

Mississippi 8th Grade Science Practice Quiz – Light Waves

Questions 1–3: Data Collection & Explanation (P .8.6.1)

1. A student measures the speed of light in three different liquids and records the data in the table below:

Liquid	Time for light to pass 1 m (ns)
Water	5.03
Oil	5.35
Alcohol	5.12

Which conclusion is best supported by the data?

- A) Light travels fastest in oil because it has the highest refractive index.
- B) Light travels slowest in water because it is denser than alcohol.
- C) Light travels fastest in water because it has the lowest time measurement.
- D) Light travels at the same speed in all liquids.

2. A teacher asks students to design an experiment to show how light bends when it passes through a prism. Which step is **most important** for collecting accurate data?

- A) Shining light without measuring angles
- B) Drawing the prism after the experiment
- C) Predicting the color of light that will bend the most
- D) Recording the angle of light before and after entering the prism

3. A student observes that a laser beam appears bent when passing from air into water. Which explanation is scientifically correct?

- A) Light slows down in water, causing it to change direction.
- B) Light speeds up in water, causing it to refract.
- C) The laser heats the water, which bends the light.
- D) Light bends due to the color of the laser.

Questions 4–7: Conduct Simple Investigations (P .8.6.3)

4. Students want to investigate how different colors of light travel through a glass block. Which procedure is the **most controlled**?

- A) Shine red, blue, and green light through the block and measure the angle of refraction for each color.
- B) Shine sunlight through the block and guess which color bends most.
- C) Shine a single color and record how bright the light looks.
- D) Shine light from different sources without measuring angles.

5. A student wants to test which material allows light to pass through most easily. Which of these setups would provide the **most reliable data**?

- A) Shine a flashlight through glass, water, and cardboard, then measure light intensity with a light sensor.
- B) Shine a flashlight through cardboard only and describe what happens.
- C) Shine light through water and guess which material is clearest.
- D) Shine light through glass and measure the temperature change.

6. A student shines a light through a piece of colored plastic. The light that emerges is dimmer and a different color. Which investigation best tests **why this occurs**?

- A) Measure the temperature of the plastic after light passes through it.
- B) Shine light through only one color and write a paragraph about the color change.
- C) Compare different colored plastics using a light sensor to measure transmitted light intensity.
- D) Reflect light off a mirror instead of passing it through plastic.

7. During an investigation, students notice that light bends at different angles when passing from air into water versus air into oil. What is the best **scientific explanation**?

- A) Light slows down more in materials with a higher refractive index.
- B) Light bends more in materials with a lower density.
- C) Light changes color in different liquids.
- D) Light does not actually bend; the student made a mistake.

Questions 8–10: Explain Behavior of Light Waves in Various Materials (P .8.6.6)

8. A laser is pointed at a mirror at a 30° angle. Which statement correctly describes the light behavior?

- A) The light reflects off the mirror at 30° to the surface.
- B) The light reflects off the mirror at 30° to the normal line.
- C) The light bends into the mirror at 60° to the surface.
- D) The light passes through the mirror because it is shiny.

9. Which scenario shows **refraction of light**?

- A) A straw in a glass of water appears bent at the surface of the water.
- B) Sunlight reflects off a metal roof.
- C) A shadow forms behind a tree.
- D) Light from a candle is absorbed by a black wall.

10. A student observes that white light passes through a prism and splits into red, orange, yellow, green, blue, and violet. What principle explains this observation?

- A) The colors of the light are absorbed by the prism and re-emitted.
- B) Light speeds up in the prism, creating multiple beams.
- C) The prism reflects all colors of light equally.
- D) Light is refracted at different angles depending on wavelength.