

Students will identify and describe

Electromagnetic Waves

Directions:

- Correctly identify the different parts of the electromagnetic spectrum with the words on the left
- Drag the colors on the left to the correct location on the spectrum based on their frequency
- Explain why a fish that is red at the surface looks almost black at 25 meters?

Directions: Correctly identify the different parts of the electromagnetic spectrum with the words on the left

Ultraviolet

Gamma Rays

Radio waves

Visible Light

Infrared

Microwaves

X-rays

Increasing

Directions: Drag the colors on the left to the correct location on their frequency

Directions: explain why a fish that is red at the surface looks almost black at 25 meters?

5 m

8 m

15 m

25 m

35 m

Incident light ray

Angle of Incidence

Reflected light ray

Angle of Reflection

Law of Reflection

Directions: Write the definition of the word

Add text

Directions: Use the words on the left to label the diagram

Directions: Use arrows to complete the diagram and show how the light rays would reflect back

Convex mirror

Concave mirror

Reflection / Mirrors

Refraction / Lenses

Wrap Up

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Students will analyze and explain

Directions:

- Write the definition of the word
- Use arrows to complete the diagram and show how the light rays would pass through
- Explain how you could use the angle of refraction to help you catch a fish

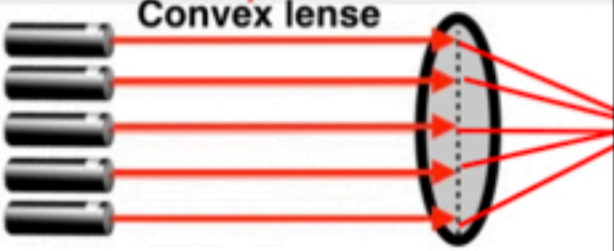
Directions: Write the definition of the word

Refraction


The change in direction of a wave as it changes its speed while traveling through different mediums.

Directions: Use arrows to complete the diagram and show how the light rays would pass through


Convex lens



Concave lens



Directions: Explain how you could use the angle of refraction to catch a fish?





If you know refraction, realizing that light bends away from the normal when it goes from water to air, you would aim lower than you would if you were just looking at the fish's apparent location.

Directions:

- Answer the question below. Make sure to include evidence in your explanation.

Directions: Use your knowledge of absorption, reflection, refraction, and transmission to answer the question: Why does the sky appear blue during the day and red/yellow/pink at sunrise and sunset? Include evidence to explain your answer.



Add text

Electromagnetic waves

Transmission / absorption

Reflection / Mirrors

Refraction / lenses

Wrap Up

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Teacher directions and answer key provided

Directions:

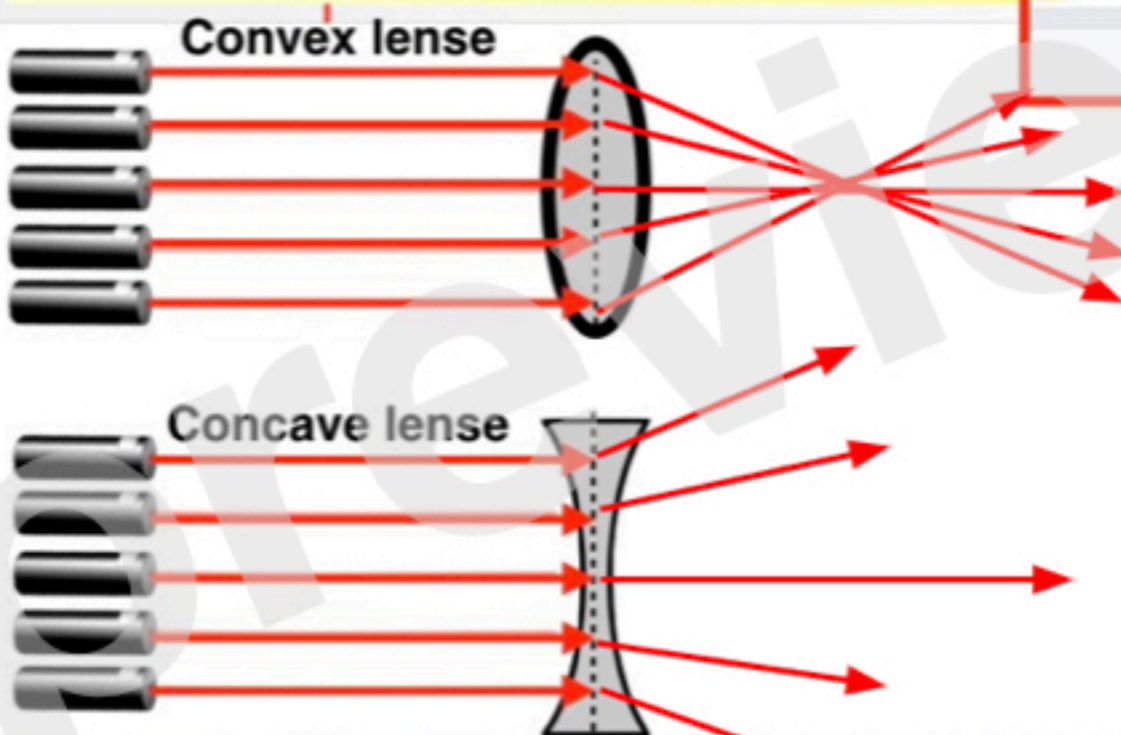
- Write the definition of the word
- Use arrows to complete the diagram and show how the light rays would pass through
- Explain how you could use the angle of refraction to help you catch a fish

Directions: Write the definition of the word

Refraction

The change in direction of a wave as it changes its speed while traveling through different mediums.

Directions: Use arrows to complete the diagram and show how the light rays would pass through



Directions: Explain how you could use the angle of refraction to help you catch a fish?



If you know what the angle of refraction is you can adjust for it realizing the where you perceive to see the fish is not where it actually is. You can modify where you would put your net, fishing line, fishing spear to its actual location and not where you see it.

Teachers: click on the titles in the red box to download the digital notebook to their google drive

Teachers Guide

What You Will Need To Get Started:

1. Download link for the Google Resource

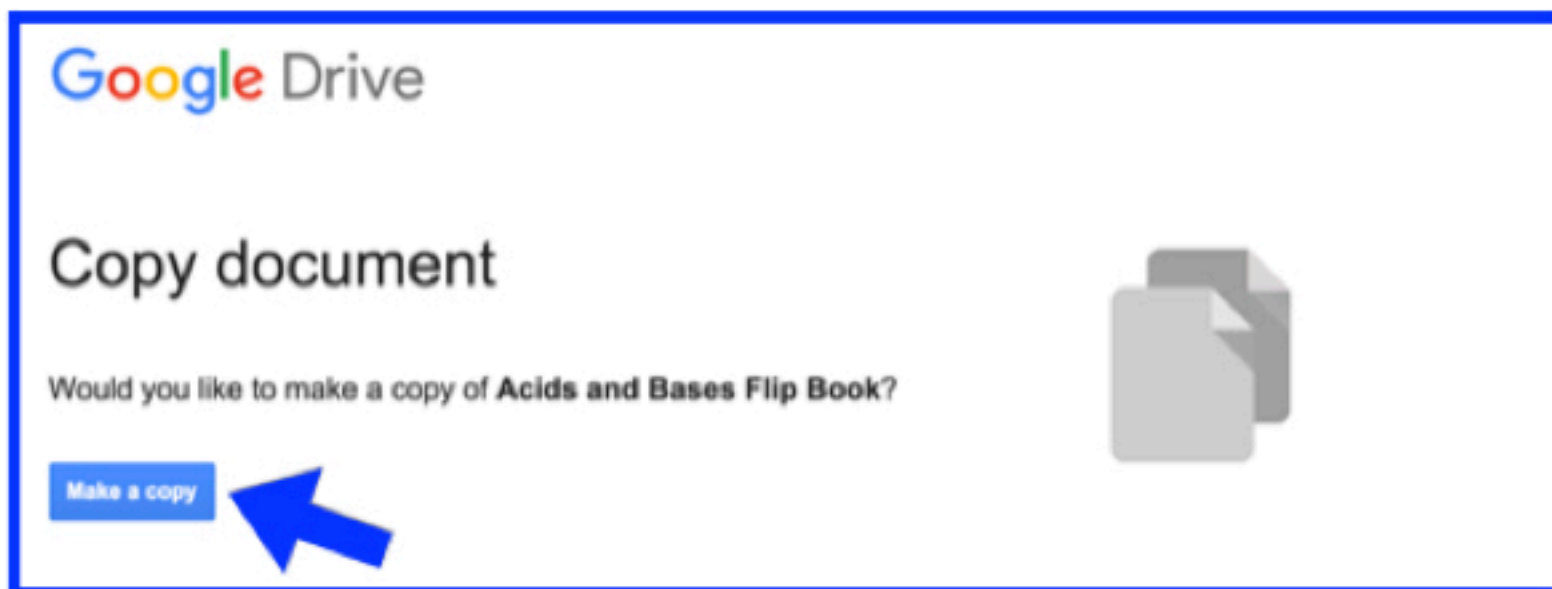
Cell Cycle Digital Interactive Notebook Student

Cell Cycle Digital Interactive Notebook 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

Teacher directions on how to share with students in google classroom, microsoft one drive, or any other LMS

How to use this resource with your student:

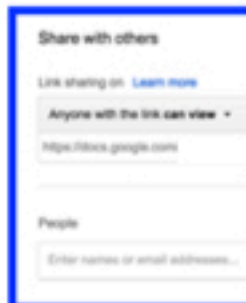
Google Directions:

1. After you have made your own copy of the resource from the link, you will want to make a copy for your student.

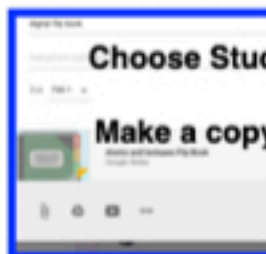
-Some options for this

- A. Give the students the link to your resource and make it "view only" this will allow students to make their own copies without affecting the original. To do this go to the blue SHARE button in the top right corner >get shareable link> choose people with a link can view > copy the link

- **Remember**, when sharing a link on an open class



- B. Use google resource to make a copy



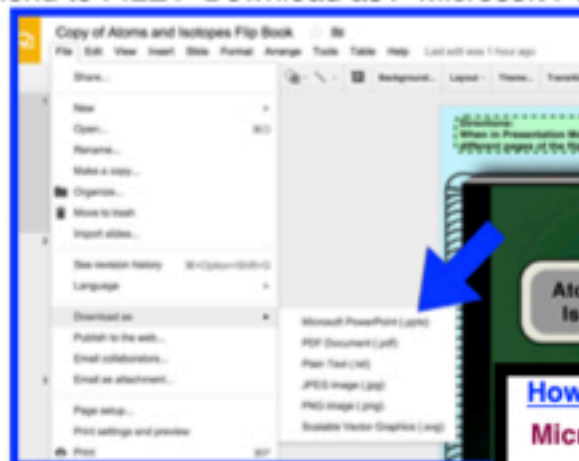
2. Students will be able to make a copy automatically saved.

3. Students may share

How to use this resource with your student:

Microsoft OneDrive Directions:

1. After you have made your own copy of the resource from the link, you will need to download your copy as a ppt to your desktop. To do this from the menu to FILE > Download as > Microsoft PowerPoint (.pptx)



2. Open your OneDrive. Create a folder for this step is recommended to keep you and your students' work organized.



3. From the menu, select Upload > Files from your computer or select the file and upload it.



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How to use this resource with your student:

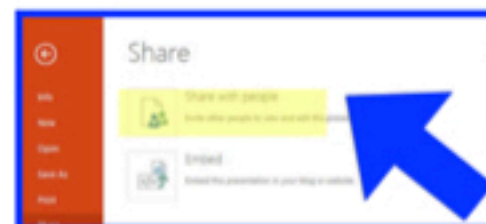
Microsoft OneDrive Directions:

4. Make sure that you open the resource to make sure it is in good working order before sharing it with your students.

5. You will want to interact with the digital flip book in the "edit mode". This allows you to add their own text and move the pieces.

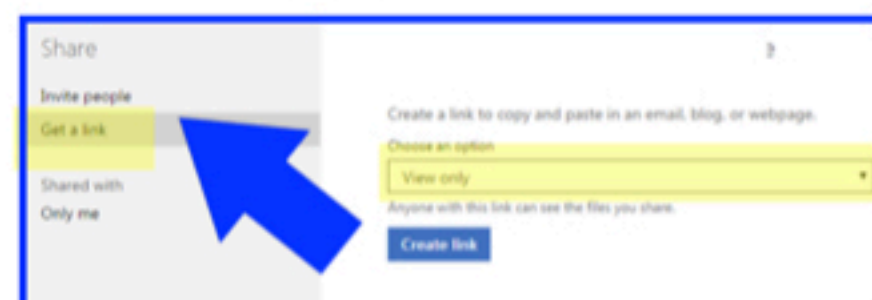
6. You will be prompted to choose to edit the file in PowerPoint or online. Select online. It will then open in a browser.

7. Follow your normal steps in sharing the file with your students. Go to Share > Share with people



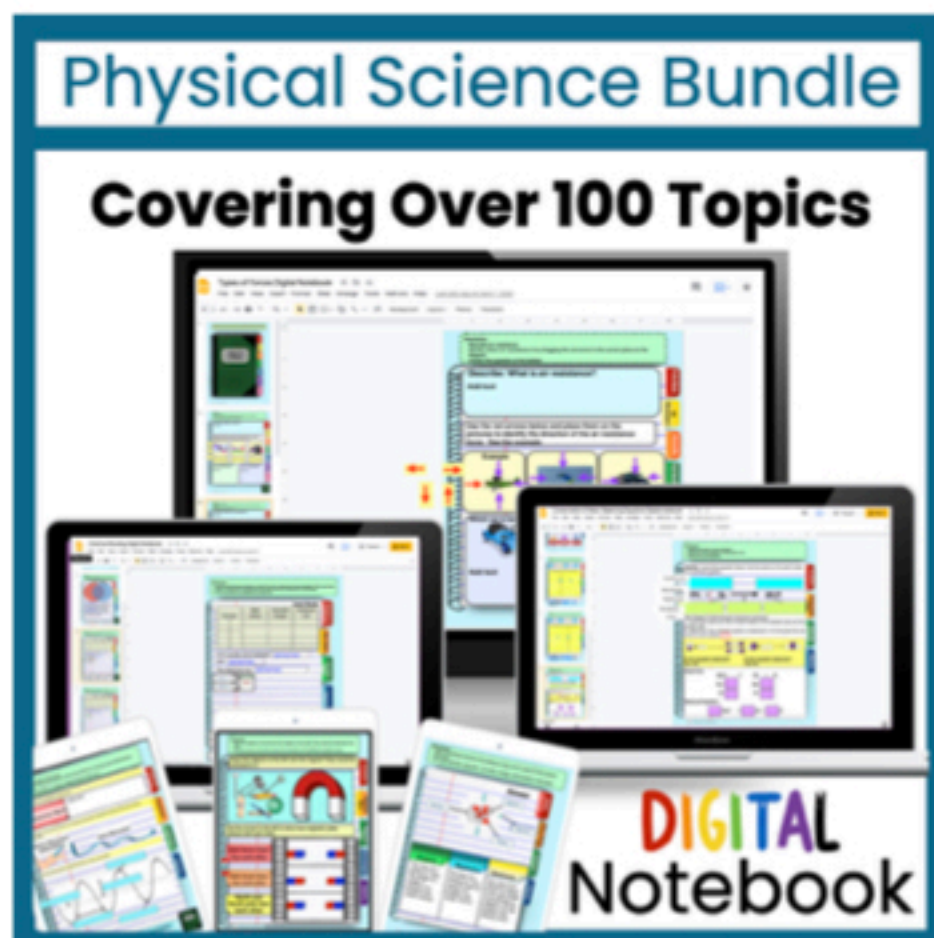
8. Choose the option to view only. Then require your students to make a copy in their own drive before editing the file. This ensures your students do not edit your file.

- **Remember**, when sharing your link with your students make sure it is a secure format that requires a log in password and not on a personal, school, or district site that can be accessed by anyone

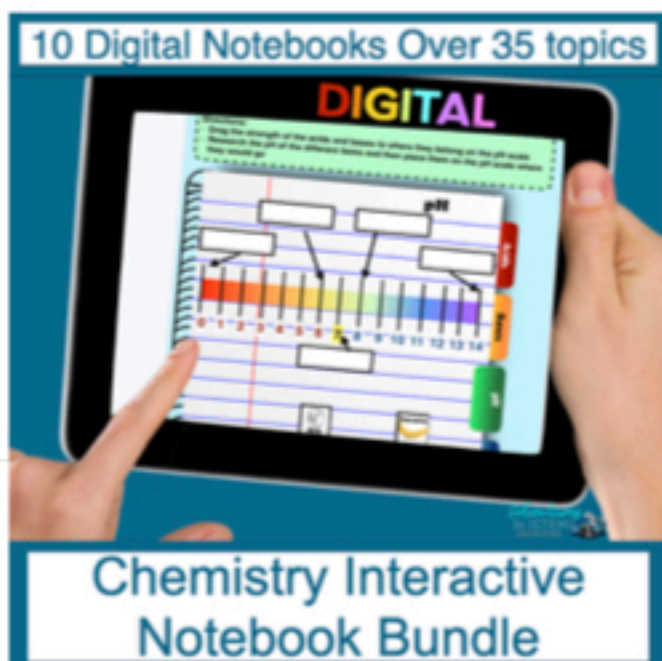




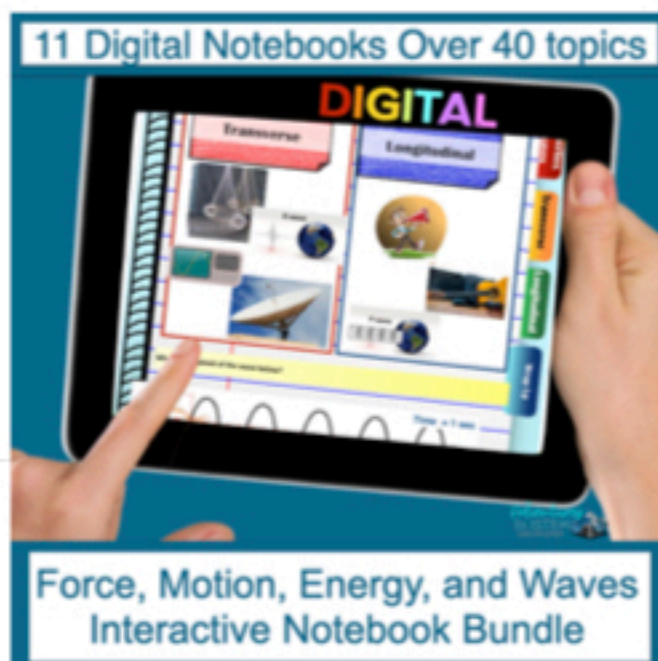
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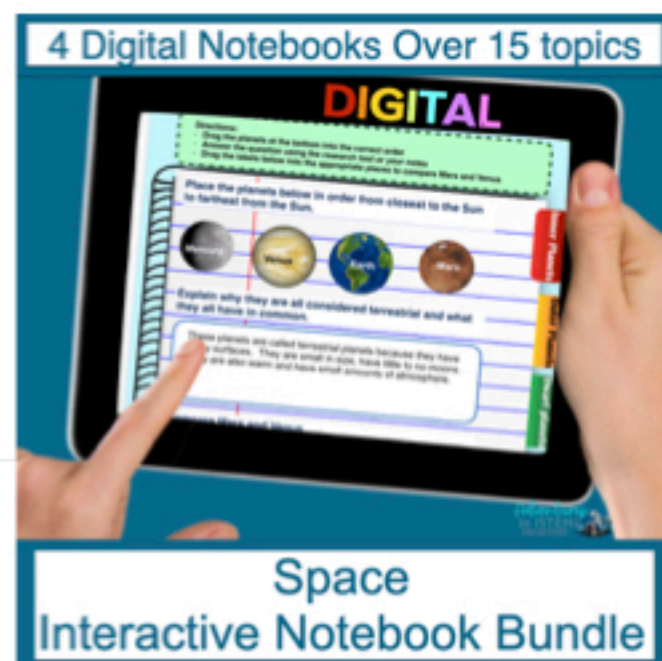
Years worth of digital notebooks covering over 100 physical science topics.



10 digital notebooks covering over 35 chemistry topics.



11 digital notebooks covering over 35 physics topics.



4 digital notebooks covering over 35 space topics.



Teaching STEM Through Inquiry

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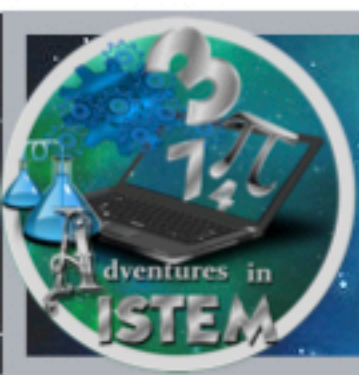
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Special Thanks

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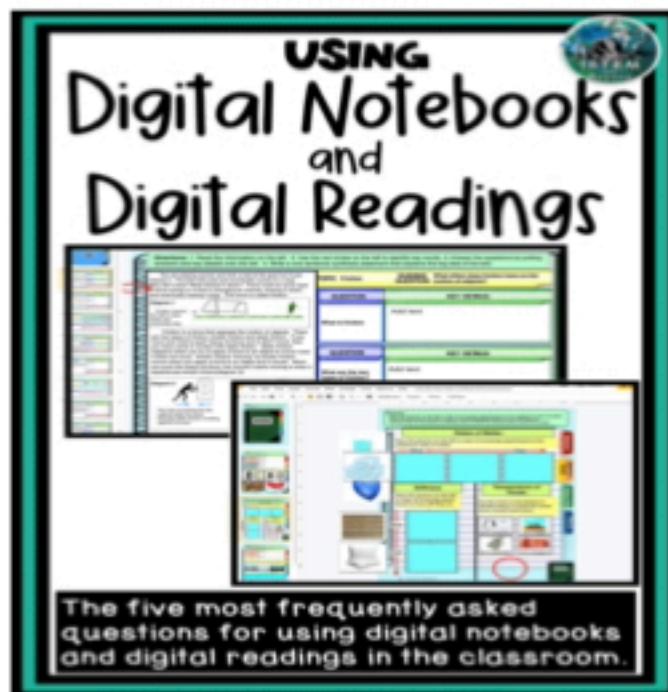




Digital Resources

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

