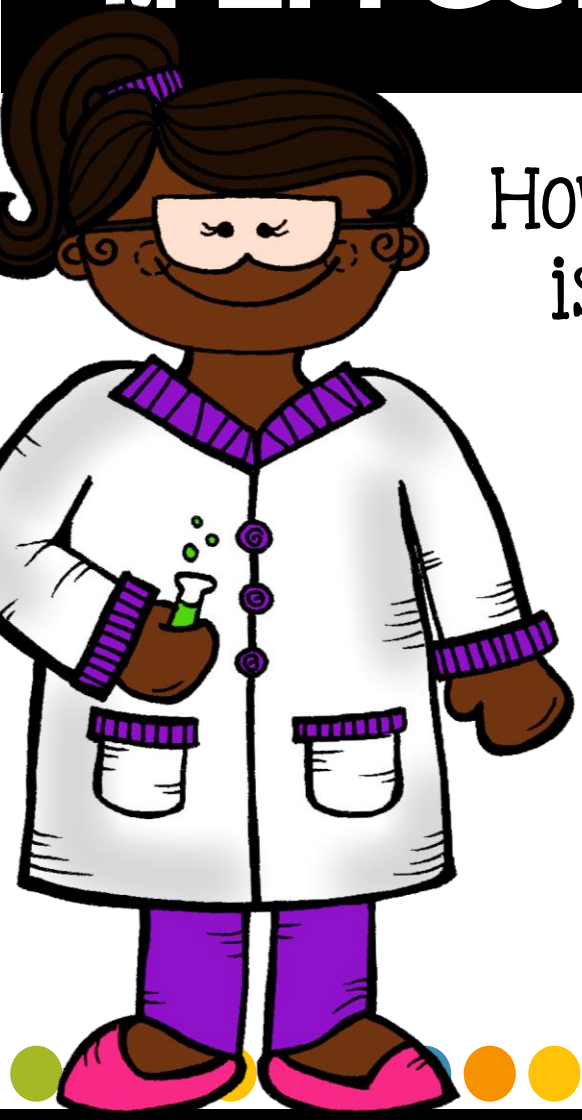
DISCOVERY ED textbook science

4.1 Effects of Gravity



How Can We Prove Gravity is Directed Downward?

- PowerPoint Notes
- Guided, Fill-in-the-Blank Notes
- Vocabulary Practice & Notes
- Practice Assessments
- Aligned to Grade 5 NGSS

Designed for 5th Grade Science

For the Teacher

Thank you so much for downloading this product! Here are a few key tips for using this product effectively in your classroom:

1. Pages 3-6 are meant for Guided Reading Notes. In my classroom, I LOVE having my kiddos read actively for information from non-fiction texts. As my classroom is a blend of resource students and general-education learners, I find that guided reading, with specific key terms missing is the easiest way to include ALL levels of learning into my science lessons. These pages work best if students READ the "Engage" tab in the techbook and fill in the missing information.
2. Pages 7-8 are for Formative Assessment. On Discovery, the evaluation task is typically a blend of creating charts, graphs, images, or text responses. As 5th grade writing has a certain demand for writing about non-fiction sources, I took this opportunity to have my students WRITE about multiple learning sources. Page 7 is for brainstorming & organizing thoughts and page 8 is for writing a rough draft based on the sentence stems from the previous page.
3. YES! these activities ARE aligned to the NGSS and CCSS. The following standards are addressed in this product:

   NGSS5-PS2-1.: Support an argument that the gravitational force exerted by earth on objects is directed down

   NGSS-PS2.B: Types of interactions: the gravitational force of earth acting on an object near earth's surface pulls that object towards the planet's center.

   CCSS.R.I.5.3: Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

4. The PowerPoint Notes are a Guided Overview. Although reading from the techbook is great for certain lessons, sometimes kiddos need a BREAK! ☺ For that reason I created PowerPoint slideshows that summarize the key content from Discovery & align to the guided notes, too! I included a PDF and editable version of each slideshow because personally, I like spicing up pre-made lessons to suit my specific kiddos. Please adapt as you see fit!

happy teaching!

Name: _____ *4.1 Guided Notes*

WHAT TYPES OF FORCES ARE THERE?

Directions: Use the Discovery TechBook to help fill in your guided notes.

- A _____ is needed to make an object move. This force could either be a _____ or a _____.

Look at the pictures below. Label each picture as a **push** or a **pull**. Explain your answers.

_____ _____ _____	_____ _____ _____

- _____ is a force. It happens when someone kicks a soccer ball. In the picture above, there is a force of _____ between the foot and the ball.
- Give **two** examples of contact forces:
  - _____
  - _____
- Magnets are an example of a _____ force because they do not have to touch each other.

- Describe an **electrostatic force.**

_____

_____

- _____ is an action-at-a-distance force, just like magnetic and electrostatic forces.

Let's Classify Forces!

Think about each situation below. Then, classify each situation as a contact force or non-contact force.

Contact	Non-Contact

Lifting a backpack	Compass needle turning	Magnet holding a refrigerator
Balloon sticking to a wall	Book falling from a desk	Blowing on a pinwheel
Earth orbiting the sun	Throwing a baseball	Playing tug of war

- What is "down"? Explain.

_____

_____

- _____ is a force that affects everything with _____ in the universe.
- All objects on or near _____ surface are pulled towards Earth's _____.

A Push or a Pull?

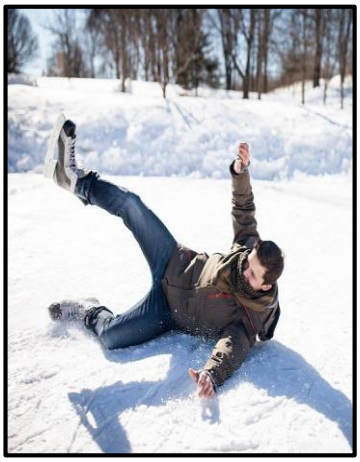
Watch the video segment "Pull" on Discovery Ed (2:40). Based on the evidence in the video, is Gravity a "push" or a "pull" force? Explain.

_____

_____

_____

- No matter where you are on Earth, you experience the _____ pull of gravity. Even _____ in the space station feel the pull of gravity towards Earth.
- People and objects inside the space station _____ because Earth's gravity is not _____ enough to pull them out of _____ and toward the planet!
- Astronauts on the moon, however, appear very light and bouncy because the moon has less _____ than Earth.
- _____ is a measure of the force of gravity on an object.



A (Not so) Hard Fall!

Falling to the ground hurts! Or at least it does on our planet because of the strength of gravity. How would our falls feel if gravity weren't quite so strong? Explain using evidence from the text.

_____

_____

_____

_____

- Gravity is also what holds the _____ _____ together. The _____ attracts the planets, asteroids, and comets that orbit around it.
- Based on what you have read in the text, why don't planets "fall" into the sun?

_____

_____

Gravity Affects You Everywhere…

Look at the three images below. Will gravity act upon the people in each photo? Why or why not? Compare and contrast the force of gravity acting on the people in each location. Use your notes and techbook to help support your answer.

_____

_____

_____

_____

_____

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_____

_____

Above: Astronauts in the International Space Station.

Above: A woman hiking up in the mountains.

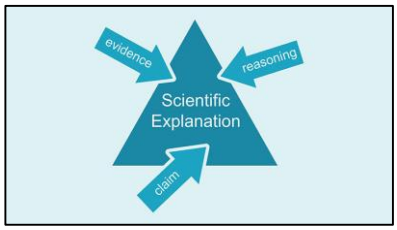
Above: A man fishing at sea level.

Name: _____

CAN YOU EXPLAIN: PUTTING IT ALL TOGETHER

Directions: Use what you have learned from your guided notes and techbook reading to answer the key question from this topic: ***How do you define 'down'?*** Scientific responses include three different components:

1. A scientific claim
2. Evidence to support the claim
3. Reasoning that explains your evidence



Begin by organizing your thoughts below in the graphic organizer. Then, use page 8 to write your rough draft.

1	**What is your claim?**	• *According to what I have read, I believe that "down" is* _____ _____ *OR* • *My claim is that "down" is* _____ _____
2	**What evidence supports your claim?**	• In the text, I read _____ _____ • One example from the text is _____ _____ • In the video "_____", I learned _____ _____ • In class, we did an experiment about _____ and I learned _____ _____
3	**Explain your evidence. What does it actually MEAN?**	• For my first piece of evidence, I said _____. This really means that _____. • The example _____ supports my claim because it proves _____. • Altogether, the evidence shows _____. This supports my claim because _____.

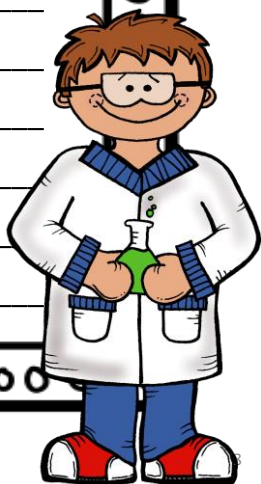
Rough Draft

Name: _____

CAN YOU EXPLAIN?

Directions: Now that you have organized your thoughts, write a rough draft explaining your thoughts. Refer to your graphic organizer to place your thoughts in order. When you are finished, quietly read your rough draft out loud to check for any mistakes.

How do you define "down"?



Name: _____

KEY VOCABULARY

Directions: Match each key term with its definition below.

_____1.	Force	a. The force which stops motion; happens between two surfaces when they touch
_____2.	Friction	b. The measure of the force of gravity on an object
_____3.	Gravity	c. A force that exists between any two objects that have mass
_____4.	Motion	d. A pull or push that is applied to an object
_____5.	Weight	e. A change in position of an object compared to another object

Directions: Use the words in the word box to complete each statement. Each word will be used only once.

Astronaut	Beaker	Galaxy
Magnet	Moon	Surface

6. While preparing for his next experiment, the scientist carefully measured the liquid into his glass _____.

7. The _____ is the outermost part of Earth. It is also considered the boundary between two objects or materials.

8. To demonstrate both push and pull forces, you could use two _____ and use their north and south poles for demonstration.

9. The _____ is our closest neighbor in space. It has less gravity than Earth.

10. An _____ in the International Space Station will still feel the effects of Earth's gravity, even while working in space.

11. Our solar system is part of the Milky Way _____, which is all held together by gravity.

Name: _____

4.1 STUDY GUIDE

Directions: Write a definition for each key vocabulary term.

1. Force	
2. Friction	
3. Gravity	
4. Motion	
5. Weight	

Directions: Answer each question in complete sentences. Use your notes and Science Techbook to help you.

6. What types of forces are there?

_____

_____

7. What is the difference between a **contact** and **non-contact** force? Give an example of each.

_____

_____

8. How does gravity affect things on Earth?

_____

_____

9. Are objects affected by Earth's gravity even when they are off-planet? Explain.

_____

_____

10. Alex weighs 45 kg on Earth. Her friend tells her she will only weigh 8.1 kg on the moon. What would explain her weight change?

_____

_____

11. A moon is an object smaller than a _____. Our moon is held in orbit by the force of _____.

12. Planets orbit around the _____. They are held in place by the force of _____.

13. How are the inner planets similar?

_____

14. **Circle the scenarios** that best demonstrate how the force of gravity pulls objects towards the center of Earth.

A man riding an escalator to the main floor of a building	A boy throwing a ball up in the air and letting it fall to the ground	A plane flying in the air
A soccer ball rolling across the field	A skydiver jumping out of an airplane	A pencil rolling off your desk onto the floor

15. Put the objects in order according to how much gravity they have.

The sun The moon An asteroid Earth Jupiter

LEAST						MOST

THANK YOU!!

let's stay in touch

Thank you **so much** for downloading this product! If you enjoy using this product in your classroom, please consider leaving me a review & rating on my TpT store. ☺ I LOVE your feedback and I LOVE to hear from my followers. If you are in need of personalized units for your classroom, please send me a message at commoncorecoffee@gmail.com

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happy teaching!

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