Name: _____ **Date:** _____

The Invisible Maze: Light's Secret Path for 4th Grade Optics

Bending rays, bouncing beams, and magnification zones — 10 questions deciphering how light changes speed and direction through different materials.

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1. A scientist is using a magnifying glass to look at a tiny beetle. Why does the beetle look larger through the glass lens?

A. Light bounces off the glass and back to the beetle
B. Light bends as it moves from the air through the curved glass
C. The glass lens acts like a mirror to show the beetle's back
D. The glass adds extra sunlight to the beetle's body

2. When light hits a smooth, shiny surface like a silver spoon and bounces back, this process is known as _____.

A. Absorption
B. Refraction
C. Reflection
D. Shadowing

3. Light travels at the exact same speed whether it is moving through empty space, a pool of water, or a diamond.

A. True
B. False

4. If you are standing in a dark room and shine a flashlight at a mirror at an angle, where will the light go?

A. It will stop and turn into heat on the mirror's surface
B. It will pass through the mirror and hit the wall behind it
C. It will bounce off at the same angle it hit the mirror
D. It will scatter in every direction and fill the whole room

5. A _____ lens is thicker in the middle than at the edges and is often used in microscopes to bring light rays together.

A. Concave
B. Convex
C. Flat
D. Opaque

6. A prism works by refracting different colors of light at slightly different angles, which separates white light into a rainbow.

A. True

B. False

7. Why does a swimming pool often look shallower than it actually is when you look down into the water?

A. The water reflects the sky, which hides the bottom
B. Light bends as it exits the water and enters the air
C. The chlorine in the water acts like a mirror
D. The bottom of the pool absorbs all of the blue light

8. Security mirrors in store corners are _____ mirrors, which curve outward to show a wider view of the room.

A. Concave
B. Convex
C. Plane
D. Translucent

9. Light must hit an object and reflect into our eyes for us to be able to see that object.

A. True
B. False

10. Which of these objects would be best to use if you wanted to demonstrate 'diffuse reflection' (light bouncing off in many messy directions)?

A. A flat bathroom mirror
B. A piece of clear window glass
C. A crumpled piece of aluminum foil
D. A still, calm pond surface