

# WAVE REFLECTION, ABSORPTION, TRANSMISSION Science Reading



# Scroll Through

## To take a peek inside!

**Help students learn about wave reflection, absorption, and transmission and test their comprehension with these easy to read science reading passages.**

# Why? SCIENCE READING PASSAGES?

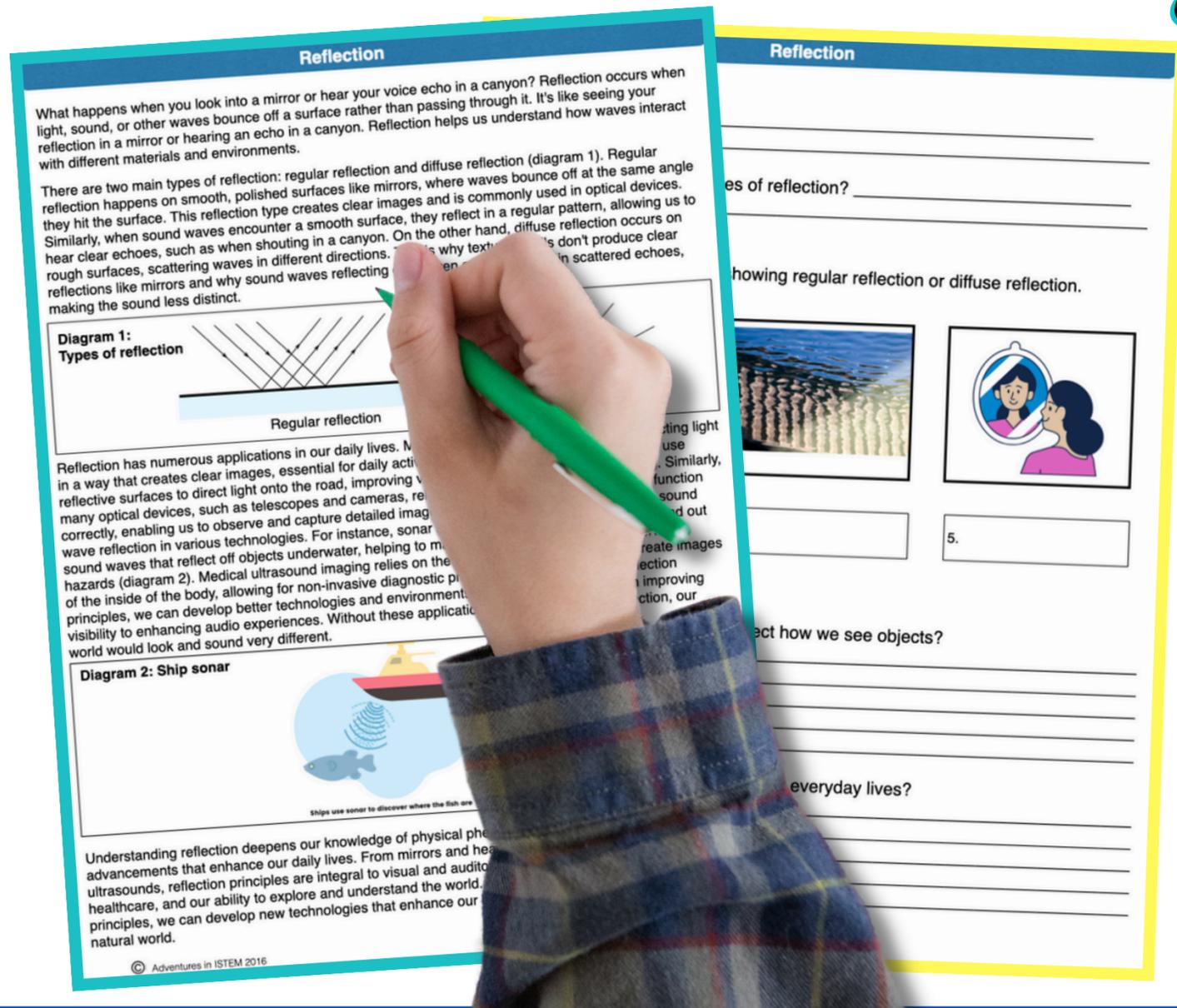
- ✓ Increase science literacy in the classroom
- ✓ Simple passages to help students comprehend the information
- ✓ Note-taking template to help students interact with the reading
- ✓ Worksheets to review and apply their knowledge
- ✓ Reinforcement task cards to continue their understanding



“This resource was absolutely perfect for when I was out sick with covid for multiple days. The content is exactly what I wanted to cover with my students, easy for a substitute to implement, and I was happy knowing my students’ time was being used productively!

Thank you! “- Emily

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## What Are *students* Doing?

- ✓ **Marking the text**
- ✓ **Filling in the guided note-taking template**
- ✓ **Reviewing and applying their knowledge**
- ✓ **Reinforcing their understanding**

# WAVE REFLECTION, ABSORPTION, TRANSMISSION Science Reading

**Transmission**

**Define and Describe:**

1. Define transmission.

2. What factors influence wave transmission?

**Identify:**

Rank the pictures, starting with one being the best at transmitting light and the worst at transmission.

**Diagram 1: transmission**

When white light is transmitted through a prism, it scatters in the colors of the rainbow due to the different wavelengths of the waves.

**Diagram 2: Transmission through different densities.**

**Air in Antarctica**  
Sound travels slower but farther

**Air in Egypt**  
Sound travels faster but not as far

**Explain:**

6. Compare how different materials...

7. How do we use...

Understanding the transmission of light and sound waves is essential for technological advancements and scientific research. In medicine, the transmission of sound waves is crucial for ultrasound imaging, which uses these waves to create detailed pictures of internal organs. Similarly, transmitting light waves is fundamental in vital in communication technologies such as fiber optics, enabling high-speed internet and clear communication over long distances. Environmental studies benefit from understanding how light transmits through water and air, helping scientists monitor water quality and study atmospheric phenomena. The principles of light transmission are fundamental in solar energy technologies, where materials are designed to transmit sunlight and convert it into electricity efficiently. Additionally, sound waves can communicate through different materials used in sonar systems to help map the ocean floor and locate underwater hazards.

In conclusion, transmission is a fundamental aspect of wave behavior that influences various fields, from telecommunications to environmental science. Its study enhances our knowledge of how waves interact with matter and contributes to advancements in technology and scientific discovery. By understanding and harnessing the principles of transmission, we can develop better technologies and strategies to improve communication, medical diagnostics, and our understanding of the natural world.

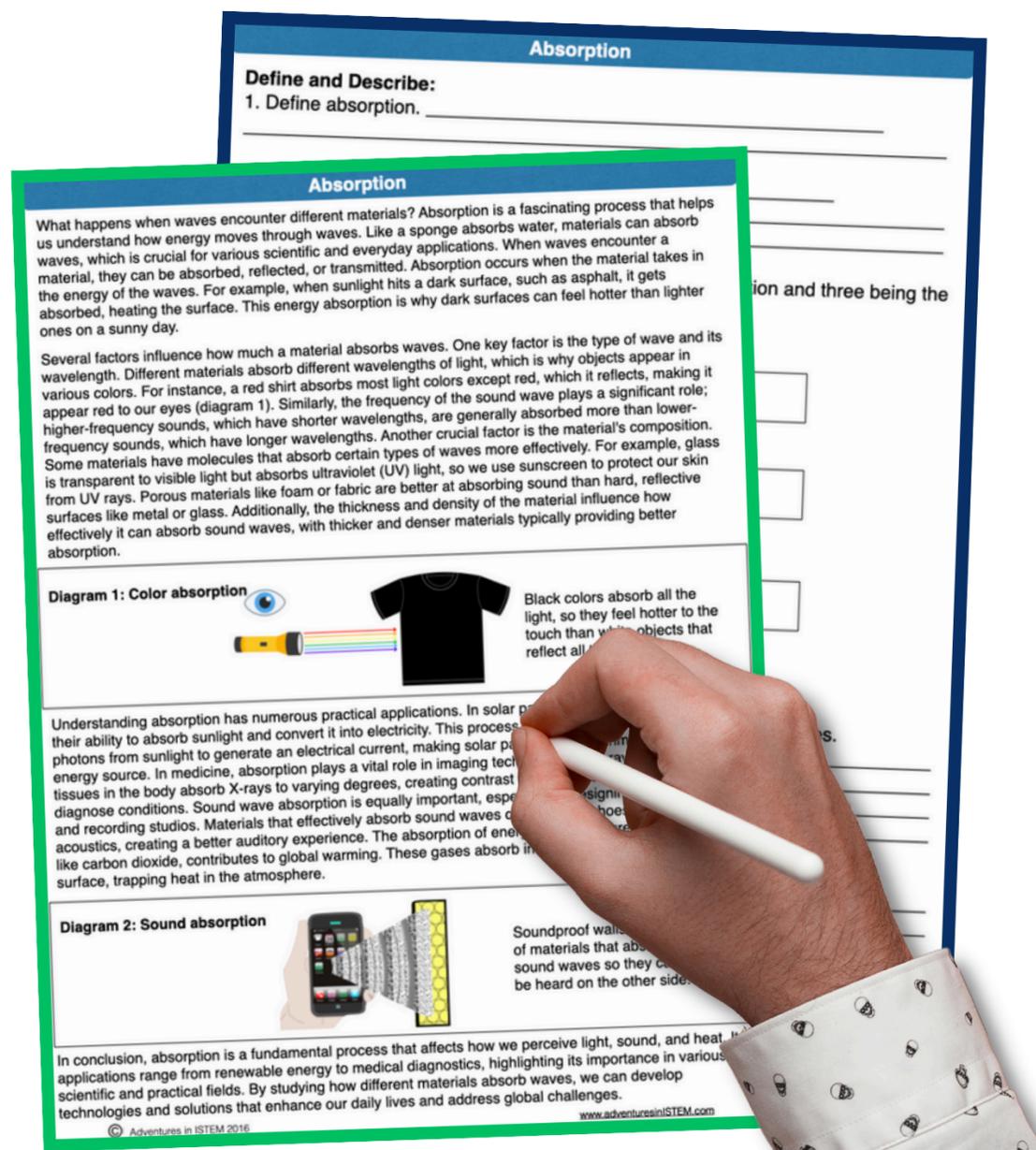
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## Different ways to use the science readings

- ✓ Substitute plan on days you will be out
- ✓ Introduction of the material at the beginning of the unit
- ✓ During the explain phase of the 5E model
- ✓ As part of a science station
- ✓ For reteach to reinforcing their understanding
- ✓ During the review at the end of the unit

# WAVE REFLECTION, ABSORPTION, TRANSMISSION

## Science Reading



# Check out what teachers just like you have said about these product:



**“I have incorporated these into my regular lessons and could not be more pleased. They are thorough, engaging and fun. I am very pleased with this purchase.” Rahim**



**“Perfect sub activities! Bought the bundle so I would have something for every unit. If there was nuclear section that would be icing on the cake! :) Maybe in the future?” Karis**



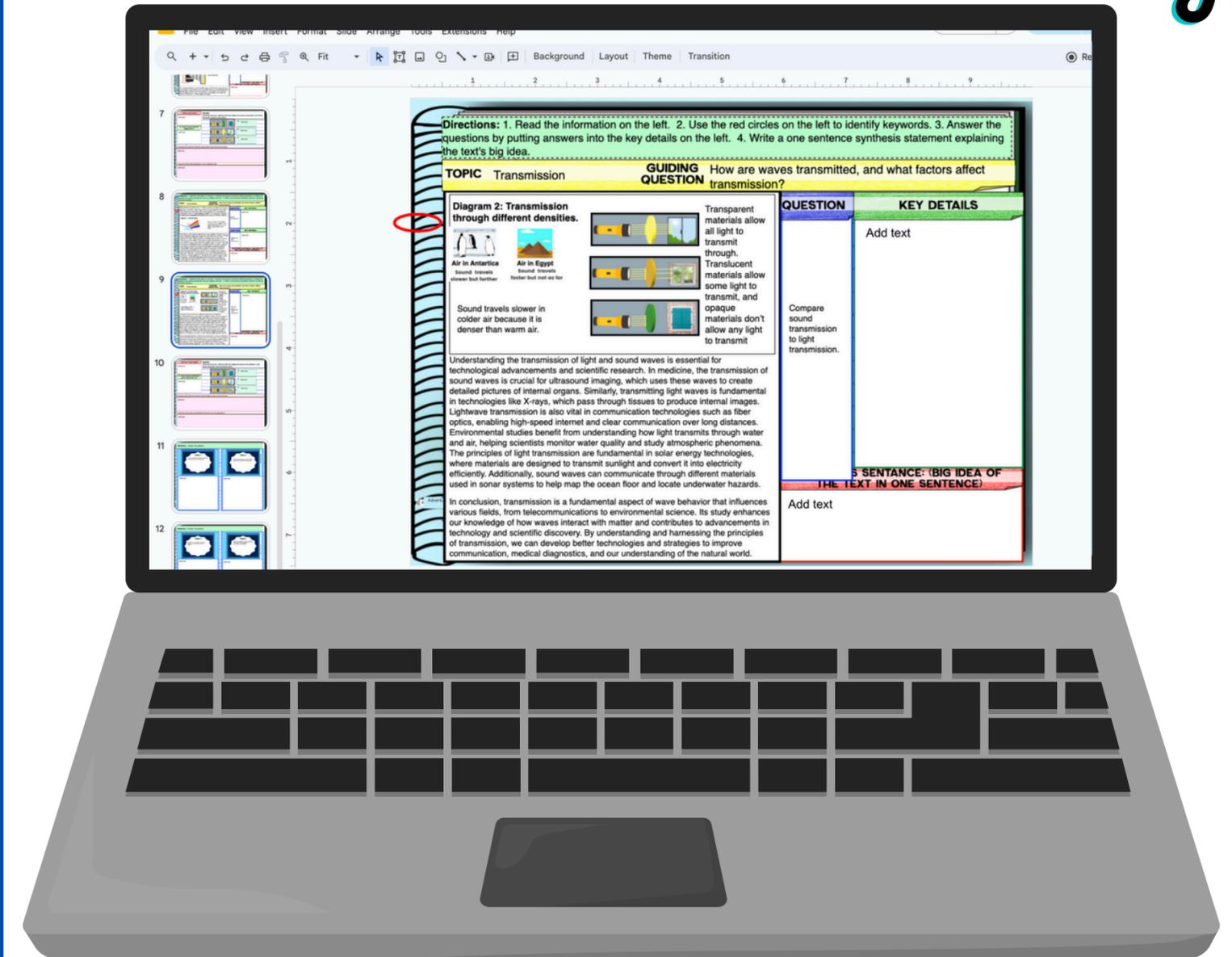
**“This was a wonderful and engaging resource. My students were able to take a lot from it, and I loved how easy it was to prep it out.” – Christine**

# Resource *includes*

- ✓ **3 Reading Passages**
- ✓ **3 Note-taking guides**
- ✓ **3 Comprehension Worksheets**
- ✓ **4 Task cards**
- ✓ **Answer key**
- ✓ **Digital version**

## **WAVE** **REFLECTION, ABSORPTION,** **TRANSMISSION**

# *Science Reading*



# WAVE

## REFLECTION, ABSORPTION, TRANSMISSION

# Science Reading

**Reflection**

What happens when you look into a mirror or hear your voice echo in a canyon? Reflection occurs when light, sound, or other waves bounce off a surface rather than passing through it. It's like seeing your reflection in a mirror or hearing an echo in a canyon. Reflection helps us understand how waves interact with different materials and environments.

There are two main types of reflection: regular reflection and diffuse reflection (diagram 1). Regular reflection happens on smooth, polished surfaces like mirrors, where waves bounce off at the same angle they hit the surface. This reflection type creates clear images and is commonly used in optical devices. Similarly, when sound waves encounter a smooth surface, they reflect in a regular pattern, allowing us to hear clear echoes, such as when shouting in a canyon. On the other hand, diffuse reflection occurs on rough surfaces, scattering waves in different directions. This is why textured surfaces don't produce clear reflections like mirrors and why sound waves reflecting off rough surfaces create scattered echoes, making the sound less distinct.

**Diagram 1: Types of reflection**



Regular reflection

Reflection has numerous applications in our daily lives. Mirrors use regular reflection to create clear images, essential for daily activities. Similarly, reflective surfaces direct light onto the road, improving visibility. Many optical devices, such as telescopes and cameras, rely on regular reflection to function correctly, enabling us to observe and capture detailed images. Sound waves also utilize reflection in various technologies. For instance, sonar uses sound waves that reflect off objects underwater, helping to map the ocean floor and detect hazards (diagram 2). Medical ultrasound imaging relies on the reflection of sound waves to create images of the inside of the body, allowing for non-invasive diagnostic procedures. By applying reflection principles, we can develop better technologies and environmental solutions, enhancing our visibility to enhancing audio experiences. Without these applications, our world would look and sound very different.

**Diagram 2: Ship sonar**



Ships use sonar to discover where the fish are.

Understanding reflection deepens our knowledge of physical phenomena and leads to technological advancements that enhance our daily lives. From mirrors and hearing aids to medical ultrasounds, reflection principles are integral to visual and auditory technologies. By applying these principles, we can develop new technologies that enhance our understanding of the natural world.

Class: \_\_\_\_\_  
Date: \_\_\_\_\_

the type of wave and material play in how the wave will reflect?

Notes

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# Topics Included

**Reflection**

**Absorption**

**Transmission**

# HOW TO USE THE RESOURCE IN

# 3 simple steps

1

Print the PDF version, make copies, and hand out to students

2

Use the digital version by clicking the titles in the RED BOX to make your own copy (found at the end of the PDF)

3

Share the resource with your students using your favorite LMS (Google Classroom, Powerschool (schoolology), Canva...)

**Interactive Digital Flip Book**

**Teachers Guide**

What You Will Need To Get Started:

1. Download link for the Google Resource by clicking on the titles in the red box

**Cell Energy Digital Flip Book Student**

**Cell Energy Digital Flip Book Teacher**

2. Access to the Internet and a Google Account (Free)
3. Google accounts or Microsoft OneDrive accounts for your students to save their work
4. Open the file on your Google Drive. The link will prompt you to make a copy

5. This new copy is now yours to edit and share with your students

6. Printer access if you choose to print the finished product as an actual flip book

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# Physical Science Readings

## Physical Science Reading Comprehension Passages Units Covered:

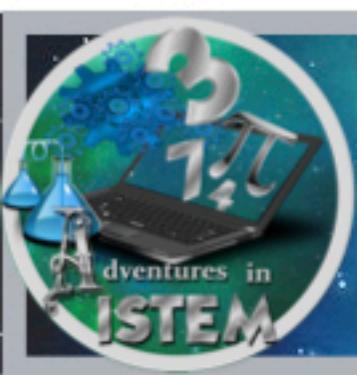
- Chemistry
- Matter
- Force
- Motion
- Energy
- Waves

I have incorporated these into my regular lessons and could not be more pleased. They are thorough, engaging and fun. I am very pleased with this purchase.- Rahim

## Physical Science

The collage features several educational pages. On the left, a page titled 'Buoyancy' includes a diagram of a beach ball and text explaining buoyant force. The middle section shows a 'Friction' page with a diagram of a person pushing a cabinet and text about static friction. On the right, a 'Radiation' page includes a diagram of a sun and text about thermal energy transfer. A yellow box with a checkmark lists 'Reading Passages', 'Notes', 'Worksheets', and 'Task Cards'. A blue arrow points to the text 'Digital and Print'.

## Science Reading Comprehension Worksheets Bundle



# Free Sample

You can print the following pages for a free sample of what a science reading looks like and how you could use it in your classroom. Click the title in the red box for the digital version of the reading.

## What You Will Need To Get Started:

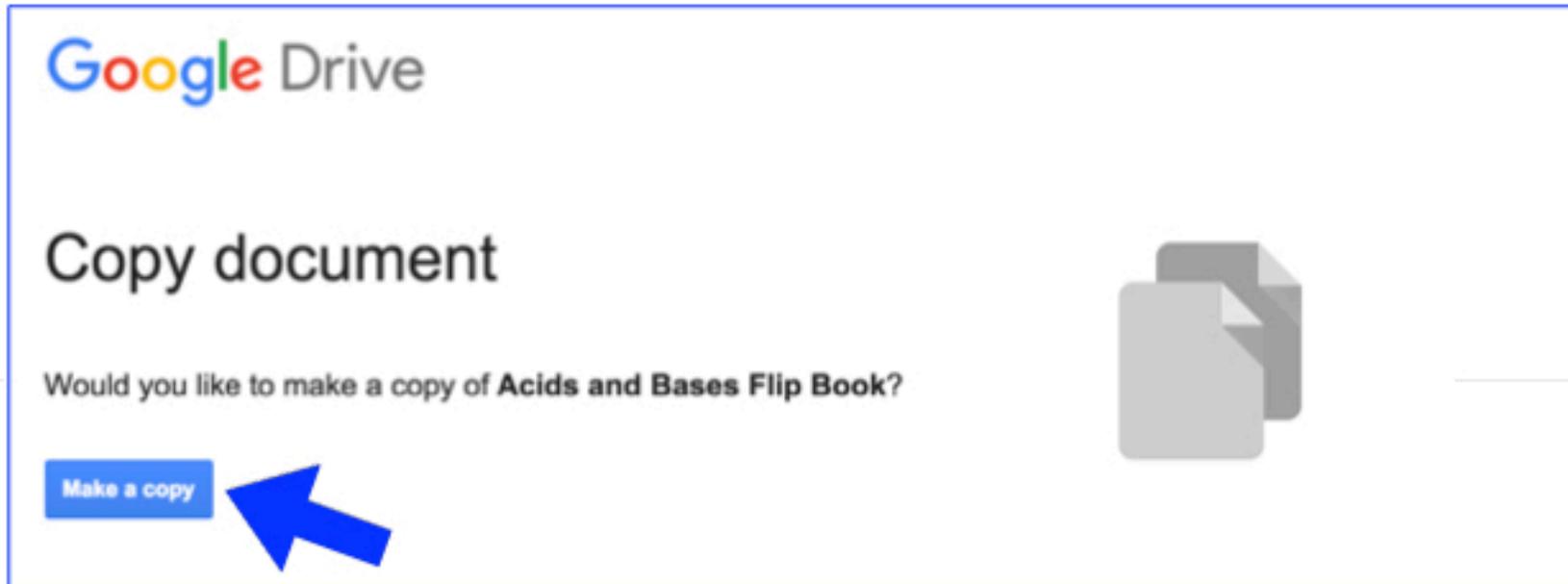
1. Download link for the Google Resource by clicking on the titles in the red box

### **Outer Planets Guided Reading Digital Notes**

2. Access to the Internet and a Google Account (Free)

3. Google accounts or Microsoft OneDrive accounts for your students to save their work

4. Open the file on your Google Drive. The link will prompt you to make a copy



5. This new copy is now yours to edit and share with your students

6. Printer access if you choose to print the finished product as an actual flip book

# Outer Planets

**Big Idea Question:** *Why are they called gas giants? What are some key characteristics?*

The outer solar system is made up of four gas giants. They are Jupiter, Saturn, Uranus, and Neptune. Since they are so far away from the Sun, they are able to hold onto their gas atmospheres and are made up mostly of gas but have solid rocky cores. Because they are so massive, they have a greater gravity than the terrestrial planets. They are also much colder than the terrestrial planets since they are so far away from the Sun. They also all have rings, and many planetary satellites.

**Basic facts:**

**Jupiter:** Largest planet in our solar system. Its mass is twice as much as the other seven planets combined. Now that's massive! It is made up mostly of hydrogen gas, and it is known for its massive storm—which is more like a hurricane that is the size of three Earths put together. Since it is made up of mostly gas, it is able to spin around pretty quickly. In one Earth day, Jupiter will have had three days. Now that's fast! It also has the most planetary satellites. To date, the number is at 67. It has the most gravity of all the planets.

**Saturn:** This planet is known for its many rings that circle it which are made of gas and ice. It is the least dense of all planets. In fact, if you put Saturn in a tub of water, it would actually float. It's amazing that something that massive could actually float. Crazy. Its atmosphere is mostly helium and hydrogen and its gravity pull could tear a comet apart if one got close enough.

**Uranus:** This planet does not reflect much light since it is so far from the sun. We know about it from our space probes that we sent out into space. The methane gas in its atmosphere is what gives it its greenish color. The rotation of Uranus is unique because it is so tilted it actually spins on its side. Its poles would be found in the same location as our equator, weird. This rotation causes one pole to be in complete darkness for half of its revolution. Could you imagine having night last half a year and a day lasting the other half?

**Neptune:** The outermost planet in the solar system. Its blue color is caused by its methane gas in its atmosphere. There is a hurricane-like storm that is the size of Earth. It has the fastest winds of any of the planets moving at more than 1,000 km/h (a high wind on Earth is considered 100km/hr).

				
<b>Distance from Sun</b>	5 AU	9 AU	19 AU	30 AU
<b>Rotation (day/night)</b>	9 hours	10 hours	17 hours	16 hours
<b>Revolution (year)</b>	11 Earth years	29 Earth years	83 Earth years	163 Earth years
<b>Diameter (size)</b>	142,984 km	120,536 km	51,118 km	49,528 km
<b>Density</b>	1.33 g/cm <sup>3</sup>	0.69 g/cm <sup>3</sup>	1.27 g/cm <sup>3</sup>	1.64 g/cm <sup>3</sup>
<b>Gravity</b>	236% of Earth's	92% of Earth's	89% of Earth's	112% of Earth's
<b>Planetary Satellites</b>	67	62	27	14

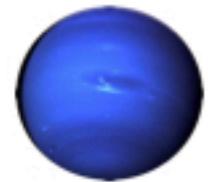
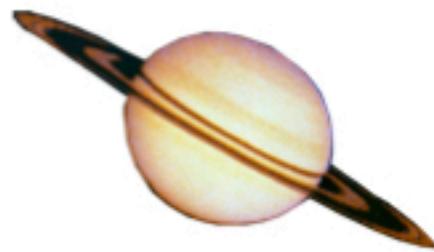
The planet information is current as of April 2015



# Outer Planets

## 1. Comparing the planets: Fill in the data table

	1	2	3	4
place the planets in order from closest to the Sun to furthest from the Sun				
place the planets in order from shortest day to longest day				
place the planets in order from shortest year to longest year				
place the planets in order from smallest size to largest size				
place the planets in order from least dense to most dense				
place the planets in order from least amount of planetary satellites to most amount of planetary satellites				



2. **Using Patterns:** Compare the number of planetary satellites to the diameter, location from the Sun, and the density. Which characteristic do you think has the most influence on how many planetary satellites an outer planet will have?

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3. Why do you think the characteristic you choose in question 2 has more influence on the number of planetary satellites than the other characteristics? Explain.

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4. Thinking beyond the table, what is another factor that could be influencing the number of planetary satellites the outer planets have? Explain.

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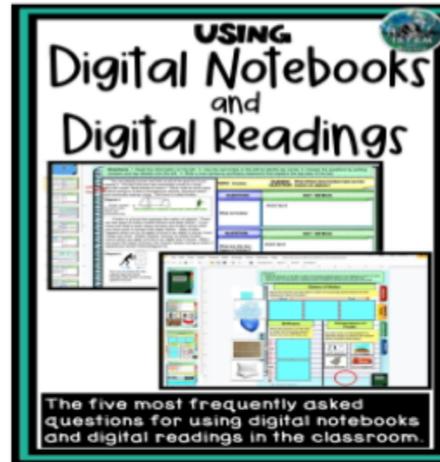
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## Digital Resources

### Using Digital Products?

If you are new to using digital lessons than I recommend to check out my blog post that contains the most frequently asked questions. Click the picture for the link.



I would also recommend checking out my Google Slide videos that demonstrate how to drag and drop pieces, write in the text boxes, add objects, and more. These are short videos that can easily be shared with students and parents. Click the picture for the link



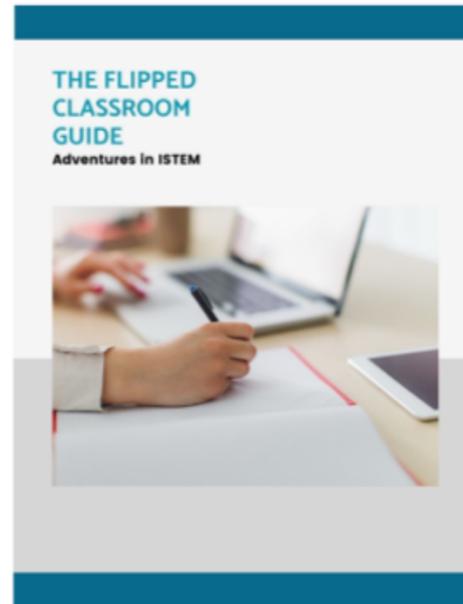
## Thank You

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Cancer affects not only the person but everyone they know. A portion of the proceeds of this product are going to the organization LLS which helps to fund treatments and find a cure.

Grab the free guides (flipped classroom guide / 5E model guide) to help empower students and then receive weekly tips, strategies, ideas, and freebies delivered right to your inbox.



Grab the FREE guides



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## Special Thanks

