

eye
Med



THE VISION COUNCIL
FOUNDATION

An Interactive Guide to the Science of Refraction

Our Sight and bending of light



Open for
activities!

From bending light to vision so bright

When light bends as it moves from one thing to another, like from air into water, that's called refraction.¹ This bending makes things under the water look like they're in a different spot than they really are.

True or False?

Light always travels in a straight line, even through water.

- ☐ True
☐ False

Answer: False

True or False?

Lenses, like in glasses or magnifying glasses, use refraction to work.

- ☐ True
☐ False

Answer: True

???

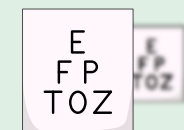
Are they true?
Or false?



Trouble seeing the chalkboard? You might have a refractive error!

Grab your
crayons!

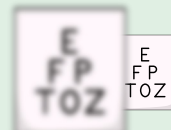
Coloring over on
the next page.



Myopia
(mai-oh-pee-uh)

Nearsightedness

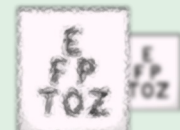
Far-away objects
are blurry.



Hyperopia
(hy-per-oh-pee-uh)

Farsightedness

Close up objects
are blurry.

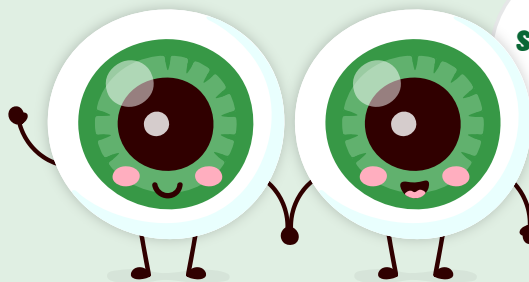


Astigmatism
(uh-stig-muh-tiz-uhm)

Distorted vision

Close up and far-away
objects are blurry.

How does light help your eyes see?



Are you seeing double?

Make sure to tell your parents!

Light bends as it travels through the clear parts of your eye²:

1

Tear Film

Your eye's water blanket

A layer of tears that keeps your eyes comfy.

2

Cornea

Your eye's protective shield

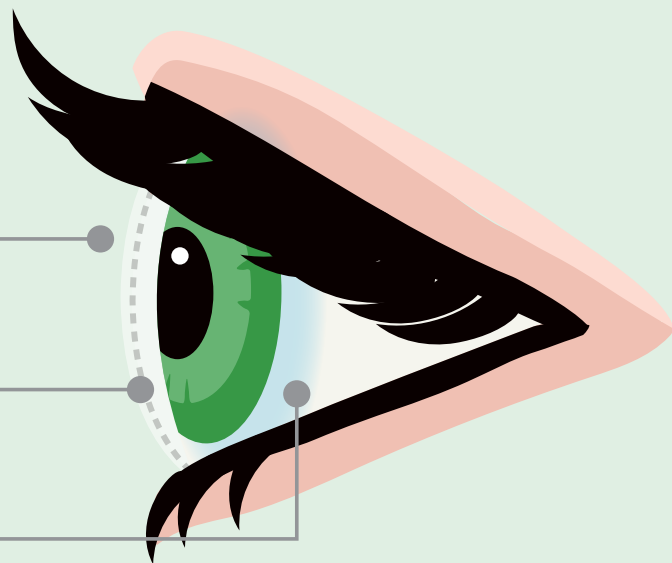
Keeps dirt out and lets light into your eye.

3

Lens

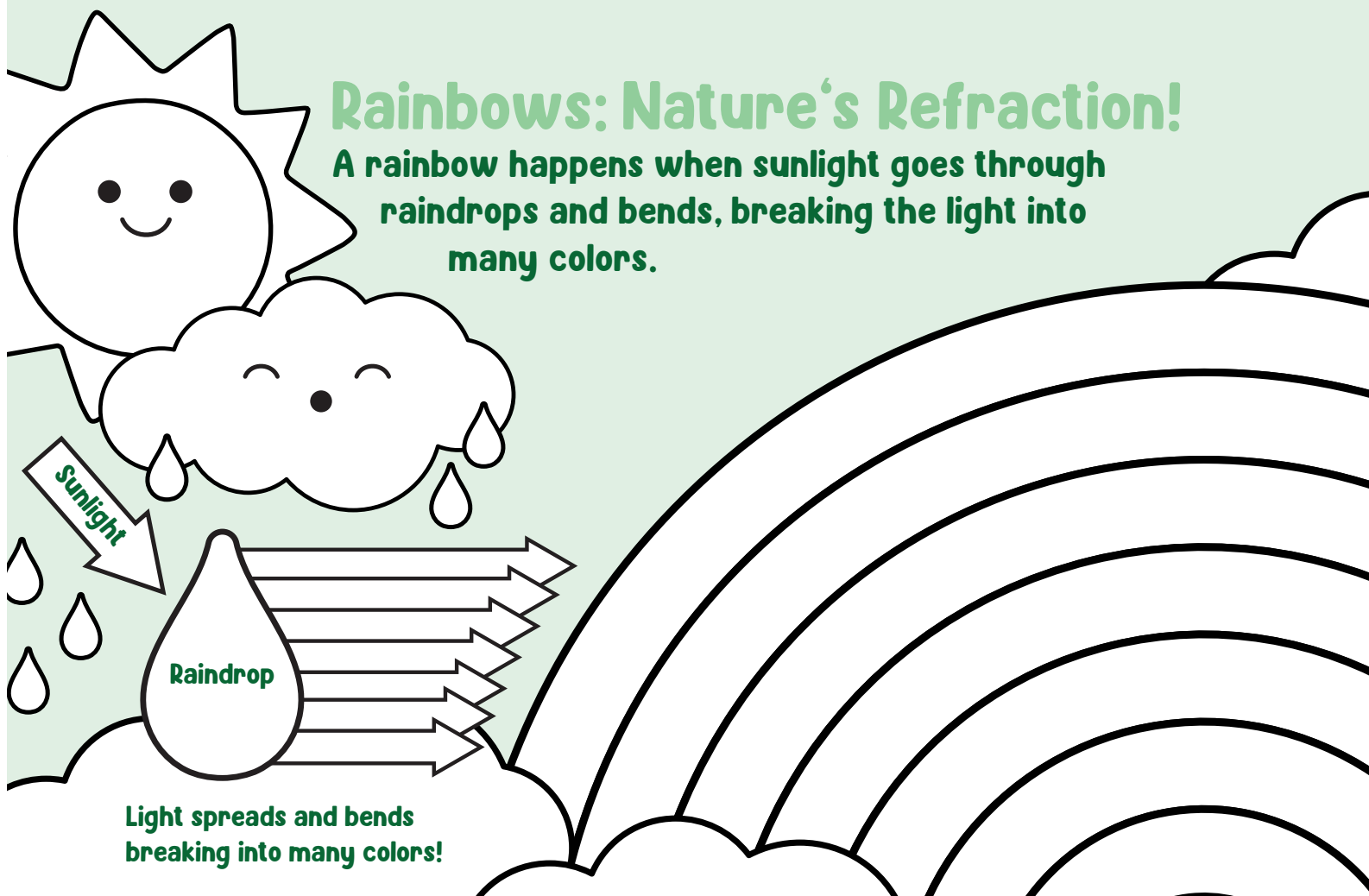
Your eye's camera lens

Helps your eye focus near and far away.



Rainbows: Nature's Refraction!

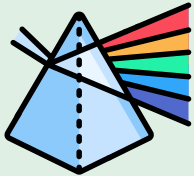
A rainbow happens when sunlight goes through raindrops and bends, breaking the light into many colors.



Light spreads and bends breaking into many colors!

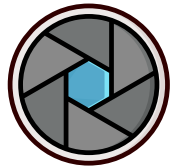
4 cool things lenses can do

REFRACT



Bend light

Lenses change the direction of light so it can travel into your eyes the right way.



CLARIFY

Help eyes focus

They help your eyes adjust to what you are looking at.



MAGNIFY

Make things bigger

Some lenses magnify objects so tiny details are easier to see.



CORRECT

Help fix vision

Lenses in glasses help you see clearly at different distances.

What other objects use the science of refraction?



Telescopes allow us to see planets.

Cameras

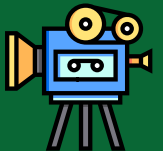
use lenses to focus light and take pictures.



Microscopes help us zoom in on tiny things.

Projectors

help put movies on the screen for all to see.



Scan me!

For eye-mazing info



Sources:

1. "Refractive Errors"; National Eye Institute; nei.nih.gov; December 11, 2024.
2. DeBrowski, Adam; "Refraction explained: How light bends and shapes everything we see"; All About Vision; allaboutvision.com; September 15, 2025.
3. Woodford, Chris; "Lenses"; Explain that Stuff; www.explainthatstuff.com; March 27, 2025.
4. "Vision Development: Childhood"; American Academy of Ophthalmology; www.aao.org/eye-health; July 2024