

# Unit 1.4

## The Design Process

### The Elements & Principles of Design

# Unit 1.4 The Design Process

- What Is Design?
- Design Process Used in DDP

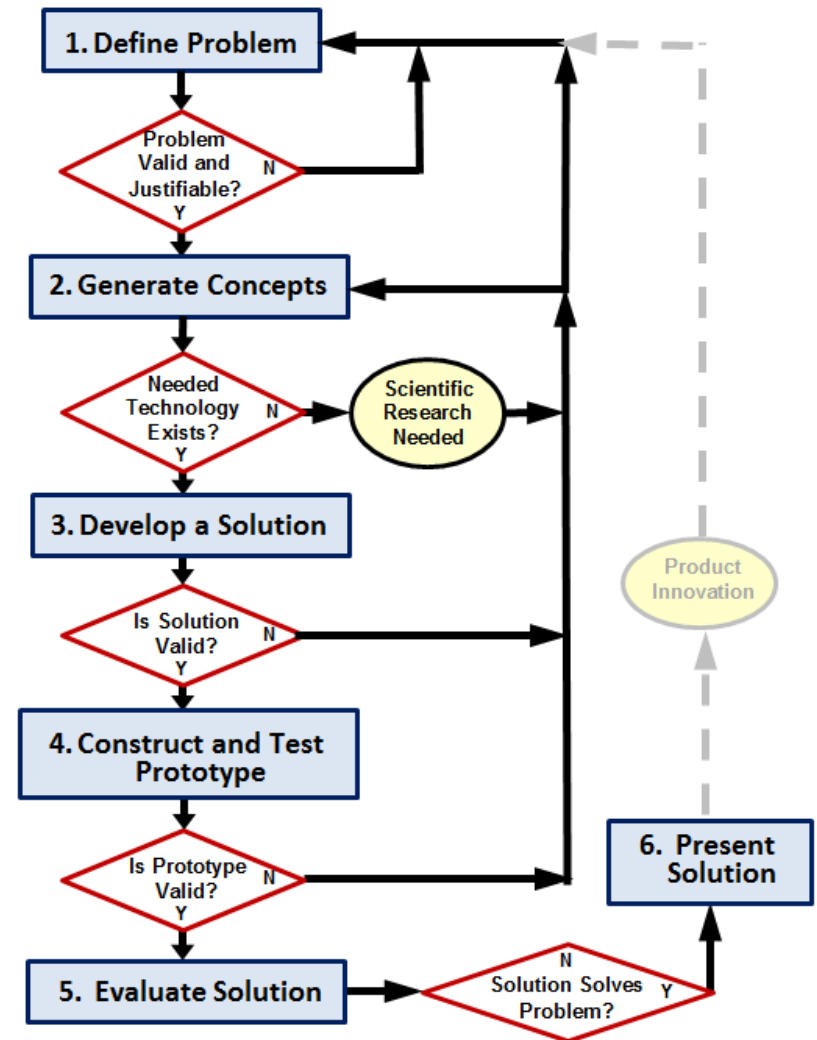
# What Is Design?

- The word “*design*” is often used as a generic term that refers to anything that was made by a conscious human effort.
- *Design* is also a process that is used to systematically solve problems.

# Design Process used in DDP

1. Define the Problem
2. Generate Concepts
3. Develop a Solution
4. Construct and Test a Prototype
5. Evaluate the Solution
6. Present the Solution

*This design process was developed based on the University of Maryland - College Park - IRB Research Project*



# **Elements and Principles of Design**

# Visual Design Elements

Eight integral components used in the creation of a design:

- Line
- Color
- Value
- Shape
- Form
- Space
- Texture

# Line

- Has only a length dimension
- Can be used to
  - Define a boundary
  - Indicate volume
  - Create perspective and depth
  - Create textures and patterns
  - Suggest movement
  - Imply emotion

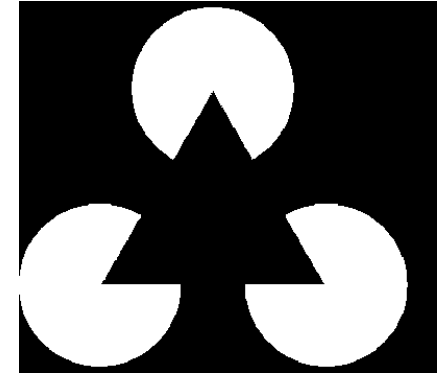


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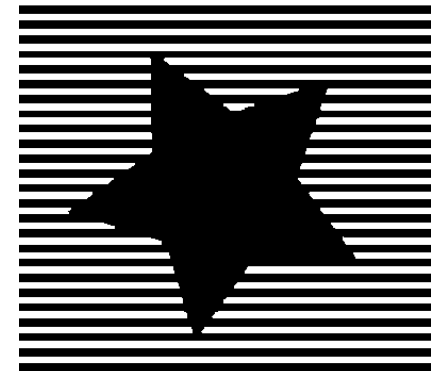


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Lines – Strong, Calm, Silly, Angry, Sad,  
Lonely, Excited/Happy



# Line

## Types

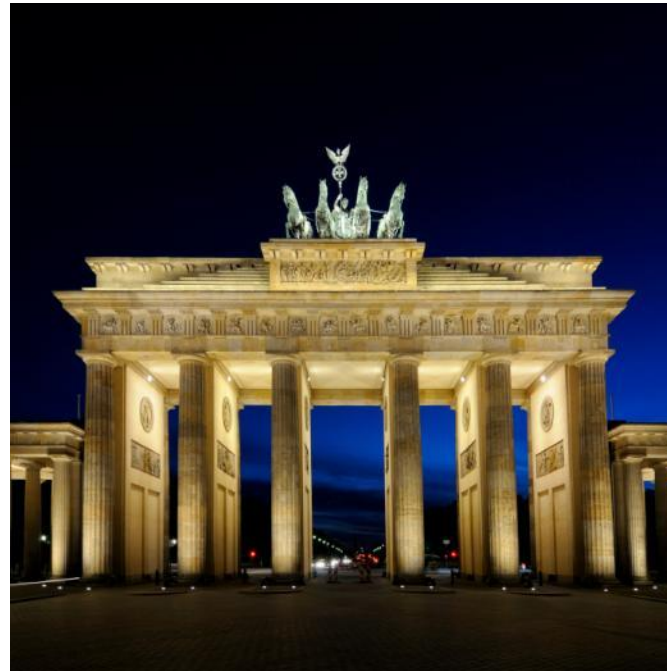
- Vertical - Represents dignity, formality, stability, and strength
- Horizontal - Represents calm, peace, and relaxation
- Diagonal - Represents action, activity, excitement, and movement
- Curved - Represents freedom, the natural, having the appearance of softness, and creates a soothing feeling or mood

# Vertical Lines

- Vertical lines characterize dignity, formality, stability, and strength

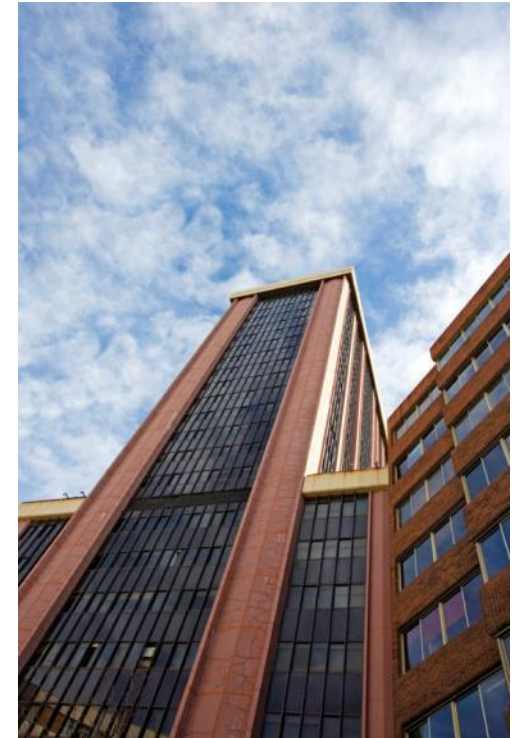


The Empire State Building  
Architect: Shreve, Lamb, and Harmon



Microsoft Office clipart

Brandenburg Gate  
Berlin



Skyscraper  
Madrid, Spain

# Horizontal Lines

- Horizontal lines represent calm, peace, and relaxation



Community Christian Church  
Kansas City, MO  
Architect: Frank Lloyd Wright, 1940

# Diagonal Lines

- Diagonal lines give the sense of movement, action, and activity.



# Curved Lines



Microsoft Office clipart

- Curved lines give the sense of freedom and a soothing mood



Sydney Opera House  
Jorn Utzon

# Color

Described by a number of qualities

- Hue: base color (e.g., red)



- Value: lightness or darkness



- Saturation: purity or intensity relative to gray



# Color Temperature



Image courtesy Autodesk, Inc.

## Cool Colors

Blues, purples, greens

## Warm Colors

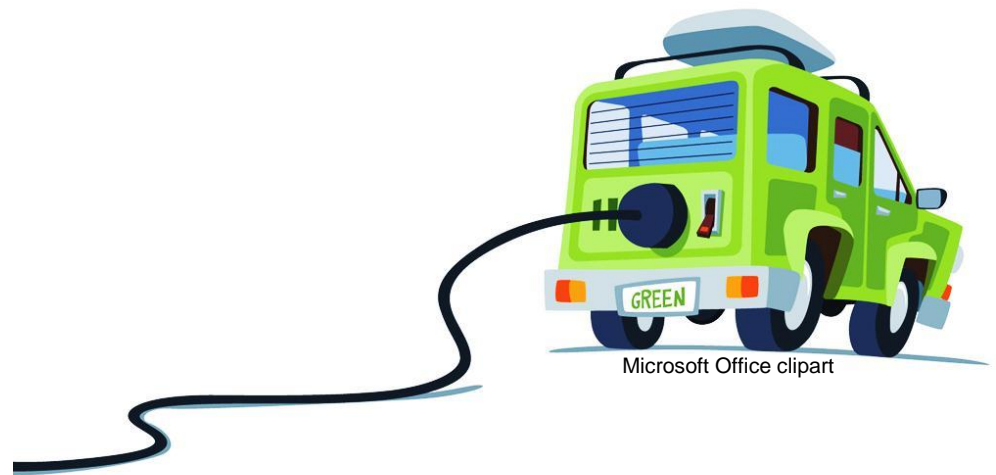
Reds, oranges, yellows

# Color

- Color has an immediate and profound effect on a design



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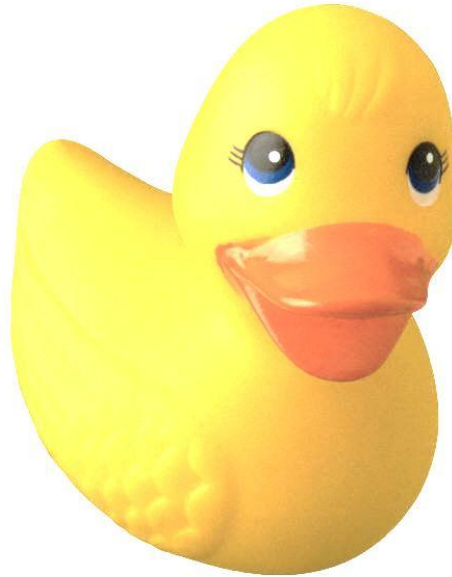


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# Value

- Relative lightness or darkness of a color, object, or shape



# Value

- Allows us to perceive shapes and the illusion of 3D objects on a 2D surface

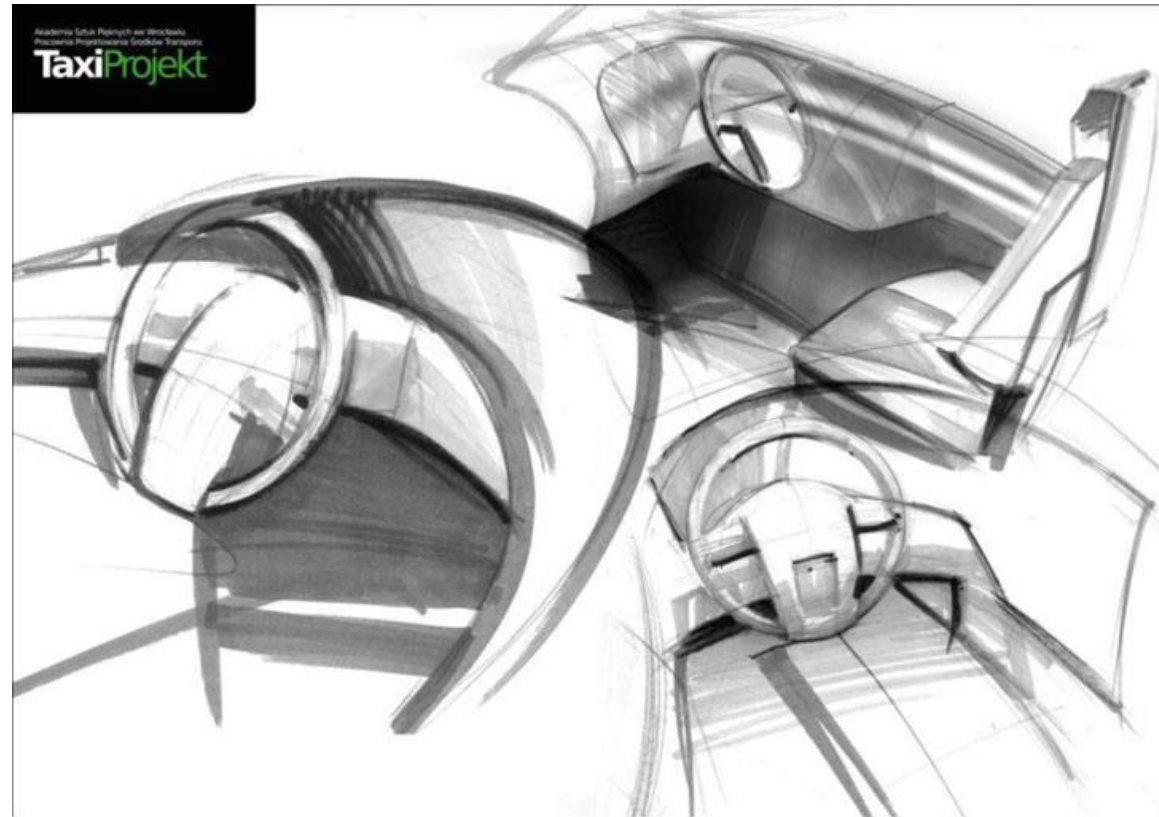
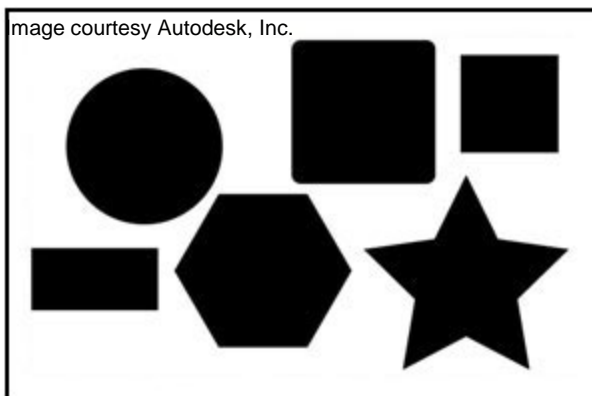


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# Shape

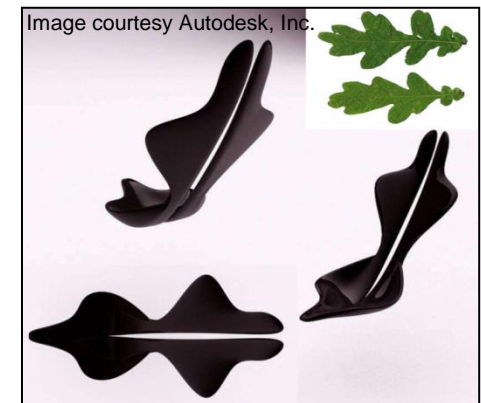
- A 2D area enclosed by lines or curves
- Types
  - Geometric: square, circle, triangle
  - Mechanical: simple shapes made of straight and curved lines
  - Organic: natural or simulating nature



Geometric



Mechanical



Organic

# Form

- A 3D volume or solid
- Often implied on a 2D surface by careful use of value

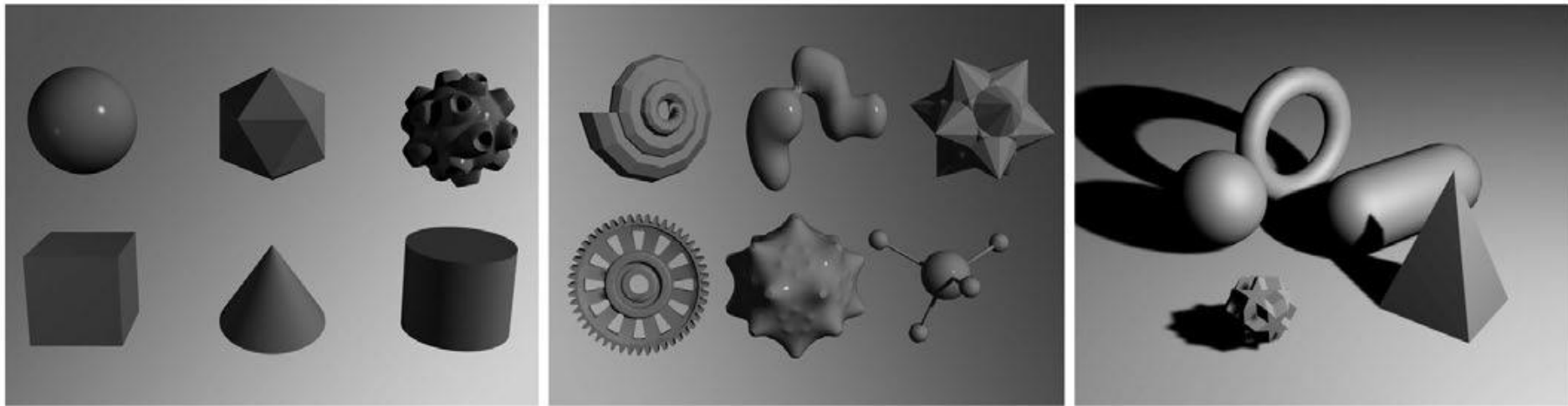


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# Form



Oriental Pearl Tower  
Shanghai  
Architect: Jiang Huan Cheng,  
Shanghai Modern Architectural  
Design, Co.



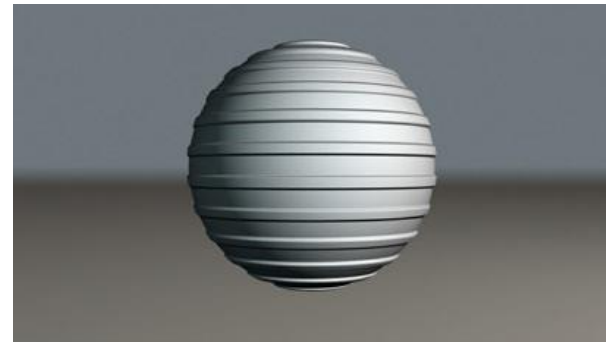
Ancient Egyptian Pyramids

# Space

- Areas between and around parts of an image/object or the implied depth in that image.
- Types
  - Positive
  - Negative



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**Negative  
Space**

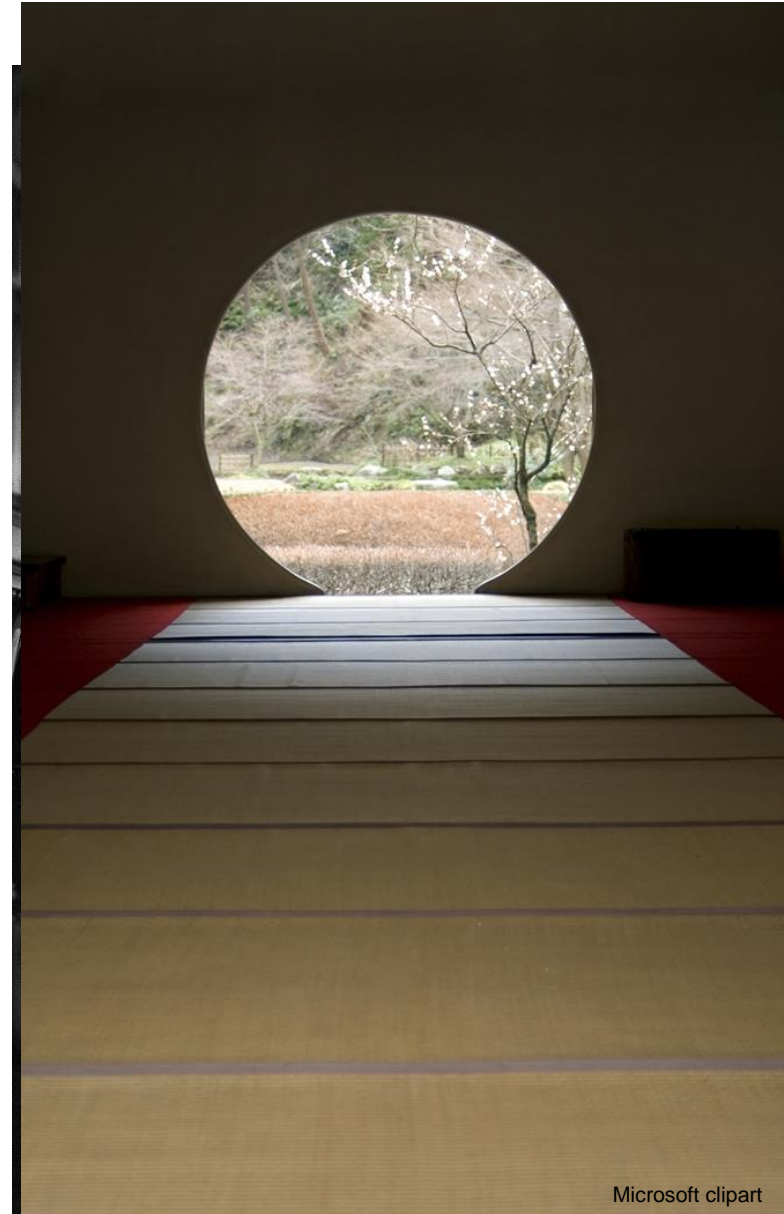


**Positive  
Space**

Image courtesy Autodesk, Inc.

# Space

- Evident in images with depth
- Types
  - Open, uncluttered
  - Cramped, busy



# Texture

- The surface look or feel – texture is implied
- Types
  - Smooth
    - Reflects more light
    - More intense color
  - Rough
    - Absorbs more light
    - Appears darker

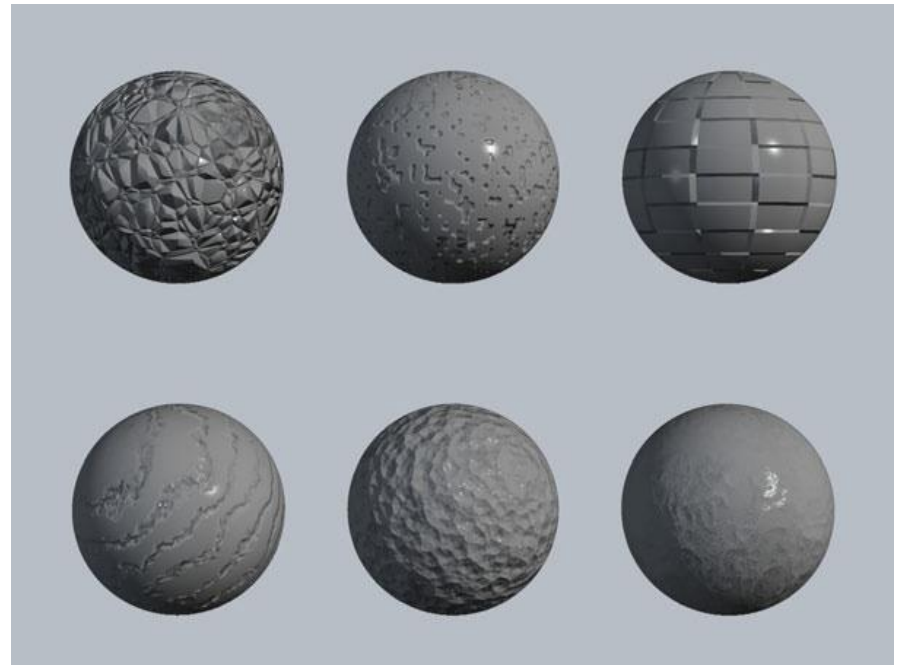


Image courtesy Autodesk, Inc.



# Texture

Smooth



Exterior metal façade of Disney  
Concert Hall  
Los Angeles

Fluffy



Rough



Park Guell – Barcelona, Spain  
Architect: Antonio Gaudí

# Principles of Design

- Many principles add to an interesting design

- Balance

- Proportion

- Emphasis

- Unity

- Contrast

- Rhythm

# Balance

- Visual and physical balance
- The distribution of elements within a design
- Types
  - Symmetrical (formal)
  - Asymmetrical (informal)
  - Radial

# Symmetrical (Formal) Balance

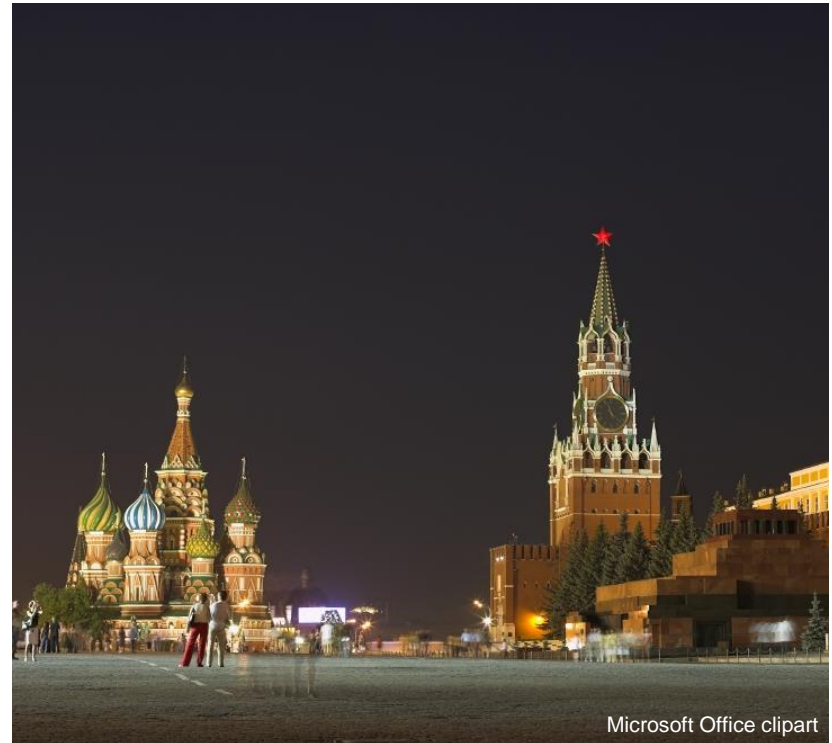
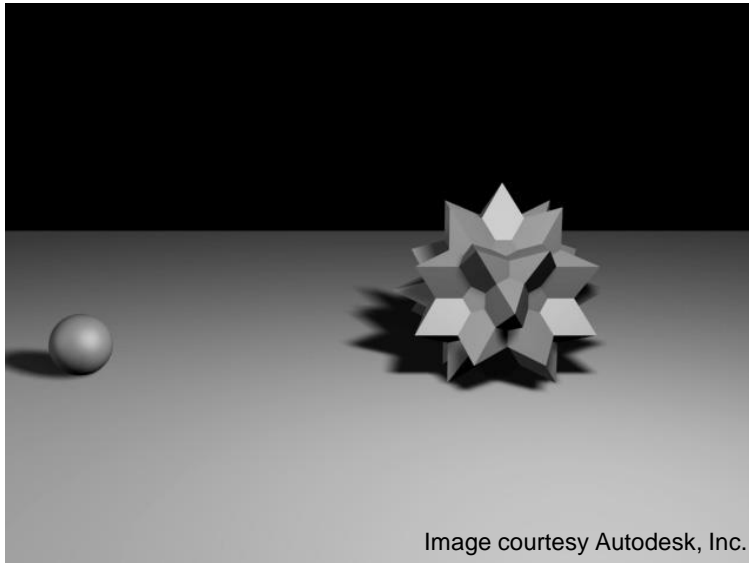
- The elements within the design are identical in visual weight in relation to a centerline or axis



The Taj Mahal Mausoleum  
Agra, Uttar Pradesh, India

# Asymmetrical (Informal) Balance

- The elements within the design are not identical but are arranged to provide a balanced visual weight



# Radial Balance

- Distribution of components in a circular pattern around a center point



Dresden Frauenkirche  
Dresden, Germany

# Emphasis

- Used to draw attention to one area
- Focal Point – feature in a design that attracts the eye
- Can be achieved through
  - Size
  - Placement
  - Shape
  - Contrast
  - Use of lines



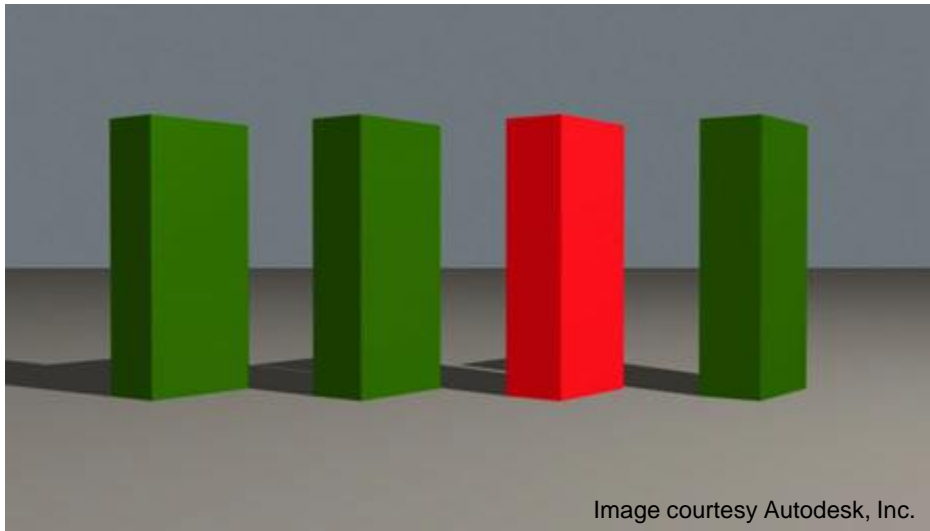
# Emphasis





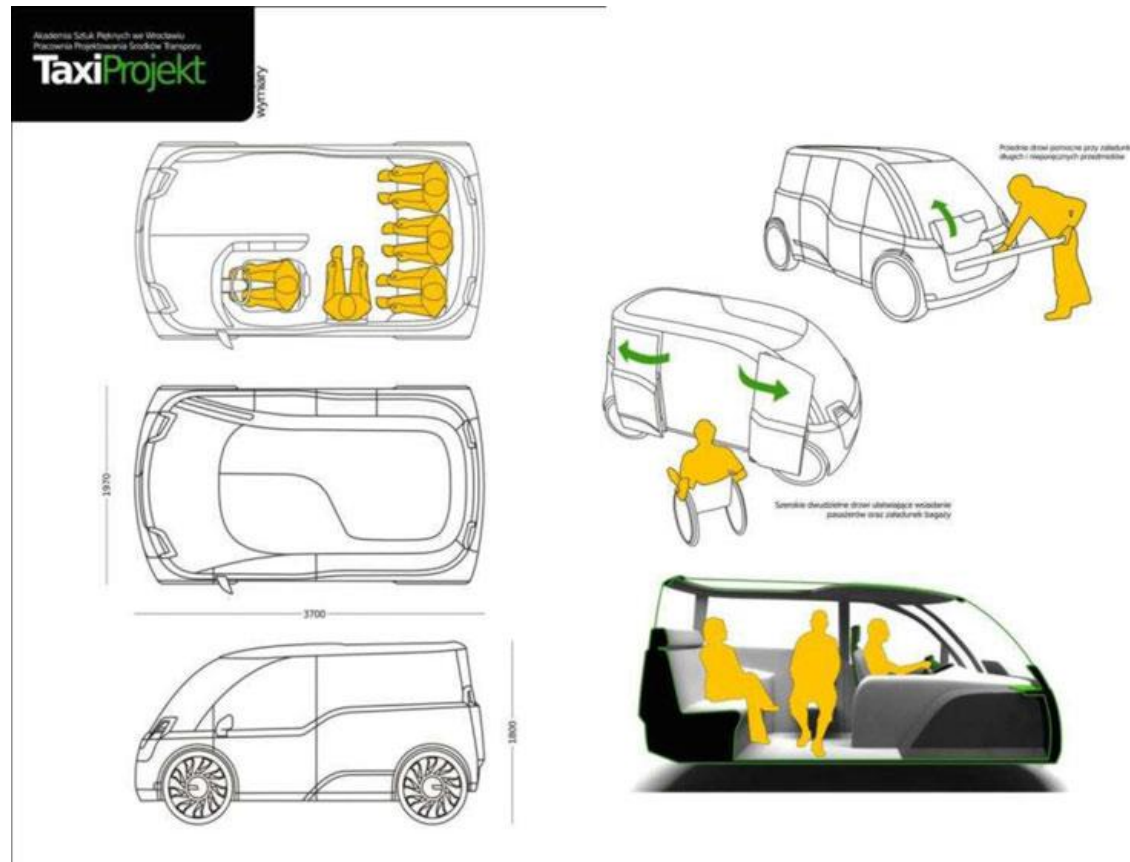
# Contrast

- The degree of relative difference between elements



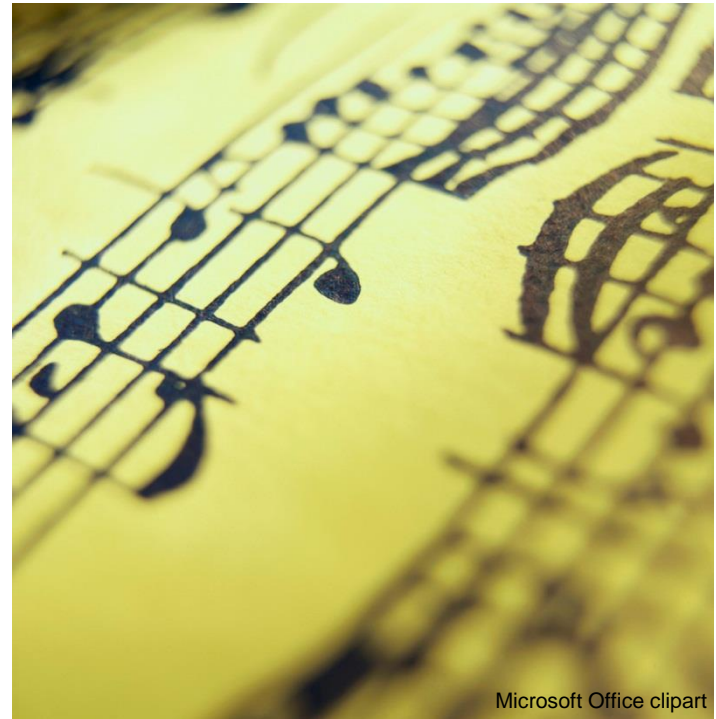
# Contrast

- Can be used to emphasize an element of a design



# Rhythm

- Repeated use of line, shape, color, texture or pattern
- A harmonious pattern or sequence
- Types
  - Regular
  - Random
  - Gradated
  - Graduated



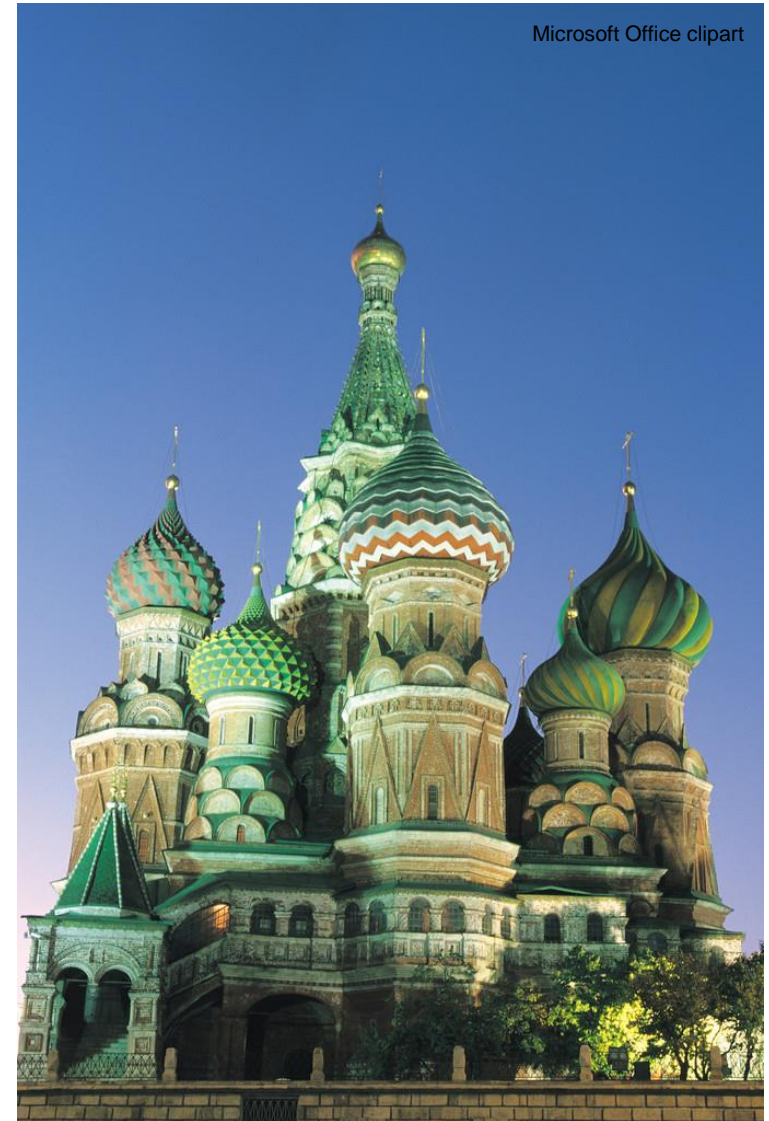
# Regular Rhythm

- An element is repeated at the same repetition/interval



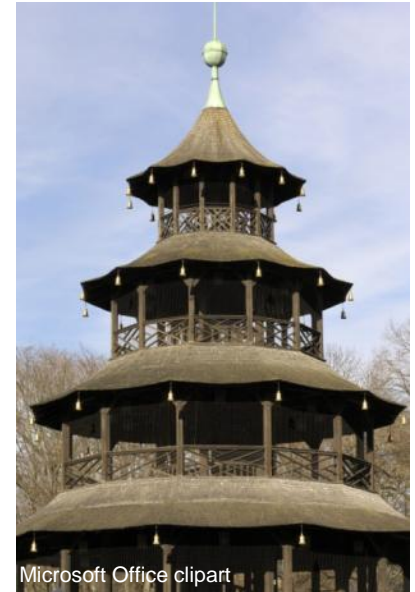
# Random Rhythm

- The repetition of the element is random or situated at irregular intervals



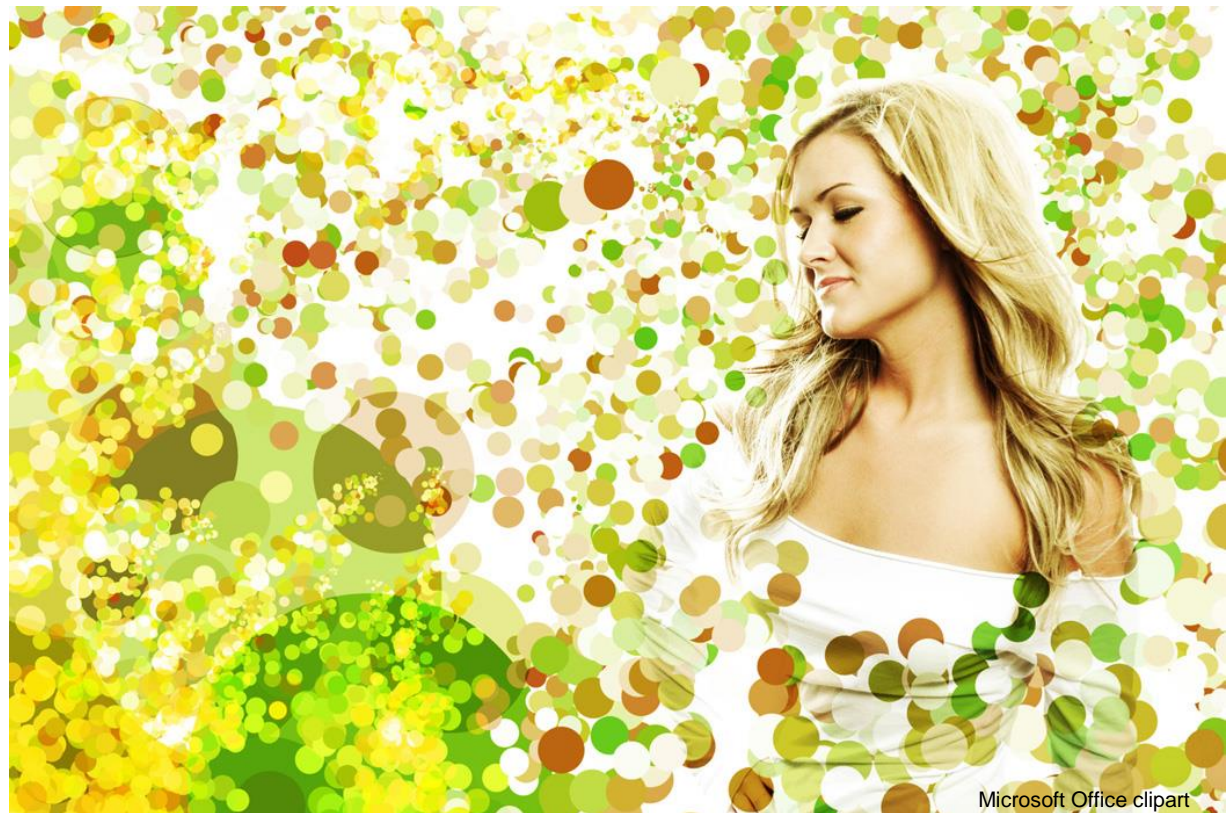
# Gradated Rhythm

- The repeated element is identical with the exception of one detail increasing or decreasing gradually with each repetition



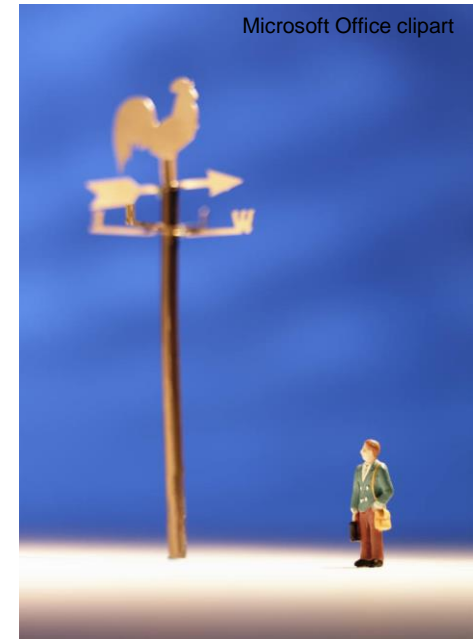
# Graduated Rhythm

- The repeated element becomes closer or further apart



# Proportion

- Comparative relationship between elements in a design with respect to size
- Scale – The size of an element.





# Unity

- The consistent use of design elements & principles. (materials, color, lines, shapes, form etc.)

