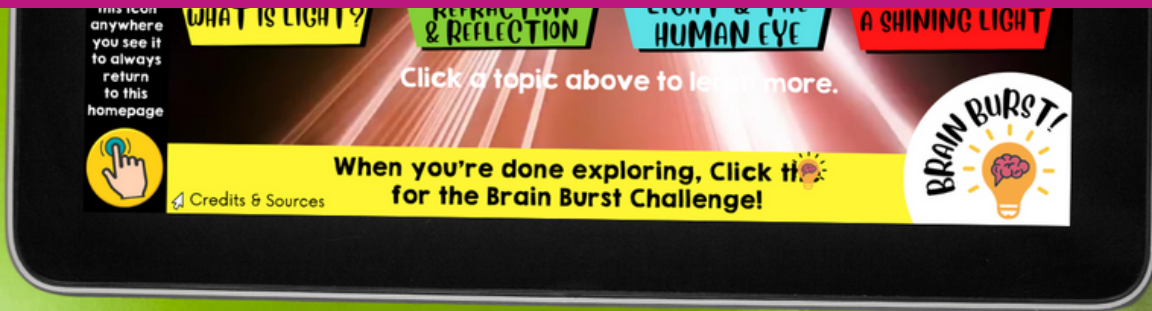


LIGHT ENERGY



LINK  **Activity**
Interactive Learning Guides

WAIT!

Thank you for considering this LINKtivity for your classroom, but before you make a decision - you should know that you can get **access to this LINKtivity + PLUS our entire library** for about the same price as a single LINKtivity!

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JOIN NOW



LIGHT ENERGY

REFRACTION & REFLECTION | LIGHT & THE HUMAN EYE | A SHINING LIGHT

Click a topic above to learn more.

When you're done exploring, Click here for the Brain Burst Challenge!

LIGHT ENERGY

Light & the Human Eye | A Shining Light

COMPOSITION BOOK

NAME: _____ SCHOOL: _____ GRADE: _____

(80) 80 SHEETS WIDE RULED 8.75 in. x 7.5 in.

A Shining Light

When light shines on an object, it can either be **opaque** or **translucent**.

examples:

In each circle above, explain how transparent, translucent, and opaque materials enable the passage of light.

What is Light? | Refraction & Reflection | Light & the Human Eye | A Shining Light

Light & The Human Eye

How do we see objects? There are several parts that make up the human eye, allowing us to see the objects in front of us.

What is Light? | Refraction & Reflection | Light & the Human Eye | A Shining Light

Reflection

bounces off. Without this reflection, we would not see the object.

Click each video below to learn more about the reflection of light.

Surfaces that Reflect | Mirror Reflections | Law of Reflection

Refraction is: _____ Reflection is: _____

Based on what you know about refraction, describe below why the straw appears to be in 2 pieces.

Click and drag the head of the arrows under each lens to show how light refracts when it passes through.

As light passes through a _____ lens, light refracts, or bends, outward from the center of the lens.

As light passes through a _____ lens, light refracts, or bends, inward towards its center.

Reflection happens when a light wave hits a smooth surface and bounces off.

When light reflects off of a surface it changes direction.

LAW OF REFLECTION

Click and drag the head of the arrow to show the angle of reflection.

What is Light? | Refraction & Reflection | Light & the Human Eye | A Shining Light

In the Light Energy LINKtivity, students will discover sources of light energy, how it functions, and its practical applications. They'll delve into the electromagnetic spectrum, focusing on the visible spectrum within it. Exploring concepts such as refraction, involving concave and convex lenses, and reflection, students will gain insight into these principles. Furthermore, they'll understand how the human eye receives and processes light. Throughout the module, students will engage with various related videos before testing their knowledge through a self-check assessment.

LIGHT ENERGY

WHAT IS LIGHT? | REFRACTION & REFLECTION | LIGHT & THE HUMAN EYE | A SHINING LIGHT

Click a topic above to learn more.

When you're done exploring, Click here for the Brain Burst Challenge!

INFRARED WAVES

Infrared waves, often called heat waves, are a special kind of light that we can't see with our eyes, but we can feel as warmth on our skin. They come right after microwaves on the electromagnetic spectrum. Infrared waves help us in many ways, like in TV remotes to change channels and in thermal cameras that firefighters use to see through smoke.

1 2 3 4 5 6 7

Reflection


Reflection happens when a light wave hits a smooth surface and bounces off. We can see objects around us because they reflect light back to our eyes. Without this reflection, we would not see the object!

Click each video below to learn more about the reflection of light.

Surfaces that Reflect | Mirror Reflections | Law of Reflection

More Sample Slides

What is Light Energy?



Take a moment to look around. If you're surrounded by a beautiful array of colors, it's all thanks to the incredible power of **light energy**! Light is a type of energy that our eyes can sense. This energy is responsible for all the wonderful colors we see in our world. Light can come from various sources such as the sun, light bulbs, fire, and even living creatures like fireflies and even some fish!

PRISMS

ELECTROMAGNETIC SPECTRUM

WAVELENGTHS & ENERGY

Click each category above to learn more.

Click the video icon to learn more about light energy.

BIO SNAPSHOT

BORN

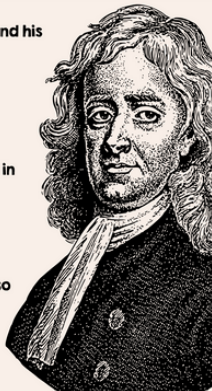
Isaac Newton was born on January 4, 1643 in England. His father died before he was born and his mother remarried. He was raised by his grandmother.

EDUCATION

Newton was always curious. He attended grammar school and eventually college at Cambridge University. He became interested in science and how things work.

SCIENTIFIC WORK

Newton is credited for his discoveries around how gravity pulls objects toward Earth. He also developed ideas for how motion and forces are related to each other and developed the laws of motion. As he studied motion, Newton also made important discoveries related to math.




How Does Light Create Color?



Click HERE to learn about Isaac Newton.

In the 1600s, a scientist named Isaac Newton made an incredible discovery about light. On a sunny day, while studying light, he created a small hole in his window shutter, allowing a beam of sunlight to enter. Then, he placed a glassy, see-through object called a **prism** into the sunbeam. Can you guess what happened next? As the white light passed through the glass prism, it magically transformed into bands of colored light! Newton witnessed the entire rainbow of colors. Light travels in wave-like forms. Typically, all the various light wavelengths merge to create white light. However, when light enters a prism, it changes direction and separates into its individual colors, revealing the beautiful spectrum of colors.

The **electromagnetic spectrum** shows the range of waves that make up light. Only some waves are visible by the human eye.



- RADIO WAVES
- MICROWAVES
- INFRARED WAVES
- VISIBLE SPECTRUM**
- ULTRA VIOLET WAVES
- X-RAY WAVES
- GAMMA WAVES

CLICK HERE to see how our world relies on this spectrum.

VISIBLE WAVES

- 1
- 2
- 3
- 4
- 5
- 6
- 7


Visible waves are the part of the electromagnetic spectrum that our eyes can see, and they make up the beautiful rainbow of colors we see in the world around us. When sunlight or any other light source shines, it's made up of different colors that combine to create white light. Each color has its own wavelength, with red having the longest and violet the shortest. When these colors come together, they make up the spectrum we see.

Refraction

Click the video icon to learn more about refraction.

Refraction is the bending of light as it passes from one material to another. Light travels through different objects at different speeds. Light will travel more slowly through denser material. As light hits a denser material, it slows and bends (refracts).

A **lens** is a tool that refracts, or bends, light. The shape of the lens will cause different responses.



Refraction makes these sticks appear to be in two pieces. Water is more dense than air, so light waves will slow down and refract where water and air meet.

Click each card above to flip it over and learn more about each lens.


Refraction & Reflection

Reflection and refraction are two fascinating ways that light behaves when it comes in contact with other objects. When light hits a smooth surface and bounces back, it's called **reflection**. **Refraction**, on the other hand, happens when light travels from one material to another and changes its path.

Click each category below to learn more about each light behavior.

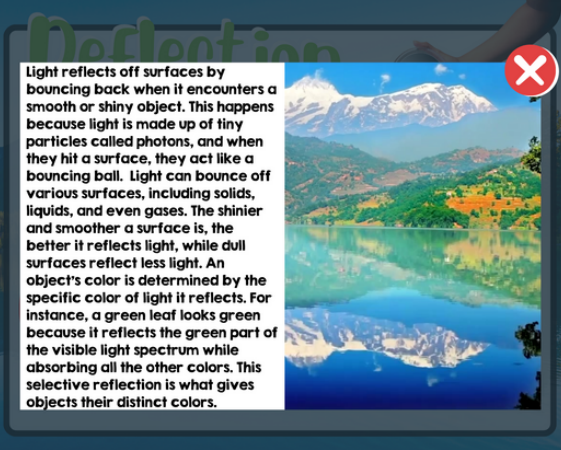
REFRACTION

REFLECTION



Reflection

Light reflects off surfaces by bouncing back when it encounters a smooth or shiny object. This happens because light is made up of tiny particles called photons, and when they hit a surface, they act like a bouncing ball. Light can bounce off various surfaces, including solids, liquids, and even gases. The shinier and smoother a surface is, the better it reflects light, while dull surfaces reflect less light. An object's color is determined by the specific color of light it reflects. For instance, a green leaf looks green because it reflects the green part of the visible light spectrum while absorbing all the other colors. This selective reflection is what gives objects their distinct colors.





TRUE OR FALSE

Read each statement below and indicate whether it is true or false by clicking the thumbs-up image for true or the thumbs-down image for false.

A lens is a tool that reflects light.

TRUE **FALSE**

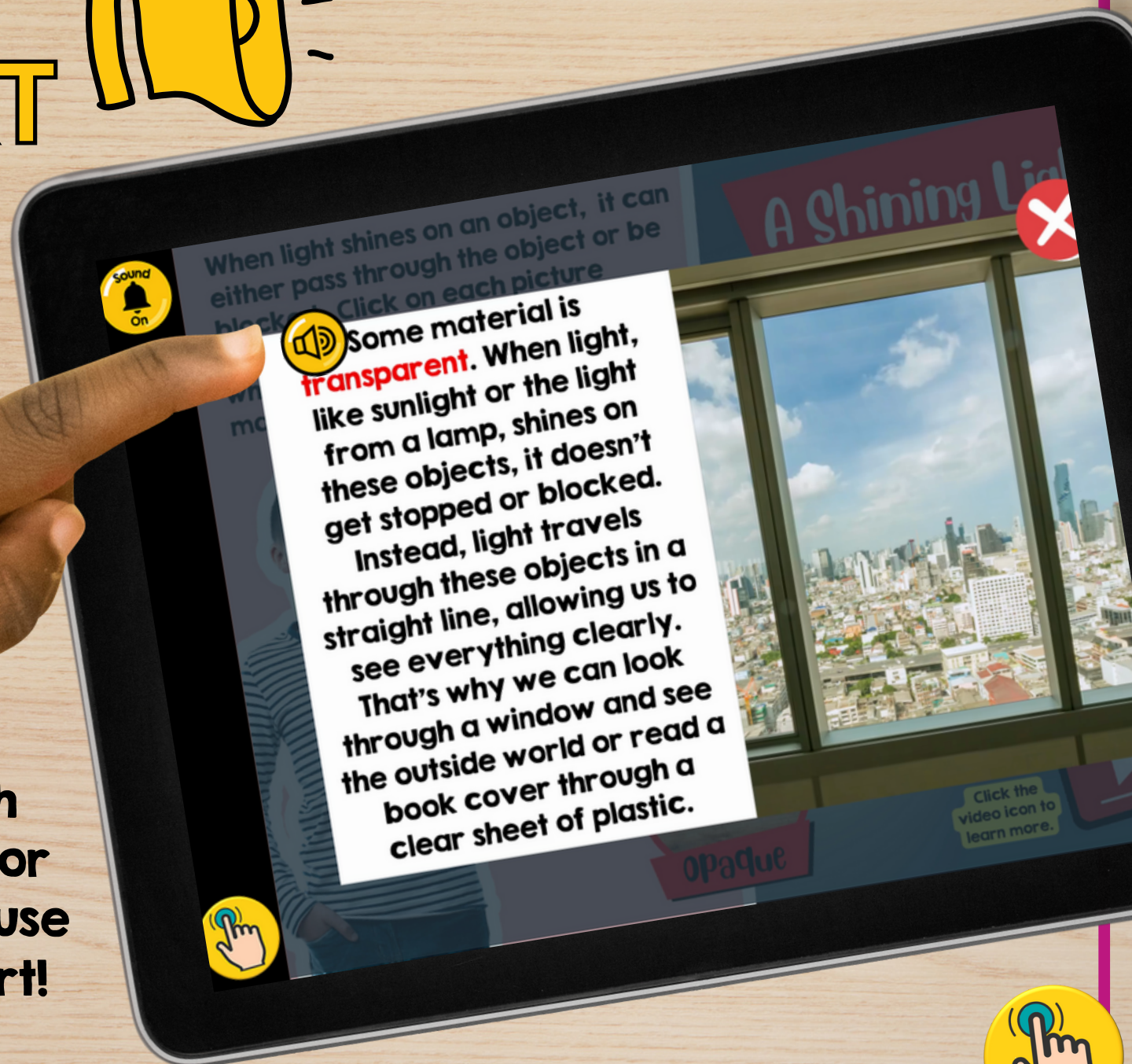



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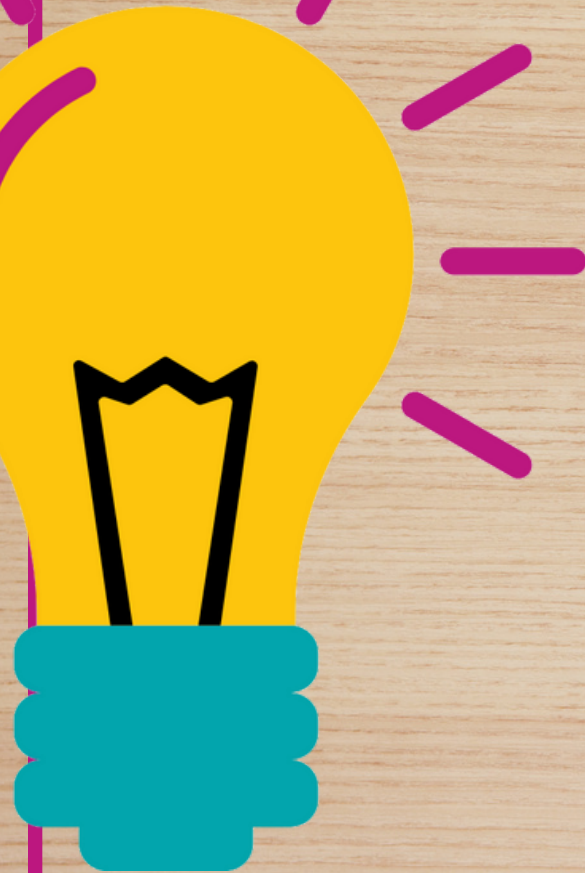
AUDIO SUPPORT



Perfect for English
language learners or
students who could use
a little extra support!



KNOWLEDGE CHECK



Students complete a quick self-check at the end of the LINKtivity to show what they have learned!



Printable & Digital Student Flipbook

Printable Flipbook for LINKtivity

LIGHT ENERGY

By: _____

What is Light? Light energy is: _____

In your own words, describe what Isaac Newton discovered about light using a prism.

What is Light?

Refraction is: _____

Based on what you know about refraction, draw the bottom half of the shape in the circle. How would light behave? Explain why this optical behavior happens.

Refraction & Reflection

Reflection is: _____

Reflection happens when a _____ hits a smooth surface and bounces off.

LAW OF REFLECTION

Light & the Human Eye

When we first see an object, light bounces off that object and enters the eye. The light passes through in this, clear tissue covering each eye. This tissue is called the _____.

The eye muscles that make up the iris will widen and narrow around the pupil to control the amount of light it lets in.

As light passes through the _____, it will move through a _____.

In front of the eye, the lens will refract, or change direction, of the light from the image, and focus it in the back of the eye.

A tissue in the back of the eye called the retina receives the image upside down. The retina changes the image into signals and sends these signals to the brain. The brain will then interpret these signals as right side up.

Then, the light passes through an opening in the eye called the _____.

This is the black spot that you see in the center of your eye.

A Shining Light

When light shines on an object, it can either _____ the object or be _____.

examples: _____

examples: _____

examples: _____

examples: _____

A Shining Light

A Shining Light

When light shines on an object, it can either _____ the object or be _____.

examples: _____

examples: _____

examples: _____

examples: _____

Transparent

Translucent

Opaque

In each circle above, explain how transparent, translucent, and opaque materials enable the passage of light.

Digital Flipbook for LINKtivity in Google Slides

Student Flipbook Rubric				Student:
LINKtivity Interactive Learning Outlets	4 - Excellent	3 - Good	2 - Satisfactory	1 - Needs Improvement
Neatness & Appearance	My Flipbook is very neat and easy to read. I neatly colored in any illustrations with great detail. It is clear that I took my time to make my Flipbook reflect my learning.	My Flipbook is neat and my writing is easy to read. I neatly colored in any illustrations.	My Flipbook is somewhat neat. Some of my writing is hard to read. Illustrations are not colored, or are sloppily done.	My Flipbook is quite sloppy. My writing is hard to read. Illustrations are NOT colored, or are sloppily done.
Accuracy & Completeness	The information in my Flipbook is 100% correct. I've included many details from the LINKtivity and have put what I've learned clearly in my own words. I have included information that goes above and beyond.	The information in my Flipbook is mostly correct. I've included several details from the LINKtivity, written neatly in my own words. My Flipbook includes all of the required written	My Flipbook contains several incorrect or missing pieces of information. I struggled to use the information from the LINKtivity to complete my Flipbook correctly.	My Flipbook has many incorrect or missing pieces of information. I struggled to use the information from the LINKtivity to complete my Flipbook correctly.
			My Flipbook contains some errors in spelling and grammar.	My Flipbook contains many errors in spelling and grammar.

What is Light? Light energy is: _____

In your own words, describe what Isaac Newton discovered about light using a prism.

possible answer: Newton learned that when light passes through a prism, it changes directions and separates into bands of colors.

What is Light?

Light travels in waves.

less energy

more energy

radio waves

microwaves

Infrared waves

visible spectrum

ultraviolet waves

x-ray waves

gamma waves

Write a few sentences below to describe how light energy travels.

Light travels in waves. Each wavelength carries a different amount of energy. The longer the wavelength, the less energy it has.

Answer Key & Rubric

