

Worksheet: Understanding the Colors You See When You Rub Your Eyes

Grade Level: 11th Grade

Source: TedEd - "What are those colors you see when you rub your eyes?"

Section 1: Multiple Choice Questions

1. What is the scientific term for the phenomenon of seeing colors when you rub your eyes?
 - a) Photopsia
 - b) Phosphenes
 - c) Synesthesia
 - d) Chromesthesia
2. What part of the eye is primarily responsible for detecting light and sending signals to the brain?
 - a) Cornea
 - b) Retina
 - c) Lens
 - d) Iris
3. Which of the following is NOT a cause of phosphenes?
 - a) Rubbing your eyes
 - b) Staring at a bright light
 - c) Listening to loud music
 - d) Applying pressure to the eyeball

Section 2: True/False Questions

1. Phosphenes are caused by external light entering the eye. (True/False)
2. The colors seen when rubbing your eyes are a result of the brain interpreting random signals. (True/False)
3. Phosphenes can only be experienced when the eyes are closed. (True/False)

Section 3: Fill-in-the-Blanks

1. The phenomenon of seeing colors without external light is called _____.
2. The _____ cells in the retina are responsible for detecting light and sending signals to the brain.
3. Phosphenes can be triggered by _____, _____, or _____. (List three causes.)

Section 4: Matching

Match the terms on the left with their correct descriptions on the right.

1. Phosphenes
2. Retina
3. Photoreceptors

- a) The layer of the eye that contains light-sensitive cells.
- b) The sensation of seeing light without external light.
- c) Cells in the retina that detect light and send signals to the brain.

Section 5: Open-Ended Questions

1. Explain how rubbing your eyes creates the sensation of seeing colors.
2. Why do you think the brain interprets random signals as colors or patterns?
3. Describe a situation where someone might experience phosphenes other than rubbing their eyes.

Section 6: Listing

List three ways phosphenes can be triggered:

1. _____
2. _____
3. _____

Section 7: Concept Checking Questions (CCQs)

1. Are phosphenes caused by external light? (Yes/No)
2. Do photoreceptors play a role in creating phosphenes? (Yes/No)
3. Can phosphenes occur even when the eyes are open? (Yes/No)
