual weight.

### Radial Balance

Forces converge around a central point. The rotation of these forces generates visual flow, adding a new dimension to what would otherwise be symmetrical balance.



Asymmetrical Balance

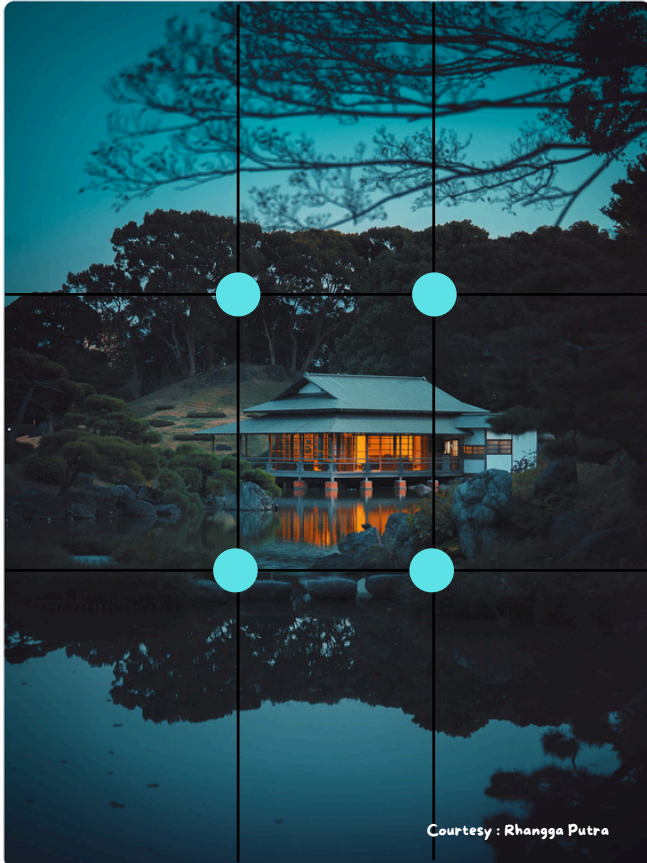


Radial Balance



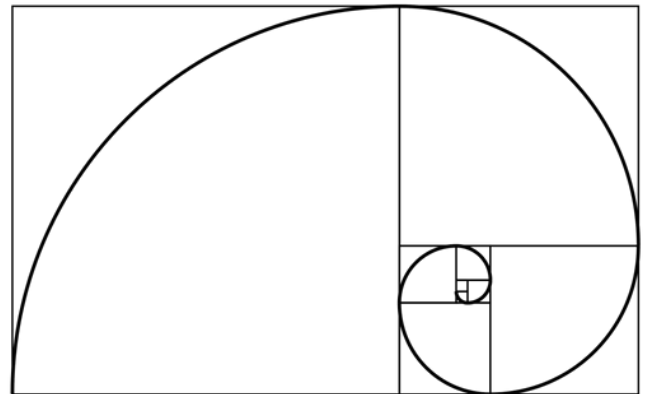
## Proportion

Proportion is the comparative size relationship between parts of a whole.

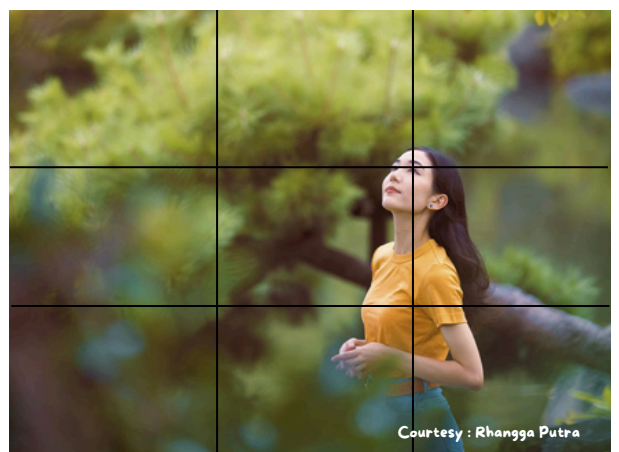
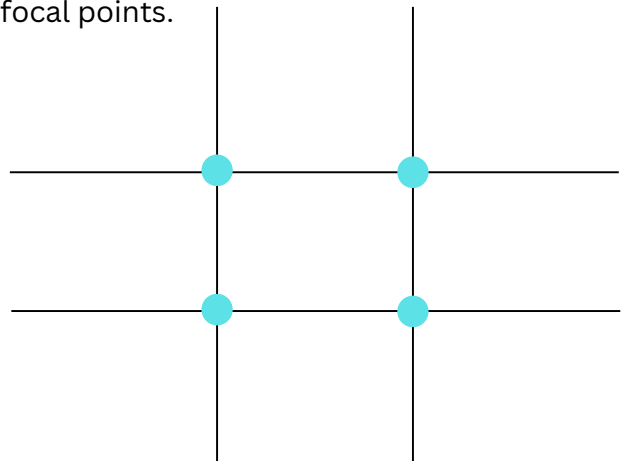


Compositional proportion in art involves an arrangement of elements within a composition to create a visually appealing outcome. **The Golden Ratio** is one of the most renowned concepts for achieving such harmonious composition.

Discovered by Euclid in ancient Greece, the Golden Ratio can be mathematically represented as 1:1.62. This means that one part of a composition is 1.62 times the length of another part. The Golden Ratio is also known as the Golden Mean.



Another concept of compositional art proportion, known as the Rule of Thirds, simplifies the Golden Mean by dividing the image into thirds both vertically and horizontally, with the overlapping areas naturally pleasing to the eye and serving as focal points.





## Dominance @ Emphasis

What stands out most gets noticed first.



Emphasis is defined as an area or object within the artwork that draws attention and becomes a focal point.

Subordination is defined as minimizing or toning down other compositional elements in order to bring attention to the focal point.



Courtesy : Rhangga Putra



Courtesy : Rhangga Putra



Courtesy : Rhangga Putra



# Movement

Movement is the look and feel of the action that guides the viewer's eyes throughout the work of art. The eye travel directed by visual design produced by the direction of lines, shapes, shape edges or contours, and motifs that in their similarities cause us to relate it to one another. The elements are generally pointed at the same general direction.





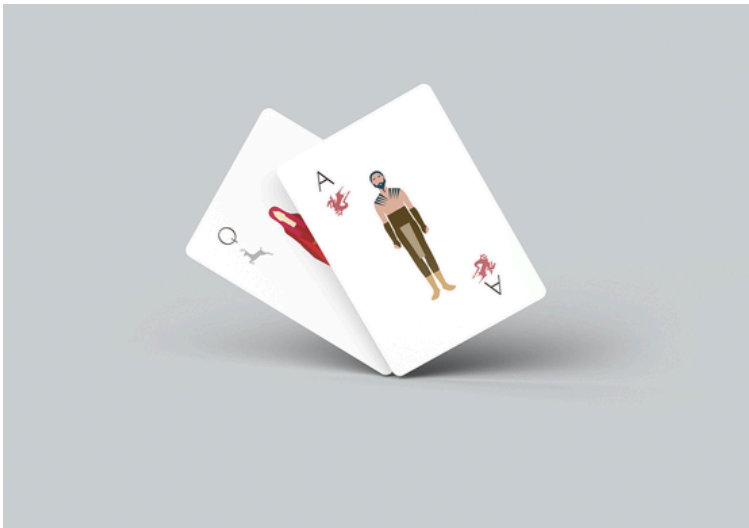
## Economy

Economy also known as simplicity. Visual economy in art is the omitting of all non-essential or unimportant elements and details which don't really contribute to the essence of the overall composition in order to emphasize what is important.

Economy is the distillation of the image to the basic essentials for clarity of presentation.



Economy has no rules but rather must be an outgrowth of the artist instincts. If something works with respect to the whole, it is kept; if disruptive, it may be reworked or rejected. Economy is sometime associate with the term abstraction and easy to detect in many contemporary art styles. **Minimalist Style.**



# **ART AND DESIGN FUNDAMENTALS**

## **ELEMENTS OF ART**

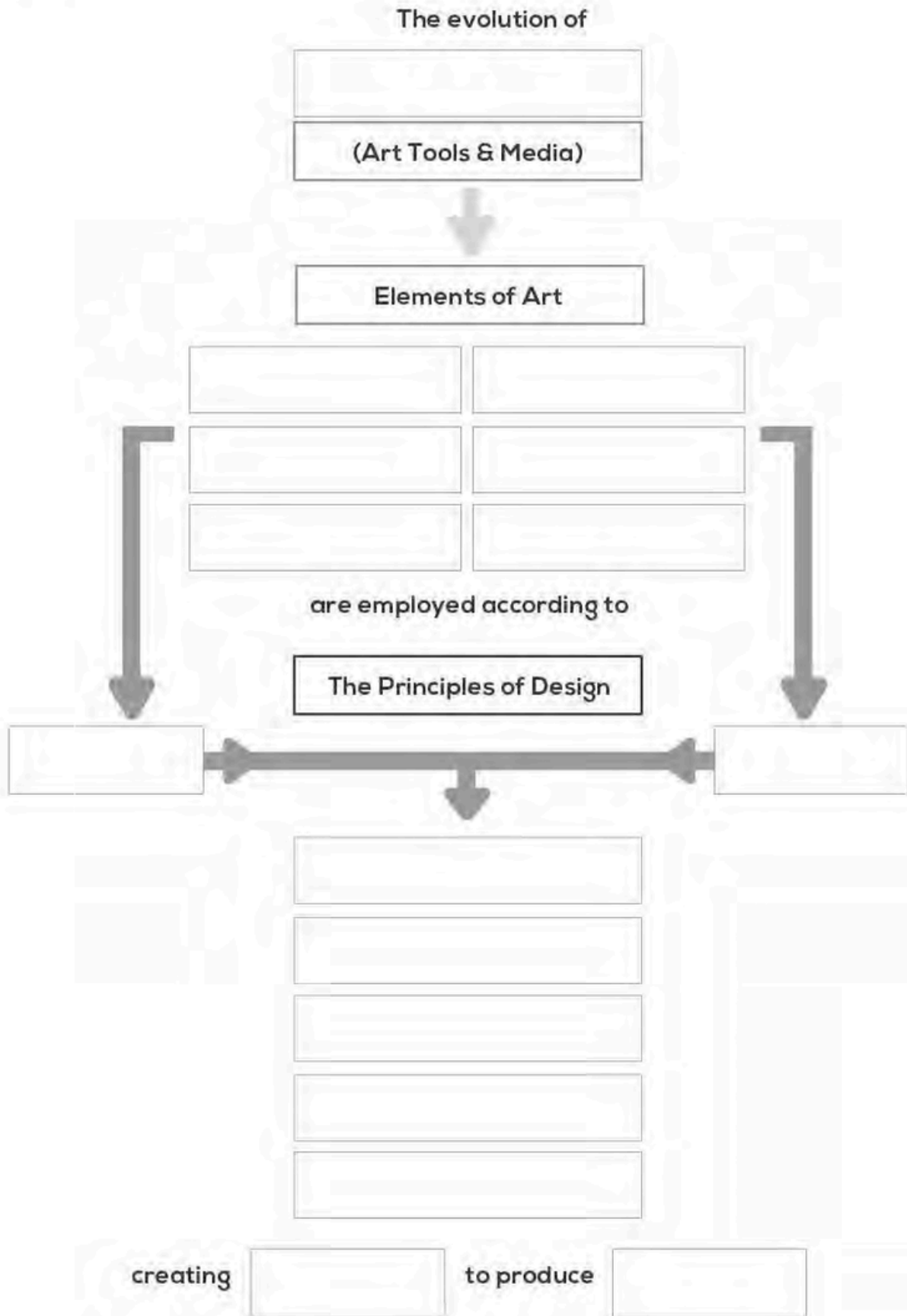
**Play**  
*time*

**ACTIVITIES**

For lecturer & students



Fill in the box.



Name of Artist: .....

Name of Work of Art: ..... Year : .....

**Subject (The What?)**

**Form (Materials)**

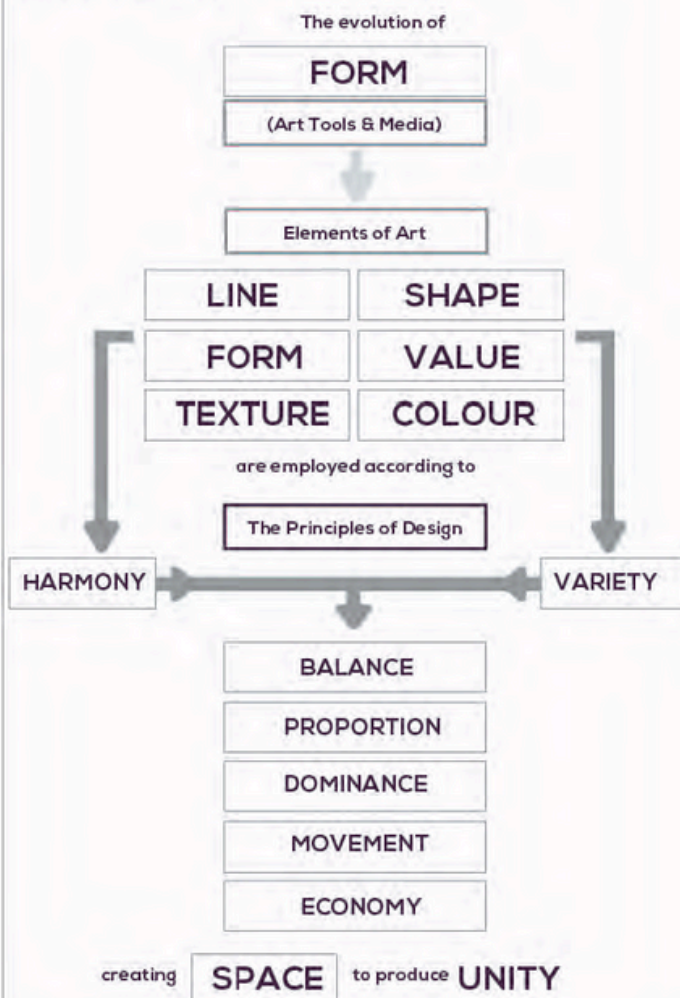
**Form (Media) The How?**

**Content (Meaning of the work) The Why?**

**Form (Composition)**

**Elements of Art & Principles of Design**

Circle all that apply



Identify and draw to show which Elements & Principles apply in the work.

Paste the Work of Art here:



## Elements of Art

Draw variety of lines


## Elements of Art

Draw variety of Shape


## Elements of Art

Draw variety of Form


## Elements of Art

Draw variety of Textures


## Elements of Art

Draw variety of values

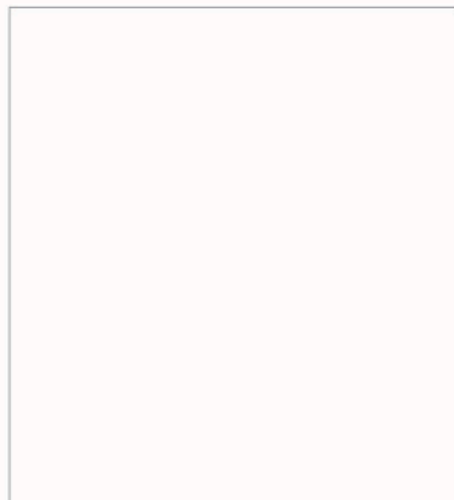
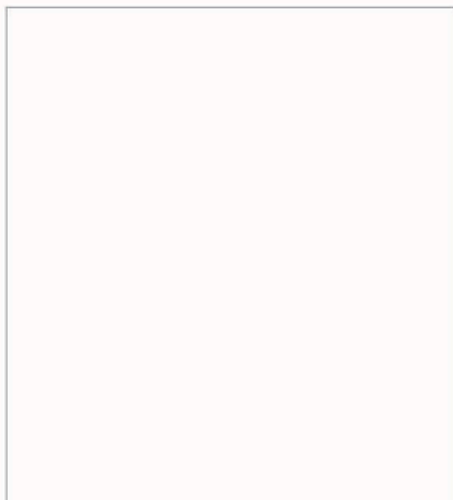
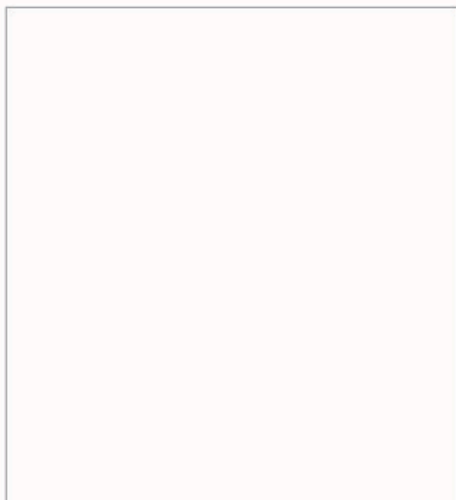



## Elements of Art

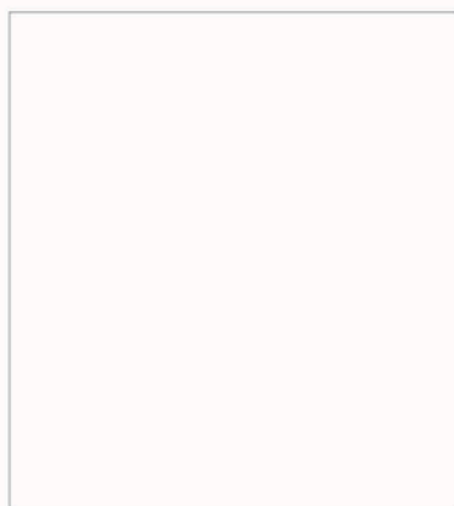
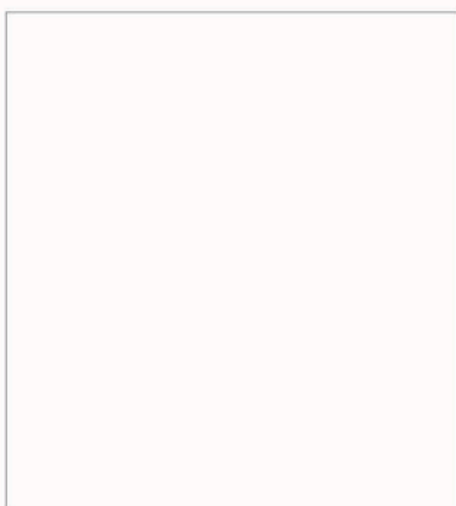
Draw variety of space


## Elements of Art

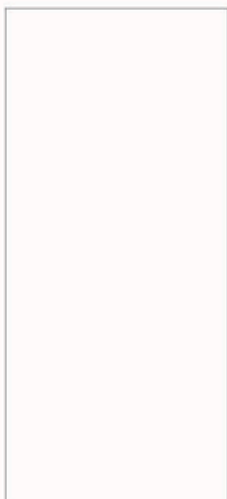
### Colour the Box Primary Colour



### Colour the Box Secondary Colour



### Colour the Box Tertiary Colour



## Elements of Art

### Complimentary (opposites on colour wheel)


### Analagous ( neighbours in colour wheel)


### Monochrome (one colour )

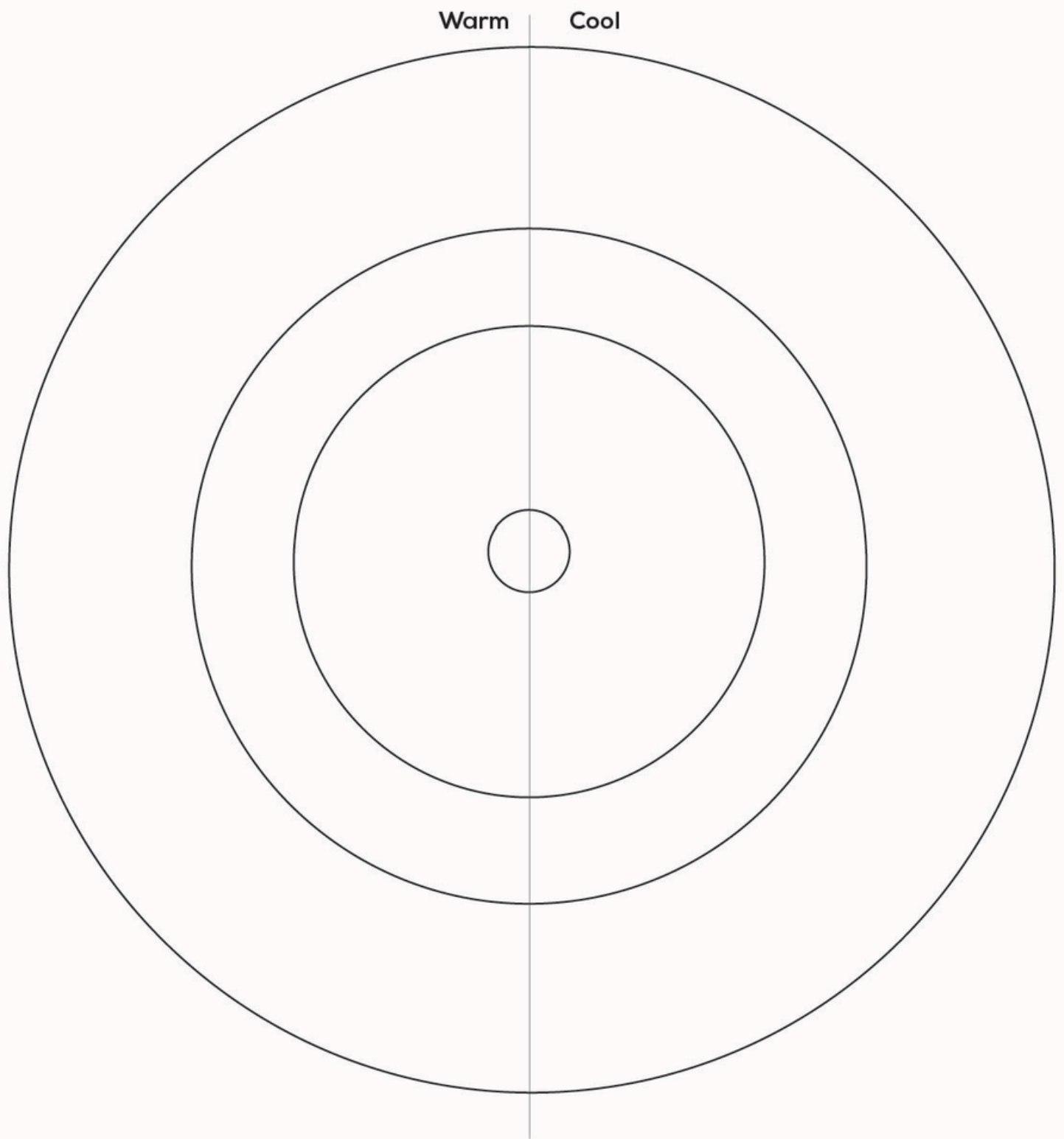

**Elements of Art**

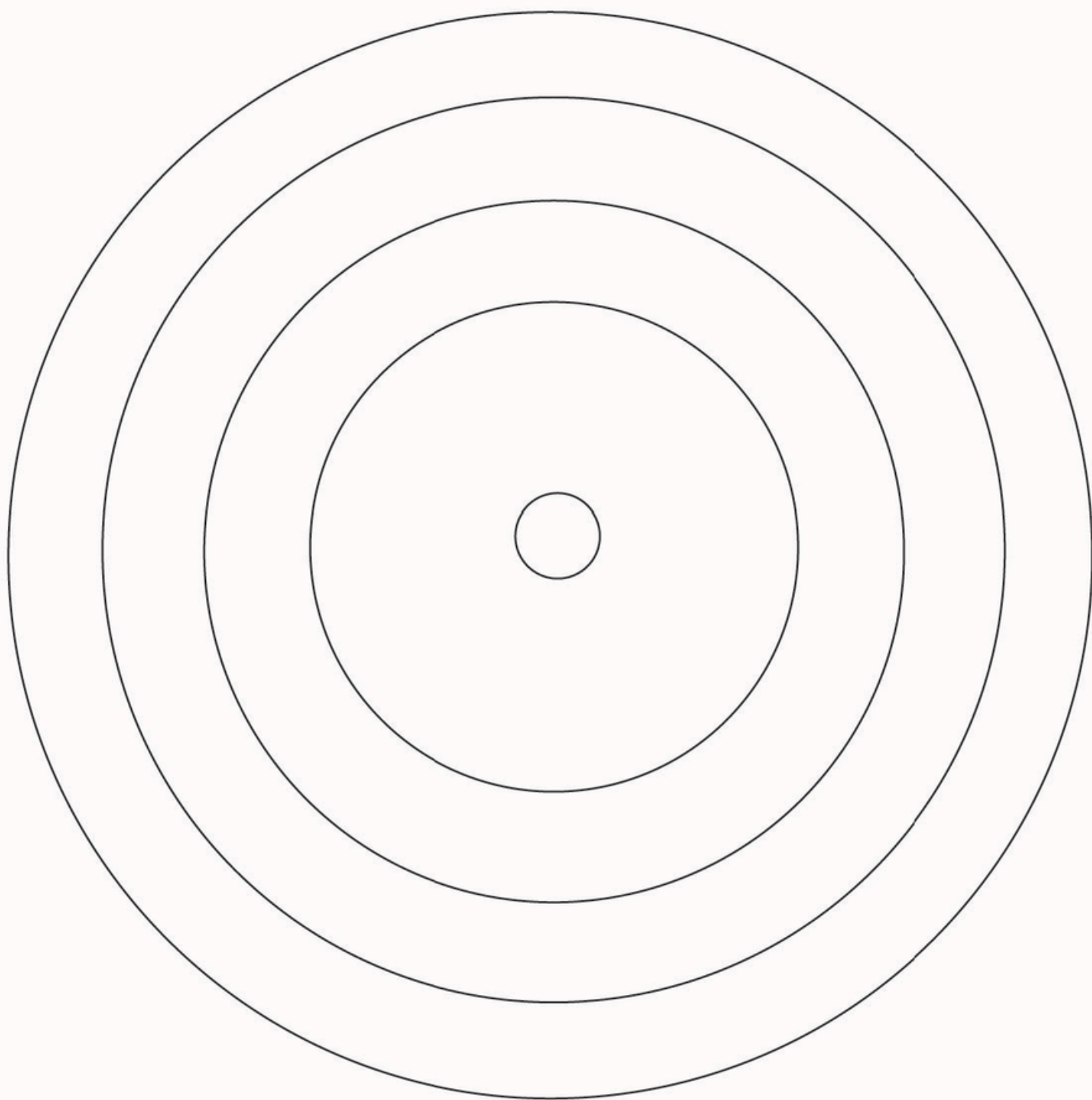
**Colour the Box Tint  
(Colour +White)**


**Colour the Box Tone  
(Colour + Pure Colour)**


**Colour the Box Shade  
( Colour + Black)**





# ART AND DESIGN FUNDAMENTALS

GAME  
ARTIST  
EDITION

Play  
time

ACTIVITIES

For lecturer & students

## Concept Art Creation

Task:

- Students create a piece of concept art for a game character, props, or environment.
- Focus on using elements of art (line, shape, color, texture) to create an effective design.

Steps:

- Begin with rough sketches, emphasizing basic shapes and composition.
- Refine the sketches, adding details and considering color schemes.

## 3D Modeling and UV Unwrapping

Task:

- Students create a simple 3D model based on their concept art.
- Focus on the principles of design (balance, proportion, unity) while modeling.

Steps:

- Use 3D modeling software to create the basic form.
- Ensure the model follows the concept art and design principles.
- Perform UV unwrapping to prepare the model for texturing.

## Texturing and Baking

Task:

- Students apply textures to their 3D models, focusing on elements like color and texture.
- Use baking techniques to add detail and realism to the textures.

Steps:

- Create texture maps based on the UV layout.
- Apply the textures to the model, ensuring consistency with the concept art.
- Use baking techniques to add details like ambient occlusion, normal maps, and specular highlights.



## Gallery Walk and Group Reflection

Display Work:

- Students display their concept art, 3D models, and textured models.
- Conduct a gallery walk where students observe and discuss each other's work.

Group Discussion:

- Reflect on the challenges and successes of the activities.
- Discuss how the elements of art and principles of design were applied in their game art tasks.
- Share insights on how these fundamentals enhance the overall quality of game art.

## Analyze Art

- Analyze a piece of game art from a favorite game. Write a brief report on how the elements of art and principles of design are applied in the artwork.

# Manipulation of Elements of Art

## Line, Shape and Form

### Objective:

To create a set of concept sketches focusing on manipulating lines, shapes, and forms to develop unique game character silhouettes.

### Instructions:

#### Concept Development:

- Choose a theme or character archetype (e.g., warrior, mage, alien, robot).
- Consider how different lines (straight, curved, jagged) and shapes (geometric, organic, abstract) can convey different emotions and characteristics.

#### Sketching:

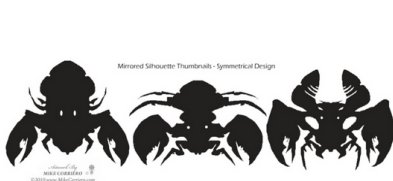
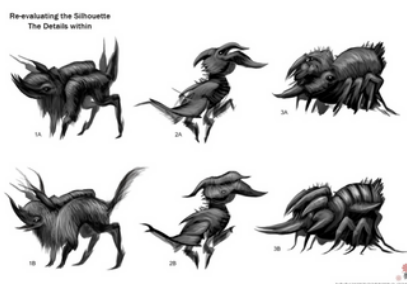
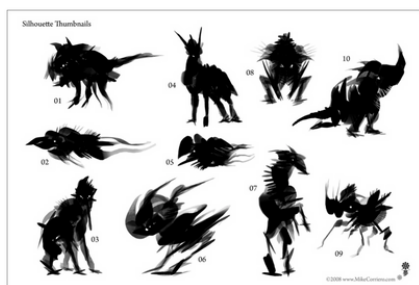
- Create at least three different character silhouettes, focusing solely on using bold lines and shapes.
- Use simple shapes to define the overall form of each character. Experiment with exaggerating proportions and combining different shapes to create unique and instantly recognizable silhouettes.
- Once silhouettes are finalized, add details to develop the form. Use line weight variations to emphasize certain parts and create a sense of depth.

#### Reflection:

- Write a brief reflection on how the manipulation of lines, shapes, and forms affected the perception and appeal of each character's silhouette.

#### Deliverables:

1. Three character silhouette sketches
2. Detailed character drawings based on silhouettes.
3. A reflection paragraph



**Reference Video:** [How to Design Characters through Silhouettes by David Arroyo](#)

# Manipulation of Elements of Art Space and Value

## Objective:

To create a dynamic game environment concept using space and value to establish depth, focus, and atmosphere.

## Instructions:

### Environment Concept:

- Select a type of environment relevant to your game's theme (e.g., a mystical forest, a futuristic cityscape, a haunted castle).
- Consider how the use of positive and negative space can guide the player's eye and create a sense of scale and depth.

### Value Study:

- Create a grayscale value study of the chosen environment.
- Use varying values (lights and darks) to establish a strong focal point and suggest atmospheric perspective.
- Manipulate space by arranging foreground, middle ground, and background elements, using overlapping shapes and diminishing sizes to enhance depth.

### Final Rendering:

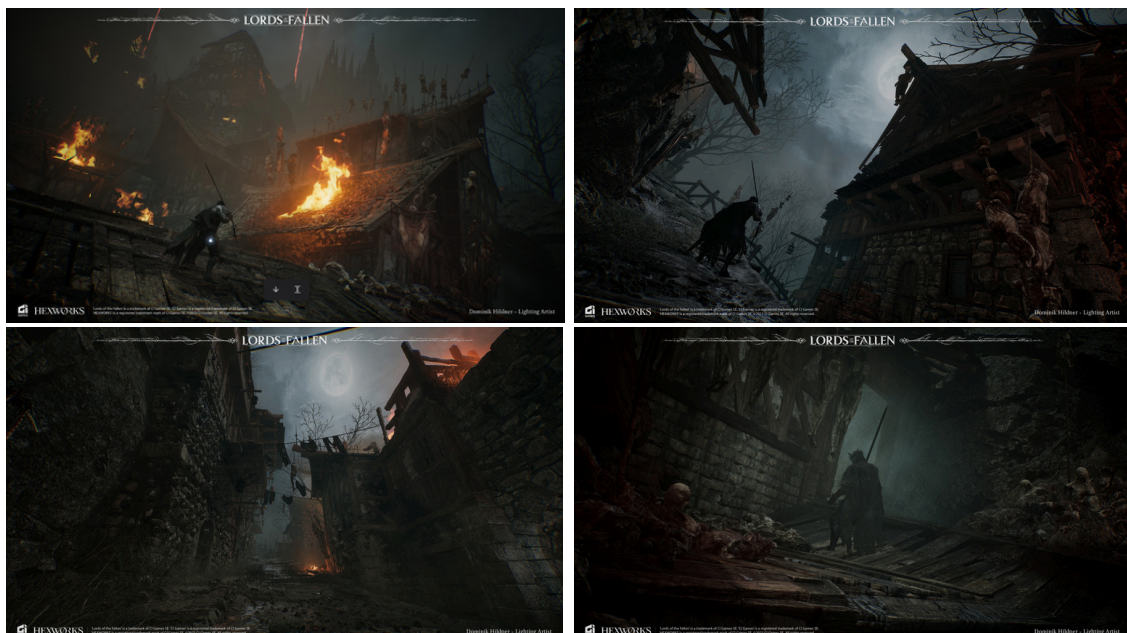
- Using the value study as a base, refine the environment concept, adding more details and adjusting values to enhance the composition further.
- Focus on how light and shadow can affect the mood and readability of the scene.

### Reflection:

- Write a brief reflection on how manipulating space and value helped convey depth and atmosphere in your environment design.

### Deliverables:

1. Grayscale value study
2. Refined environment concept
3. A reflection paragraph



Dominik Hildner, Lighting Artist @ Hexworks | prev. Rockstar North  
<https://www.artstation.com/hildner>

# Manipulation of Elements of Art

## Texture and Colour

### Objective:

To create a set of textured assets for a game, applying color theory to enhance the overall aesthetic and mood.

### Instructions:

#### Asset Selection:

- Choose a set of three different game assets (e.g., weapon, shield, chest, potion).
- Consider the role of each asset in the game and the type of textures that would make them visually appealing and appropriate for their function.

#### Texture Design:

- Design a texture sheet for each asset, including various materials like metal, wood, fabric, or glass.
- Experiment with different textures to convey material properties. Focus on details like scratches, rust, or fabric patterns to add realism and character.

#### Color Application:

- Apply color to the textured assets using a color palette that aligns with the game's theme and atmosphere.
- Explore color harmony, contrast, and saturation to create visually appealing and cohesive assets. Consider how different colors and textures can evoke specific emotions or fit a narrative.

#### Reflection:

- Write a brief reflection on how texture and color manipulation affected the perception and usability of each asset in a game context.

#### Deliverables:

1. Texture sheets for three assets.
2. Colored versions of textured assets.
3. A reflection paragraph



# **ART AND DESIGN FUNDAMENTALS**

## **PRINCIPLES OF DESIGN**

**Play**  
*time*

**ACTIVITIES**

For lecturer & students

**Principles of Design : Balance** (A sense of equilibrium achieved through implied weight, attention or attraction by manipulating the visual elements within a artwork)

**Photographs, illustrate or select pictures which shows the principle.  
Fill or paste in the box.**

**Horizontal Balance**

**Vertical Balance**

**Radial Balance**

**Combine Horizontal, Vertical & Radial**

**Principles of Design : Balance** (A sense of equilibrium achieved through implied weight, attention or attraction by manipulating the visual elements within a artwork)

**Photographs, illustrate or select pictures which shows the principle.  
Fill or paste in the box.**

**Symmetrical Balance**

**Assymetrical Balance**

**Radial Balance**

**Principles of Design :** Harmony (Quality achieved by different element of composition to form as a whole)  
Repetition (the use of the same visual effect a number of times in the same composition), Pattern (a repeated element )

**Photographs, illustrate or select pictures which shows the principle.**  
**Fill or paste in the box.**

**Repetition of Colour**

**Repetition of Texture**

**Repetition Line or Shape**

**Repetition of Value**



**Principles of Design : Dominance** (Certain elements are more important than others in a particular design)

**Photographs, illustrate or select pictures which shows the principle.**  
**Fill or paste in the box.**

**Types 5:** Character : a significant difference  
in general appearance. Contrast in colour, value, texture.

**Principles of Design : Dominance** (Certain elements are more important than others in a particular design)

**Photographs, illustrate or select pictures which shows the principle.**  
**Fill or paste in the box.**

**Types 1:** Separation from one part from others.

**Types 2:** Placement at Center Stage or another position can be dominant depends on surrounding.

**Types 3:** Direction: A movement that contrast with other draws attention.

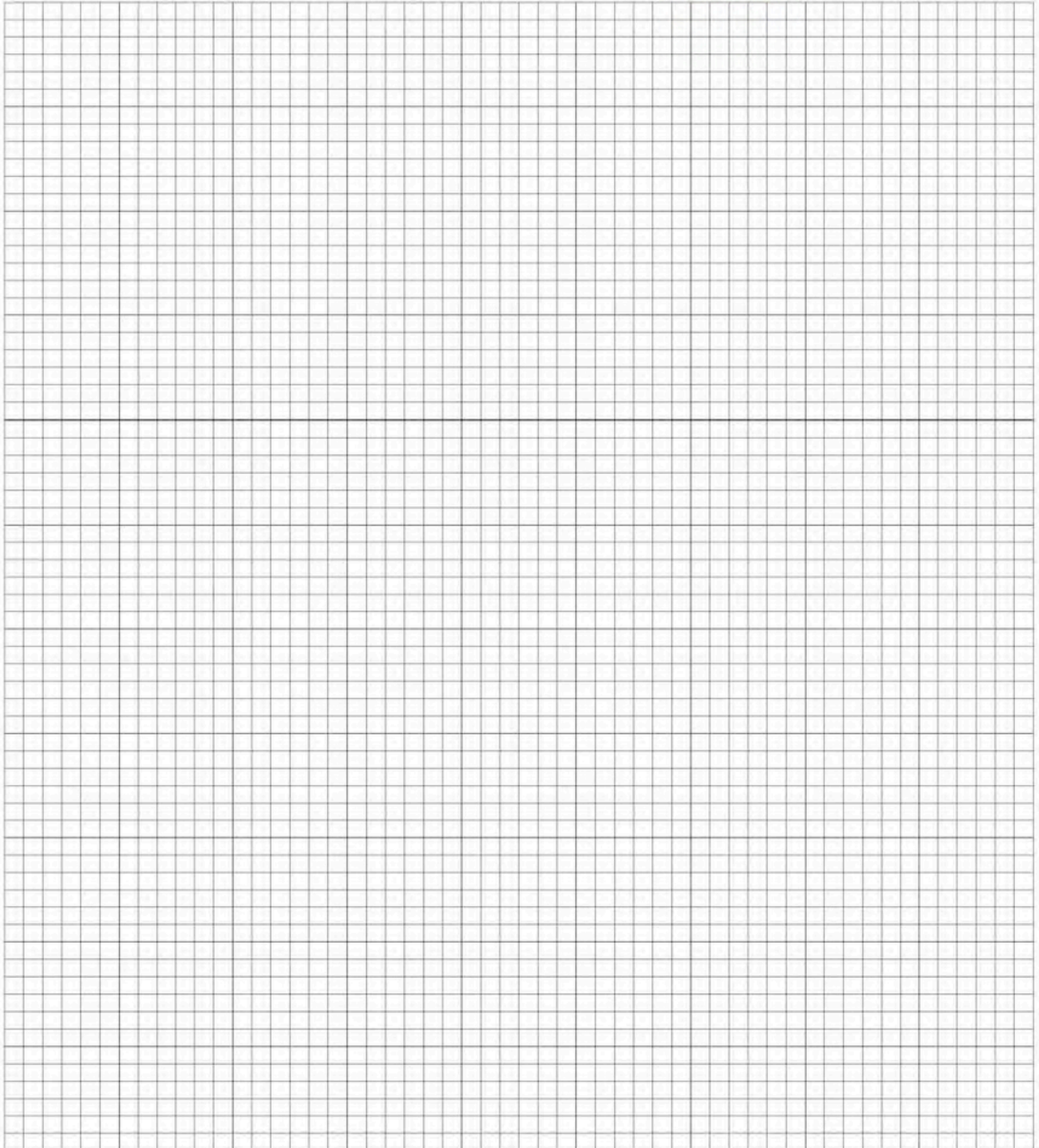
**Types 4 :** Scale: Larger size normally dominate.

**Principles of Design : Proportion** (The comparative size relationship between the part as a whole.)

Photographs, illustrate or select pictures which shows the principle.  
Fill or paste in the box.

Scale used when proportion is related to size. Draw Golden Mean 1.618 golden ratio using Fibonacci sequence (1,1,2,3,5,8,13,21,34,55,89,144).

$$\frac{21}{13} = \frac{13}{8}$$



**Principles of Design : Proportion** (The comparative size relationship between the part as a whole.)

**Photographs, illustrate or select pictures which shows the principle.**  
**Fill or paste in the box.**

**Sample relationship of spiralling curves in nature.**




**Principles of Design : Movement / Rhythm** (A sense of movement achieved by the repetition of visual )

**Photographs, illustrate or select pictures which shows the principle.  
Fill or paste in the box.**

**Rhythm in art derives from reiterating (repetition) and measuring similar or equal parts.**

**Photographs, illustrate or select pictures which shows the principle.**  
**Fill or paste in the box.**

Minimalism means using limited material to create a desired effect. A minimalist artist will typically use a limited palette of colours and have a simplified geometric design.

# Manipulation of Elements of Art

## Balance and Proportion

### Objective:

To design a character or environment that demonstrates an understanding of balance and proportion, enhancing visual appeal and functional aesthetics in a game setting.

### Instructions:

#### Concept Selection:

Choose to design either a character or an environment relevant to a game concept (e.g., a fantasy hero, a sci-fi soldier, an ancient temple, a futuristic cityscape).

#### Exploring Balance:

Create at least two different sketches, each representing a different type of balance:

- Symmetrical Balance: Create a sketch where the elements are evenly distributed on either side of a central axis. This could be a character with a perfectly mirrored design or an environment where objects are evenly spaced.
- Asymmetrical Balance: Create a sketch where the visual weight is balanced but not mirrored, using different elements on either side of the composition to create dynamic tension. This could be a character with varied armor pieces or an environment with uneven terrain or architecture.

#### Focusing on Proportion:

- Refine one of the sketches, focusing on proportion. Adjust the size relationships between different parts of the character or environment to create visual interest and ensure functionality within a game context (e.g., larger hands or feet for a character, oversized doors or windows for an environment).

#### Reflection:

- Write a brief reflection on how balance and proportion were manipulated in your design and their impact on the overall visual composition.

#### Deliverables:

1. Two sketches (one symmetrical, one asymmetrical)
2. One refined sketch focusing on proportion
3. A reflection paragraph

# Manipulation of Elements of Art

## Dominance and Variety

### Objective:

To create a set of game assets or a scene that utilizes dominance and variety to capture attention and maintain visual interest.

### Instructions:

#### 1. Asset or Scene Selection:

- Choose a set of game assets (e.g., weapons, vehicles, props) or design a small scene (e.g., a treasure room, a market stall).

#### 2. Establishing Dominance:

- Identify the most important asset or focal point in your design that should stand out. This could be a hero's weapon, a powerful vehicle, or a key prop in the scene.
- Emphasize this dominant element by manipulating size, color, contrast, or positioning to make it immediately noticeable.

#### 3. Incorporating Variety:

- Surround the dominant element with secondary and tertiary elements that provide variety without overwhelming the focal point.
- Use different shapes, textures, sizes, and colors to create diversity, ensuring that each element is distinct yet cohesive within the overall design.

#### 4. Refinement:

- Refine your design, adjusting the levels of dominance and variety to achieve a balanced composition that draws the viewer's eye while maintaining interest.

#### 5. Reflection:

- Write a brief reflection on how dominance and variety were used to create a visually engaging design and the challenges faced during the process.

### Deliverables:

1. Initial asset or scene sketches
2. Refined asset or scene design emphasizing dominance and variety
3. A reflection paragraph



# Manipulation of Elements of Art

## Movement and Harmony

### Objective:

To design a dynamic game character or environment that demonstrates the principles of movement and harmony, guiding the viewer's eye and creating a cohesive visual experience.

### Instructions:

#### 1. Character or Environment Selection:

- Choose to design a character or environment that involves dynamic action or flow (e.g., a character in mid-action pose, an environment with flowing water or winding paths).

#### 2. Creating Movement:

- Develop sketches that suggest movement, using lines, shapes, and positioning to create a sense of direction or motion. For characters, consider action poses that imply momentum or fluidity. For environments, consider elements like pathways, rivers, or windblown foliage that lead the viewer's eye through the scene.

#### 3. Achieving Harmony:

- Refine your design to ensure all elements work together harmoniously. Balance dynamic and static elements to create a unified composition that feels natural and cohesive. For a character, this might involve harmonizing costume elements and pose; for an environment, it might involve balancing natural and architectural elements.

#### 4. Final Rendering:

- Produce a final, polished version of your character or environment design, incorporating feedback and adjustments to enhance movement and harmony.

#### 5. Reflection:

- Write a brief reflection on how movement and harmony were integrated into your design and their impact on the visual flow and unity of the composition.

### Deliverables:

1. Movement-focused sketches
2. Final refined design emphasizing movement and harmony
3. A reflection paragraph

**Reference:**

Ocvirk, O. G., Wigg, P. R., Bone, R. O., & Cayton, D. L. (2012). Art fundamentals: Theory and practice (12th ed.). McGraw-Hill Humanities/Social Sciences.

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<https://characterdesignnotes.blogspot.com/2011/03/use-of-silhouettes-in-concept-design.html>

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