Name:_____ Date:_____

Light Wave Behavior: Transmission, Reflection, and Absorption

How Light Behaves

When light waves travel, they interact with the materials they hit. There are three main ways light behaves when it strikes an object:

Transmission: When light waves pass straight through a material, it is called transmission. Materials like clear glass or water are transparent because they transmit almost all the light that hits them.

Reflection: When light waves bounce off a surface, it is called reflection. Smooth, shiny surfaces like mirrors reflect light waves in a predictable, straight pattern, which allows you to see a clear reflection.

Absorption: When light waves hit an object and are taken in, it is called absorption. The absorbed light energy is converted into heat. Dark-colored, opaque objects absorb much more light than light-colored objects.

Part 1: Identify the Behavior

1. Read each real-world scenario. Decide whether it is an example of **transmission**, **reflection**, or **absorption**.

A piece of black asphalt gets very hot on a sunny summer afternoon. _____

You look into a still pond and see a clear image of the trees above. _____

Sunlight streams through a clear glass window into your living room. _____

A magnifying glass allows you to see the tiny text on a map clearly.

A solar panel takes in sunlight to generate electricity.

A bicycle reflector bounces the beam from a car's headlights back toward the driver.

Light passes through a clear plastic water bottle.

Part 2: Applied Thinking

2. On a hot, sunny day, is it better to wear a white shirt or a black shirt to stay cool? Explain your choice using what you learned about light wave behavior. Use the terms **absorption** and **reflection** in your answer.

3. What would happen if a car's windshield was designed to reflect most light instead of transmitting it? Explain why this would be a problem.