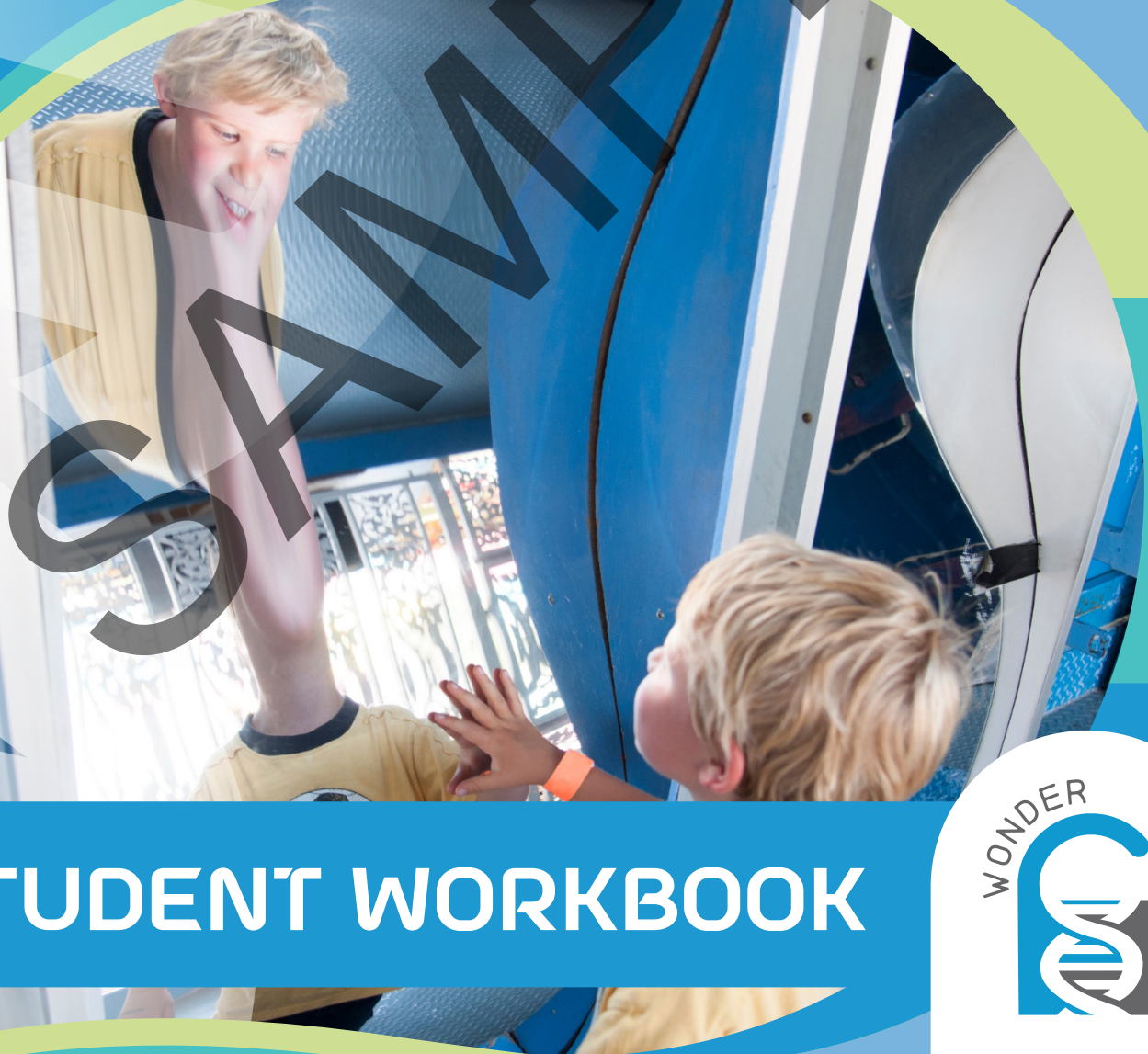


# A-MAZE-ING MIRRORS



STUDENT WORKBOOK



## WHAT DOES LIGHT DO WHEN IT HITS SOMETHING?

Have you ever noticed that when light hits a mirror, it does something different than when it hits a wall? Find out about the different things light can do when it hits objects.

### LEARNING GOALS:



I can investigate what happens when objects are placed in the path of light.

## LETTING LIGHT THROUGH

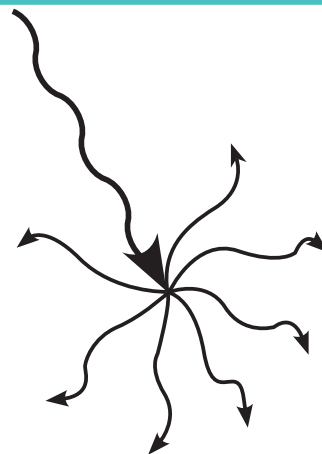
8

Do you remember what light did when it hit the mirrors in your periscope? That's right, it bounced off the mirrors. Light bouncing off something in one direction is called **reflection**.

Some objects are better at reflection than others. Mirrors are good at reflecting, but cardboard is not. When light hits cardboard, it **scatters** or goes in many different directions.

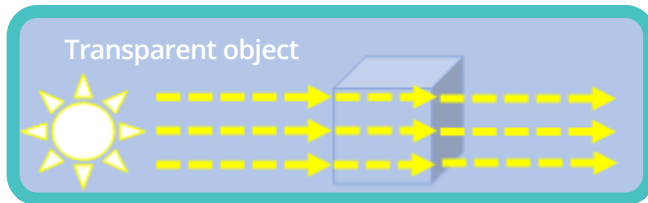


REFLECTION

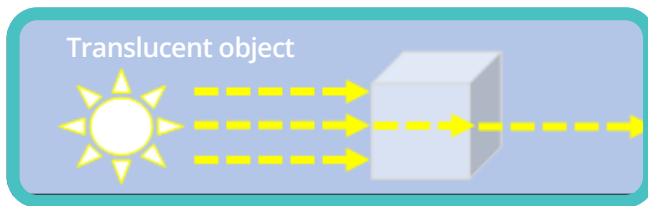


SCATTERING

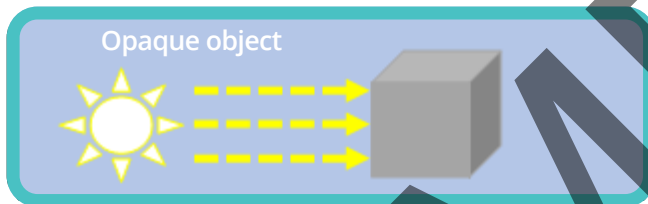
Light can do more than bounce off an object. Objects can also take in light, or they can let it through. Different objects can even let different amounts of light through.



An object that lets most or all light through is called **transparent**.



If an object lets just a little light through, it's **translucent**.



Finally, if an object doesn't let any light through, it's called **opaque**.

## 9 LIGHT AND TYPES OF OBJECTS

Can you decide if objects are transparent, translucent, or opaque? Do an investigation to try it out!

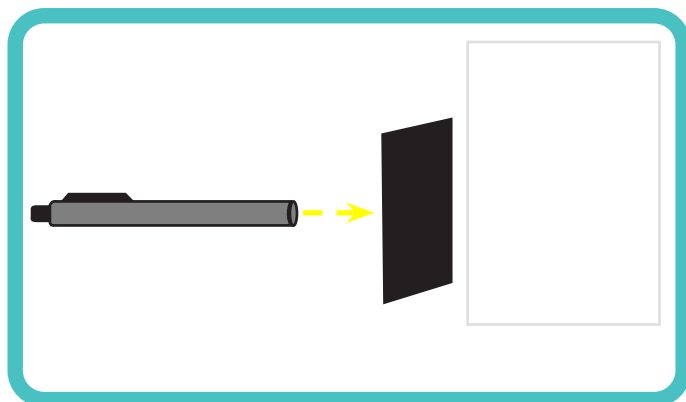
### WHAT YOU NEED:

#### FROM THE KIT:

- Cellophane (all 3 colors)
- Construction paper
- Mirror
- Penlight
- Prism
- Tracing paper

## WHAT TO DO:

**STEP 1** Hold the penlight so that it is shining onto a white background, like you did when you tested the cellophane.



### STEP 2

Place one of the objects you are testing between the penlight and the tracing paper.

**STEP 3** See what happens when the light from the penlight hits the object. Does any of the light go through it to the background behind it?

**STEP 4** Decide if the object is transparent, translucent, or opaque and circle your choice in the table below.

OBJECT	CIRCLE ONE		
Construction paper	transparent	translucent	opaque
Tracing paper	transparent	translucent	opaque
Mirror	transparent	translucent	opaque
Prism	transparent	translucent	opaque
Cellophane	transparent	translucent	opaque

Dig deeper into the details about what light does when it hits an object by exploring refraction and absorption.

## Absorption

When materials absorb, or take in, light, they get warmer. So, if you leave a piece of black paper (or cloth) in sunlight next to a white paper (or cloth), you may be able to feel or measure a difference in temperature after 20-30 minutes.

## Refraction

You can see refraction, or bending, of light by placing a pencil in a glass of water. It should look broken even though it's not. Or, try looking at a drawing of an arrow behind a glass of water. It should look backwards! This is because the light bends as it goes through the water.

## GLOSSARY

**Energy** – the ability to cause a change.

**Light** – a type of energy humans can see.

**Opaque** – not able to let light through.

**Reflection** – bouncing off of an object in one direction.

**Scattering** – light bouncing off of an object in many directions.

**Transparent** – able to let most or all light through.

**Translucent** – able to let some light through.

SAMPLE

WONDER



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