

# Scientific Foundations of Art and Design

Art & Design Basics · Answer Key · 8 Questions

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**1. Which optical phenomenon explains why a painting's colors may appear different under various light sources, such as incandescent versus fluorescent bulbs?**

- A) Newton's Rings
- B) Maxwell's Equations
- C) Metamerism**
- D) Doppler Effect

**2. The Gestalt principle of 'Proximity' suggests that elements are perceived as a group when they are:**

- A) Identical in shape and color
- B) Moving in the same direction
- C) Close to each other**
- D) Continuously connected

**3. In color theory, which type of color mixing involves combining light waves, typically seen in digital displays and screens?**

- A) Subtractive Color Mixing
- B) Additive Color Mixing**
- C) Impressionistic Color Mixing
- D) Chroma Color Mixing

**4. The human eye's fovea, responsible for sharpest vision, is most densely populated with which type of photoreceptor cells?**

- A) Rods
- B) Cones**
- C) Melanocytes
- D) Osteocytes

**5. According to the Fibonacci sequence and the Golden Ratio, the most aesthetically pleasing proportions are often found in a ratio close to:**

- A) 1:1
- B) 2:1
- C) 1.618:1**
- D) 3:2

**6. Which psychological principle describes the tendency for the brain to perceive continuous lines or curves even when interrupted, a concept widely used in logo design?**

A) Figure-Ground Separation

**B) Law of Closure**

C) Symmetry Bias

D) Color Constancy

**7. The phenomenon of 'afterimage' in visual perception, where an image persists in the mind's eye after the stimulus is removed, is a direct result of:**

A) The magnetic field of the artwork

**B) Photochemical reactions in the retina**

C) The diffusion of pigments

D) The viewer's mood

**8. In typography, the study of the physical space between characters, called kerning, is primarily influenced by the geometric shapes and negative space of:**

A) The ink viscosity

B) The paper's fiber structure

**C) The letterforms themselves**

D) The printing press pressure