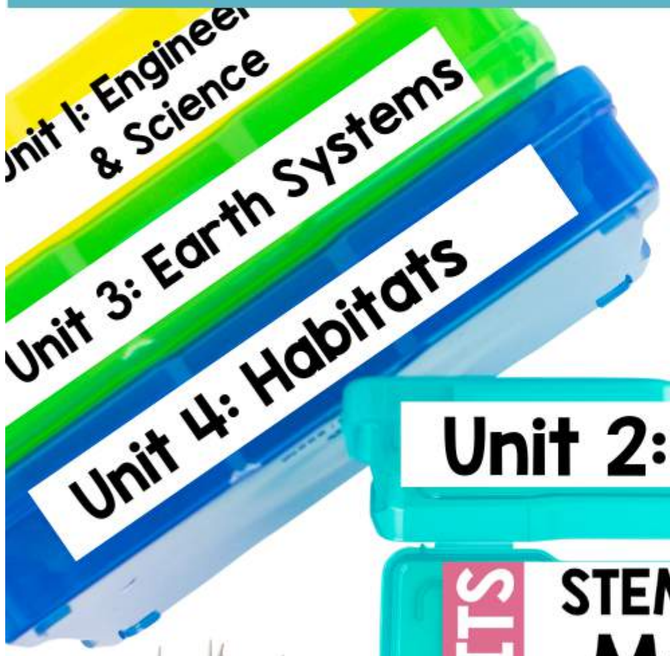
4 Fully Integrated STEM Units

SCROLL

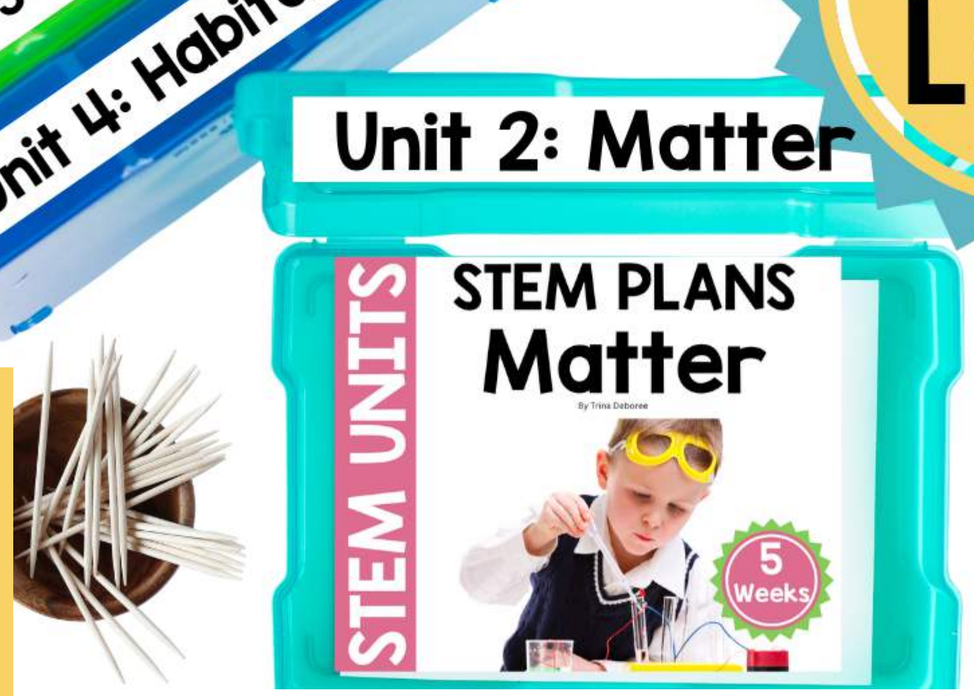
to take a look inside!

STEM PLANS

Lessons & Activities



Year Long



4 UNITS INCLUDED WITH SCOPE AND SEQUENCE

4 Weeks

5 Weeks

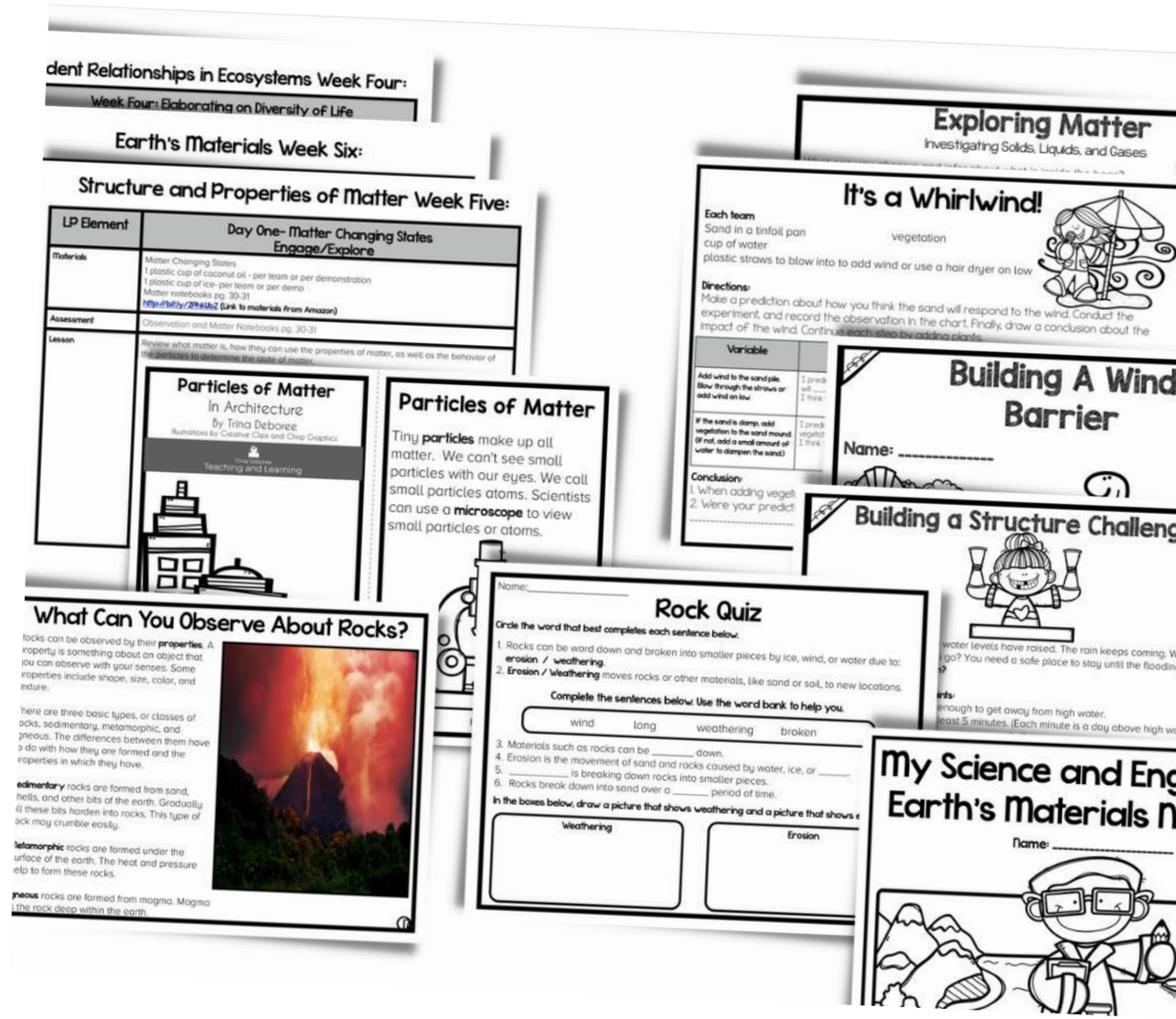
6 Weeks

5 Weeks

List of Materials Included for Each Unit
Simple Materials Needed (Most you will have on hand)

INTEGRATED DONE FOR YOU STEM LESSON PLANS

- Integrates Reading, Science, Technology, Engineering, and Math
- **95** Lesson Plans
- **16** Science Explorations
- **10** STEM Challenges
- **27** Original Nonfiction Text
- **5** Assessments
- **4** Student Notebooks



Take a closer Look!

Lesson Plans

Standard Included in Overview

Structure and Properties of Matter Week Five:

LP Element	Day One- Matter Changing States Engage/Explore
Materials	Matter Changing States 1 plastic cup of coconut oil - 1 plastic cup of ice- per tear Matter notebooks pg. 30-31 http://bit.ly/2PhkUbZ {Link to materials from Amazon}
Assessment	Observation and Matter Noteb
Lesson	Review what matter is, how th the particles to determine the {Students have been building upon their understanding of matter by describing including th ncepts to des certain ma ood review is this time, a Review EQ re effect stat Tell studer aterials migh one anothe e effects the changes of matter. Use your materials monitor to gather supplies. Tell them to carry the cups by th want them to grasp the cups and allow their body heat to warm the coconut oil. Next allow students to observe with their eyes the substance. Fill in the chart or what they see, write what they see, and fill in the state of matter.

Materials listed

Assessment Included

Lesson background provided for teacher

Structure and Properties [illegible] ive:

LP Element	Day One- Matter [illegible] naging States pg. 2
Lesson	Next, heat up the substance. You may wish to do this with a mi[illegible]wave in a demo or you may wish to allow students to actua[illegible]est way to do it! But it is messy. You will want[illegible] drips back in they can record the observatio[illegible]person per team to hold the substance the[illegible]observations have been recorded. Finally, allow students to cool [illegible]bservations. Students should see the solid [illegible]will melt quickly. It takes a little more tim[illegible] Finally, as a final review: Allow students to share results[illegible]size that temperature impacts the **physic**[illegible]n the state of matter changes but it does **NOT**[illegible]r vapor. It is all still water. **Physical changes**[illegible]**ity of the matter remains the same.** And review EQs.

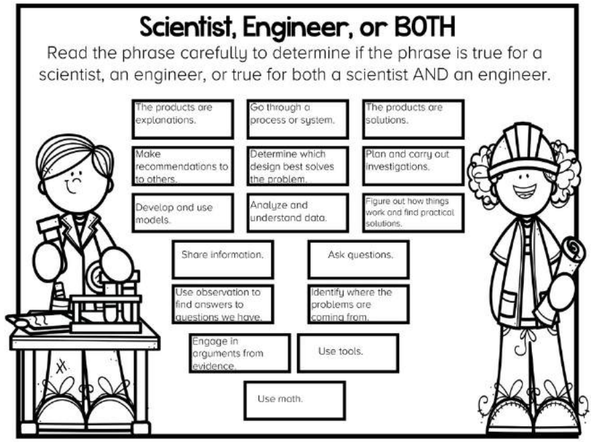
Lesson Contains:

- Essential Questions
- 5 E Model
- High Engagement Strategy
- Final Review

More

16 Critical Thinking Science Explorations Kids love them!

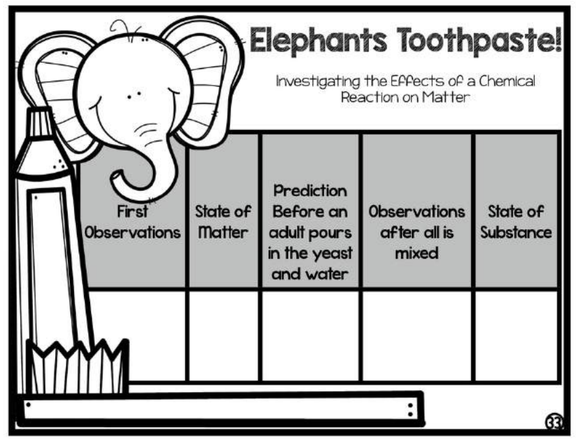
SAMPLE



Scientist, Engineer, or BOTH

Read the phrase carefully to determine if the phrase is true for a scientist, an engineer, or true for both a scientist AND an engineer.

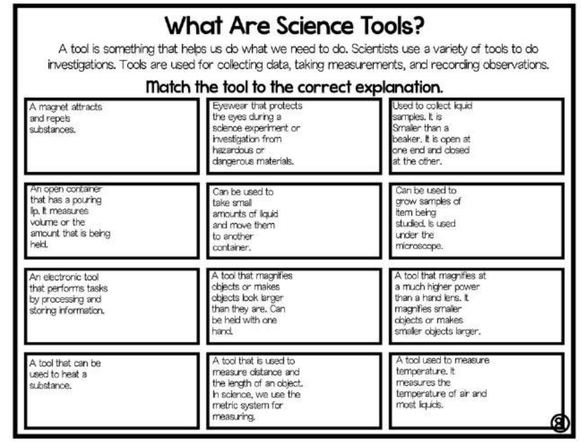
The products are explanations.	Go through a process or system.	The products are solutions.
Make recommendations to others.	Determine which design best solves the problem.	Plan and carry out investigations.
Develop and use models.	Analyze and understand data.	Figure out how things work and find practical solutions.
Share information.	Ask questions.	
Use observation to find answers to questions we have.	Identify where the problems are coming from.	
Engage in arguments from evidence.	Use tools.	
Use math.		



Elephants Toothpaste!

Investigating the Effects of a Chemical Reaction on Matter

First Observations	State of Matter	Prediction Before an adult pours in the yeast and water	Observations after all is mixed	State of Substance

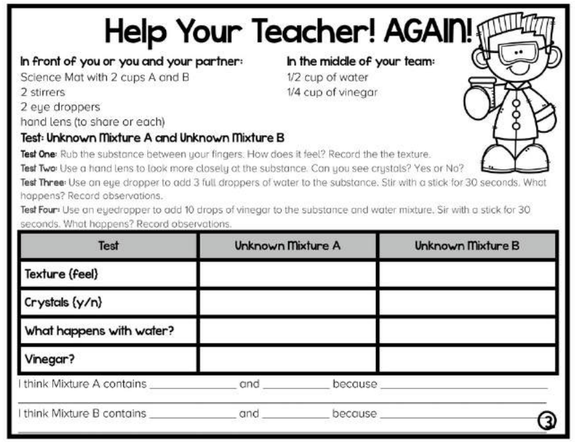


What Are Science Tools?

A tool is something that helps us do what we need to do. Scientists use a variety of tools to do investigations. Tools are used for collecting data, taking measurements, and recording observations.

Match the tool to the correct explanation.

A magnet attracts and repels substances.	Eyewear that protects the eyes during a science experiment or investigation from hazardous or dangerous materials.	Used to collect liquid samples. It is smaller than a beaker. It is open at one end and closed at the other.
An open container that has a pouring lip. It measures volume or the amount that is being held.	Can be used to take small amounts of liquid and move them to another container.	Can be used to grow samples of item being studied. Is used under the microscope.
An electronic tool that performs tasks by processing and storing information.	A tool that magnifies objects or makes objects look larger than they are. Can be held with one hand.	A tool that magnifies at a much higher power than a hand lens. It magnifies smaller objects or makes smaller objects larger.
A tool that can be used to heat a substance.	A tool that is used to measure distance and the length of an object. In science, we use the metric system for measuring.	A tool used to measure temperature. It measures the temperature of air and most liquids.



Help Your Teacher! AGAIN!

In front of you or you and your partner:
Science Mat with 2 cups A and B
2 stirrers
2 eye droppers
hand lens (to share or each)

In the middle of your team:
1/2 cup of water
1/4 cup of vinegar

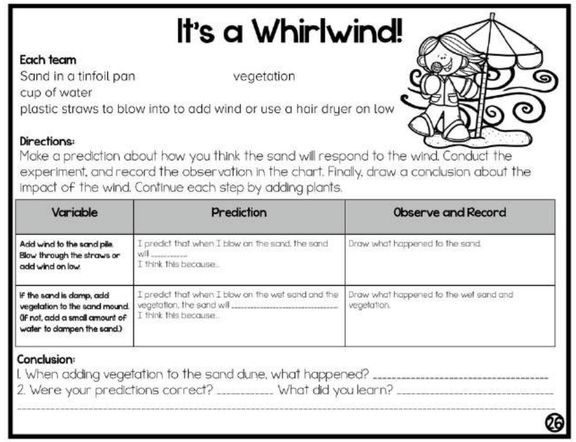
Test: Unknown Mixture A and Unknown Mixture B

Test One: Rub the substance between your fingers. How does it feel? Record the the texture.
Test Two: Use a hand lens to look more closely at the substance. Can you see crystals? Yes or No?
Test Three: Use an eye dropper to add 3 full droppers of water to the substance. Stir with a stick for 30 seconds. What happens? Record observations.
Test Four: Use an eyedropper to add 10 drops of vinegar to the substance and water mixture. Sir with a stick for 30 seconds. What happens? Record observations.

Test	Unknown Mixture A	Unknown Mixture B
Texture (Feel)		
Crystals (y/n)		
What happens with water?		
Vinegar?		

I think Mixture A contains _____ and _____ because _____

I think Mixture B contains _____ and _____ because _____



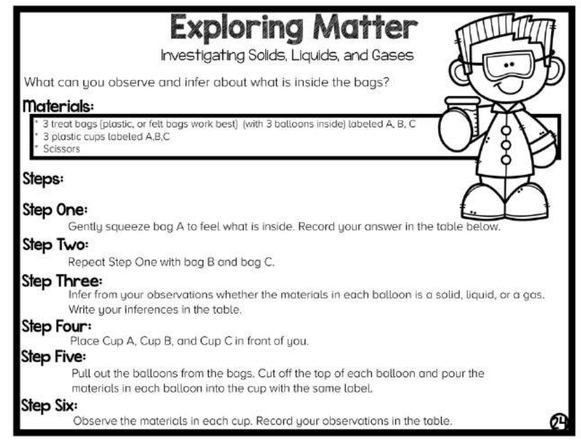
It's a Whirlwind!

Each team
Sand in a tinfoil pan
cup of water
plastic straws to blow into to add wind or use a hair dryer on low
vegetation

Directions:
Make a prediction about how you think the sand will respond to the wind. Conduct the experiment, and record the observation in the chart. Finally, draw a conclusion about the impact of the wind. Continue each step by adding plants.

Variable	Prediction	Observe and Record
Add wind to the sand pile. Blow through the straws or add wind on low.	I predict that when I blow on the sand, the sand will _____. I think this because...	Draw what happened to the sand.
IF the sand is damp, add vegetation to the sand mound. (If not, add a small amount of water to dampen the sand.)	I predict that when I blow on the wet sand and the vegetation, the sand will _____. I think this because...	Draw what happened to the wet sand and vegetation.

Conclusion:
1. When adding vegetation to the sand dune, what happened? _____
2. Were your predictions correct? _____ What did you learn? _____



Exploring Matter

Investigating Solids, Liquids, and Gases

What can you observe and infer about what is inside the bags?

Materials:
* 3 treat bags (plastic, or felt bags work best) (with 3 balloons inside) labeled A, B, C
* 3 plastic cups labeled A,B,C
* Scissors

Steps:

Step One:
Gently squeeze bag A to feel what is inside. Record your answer in the table below.

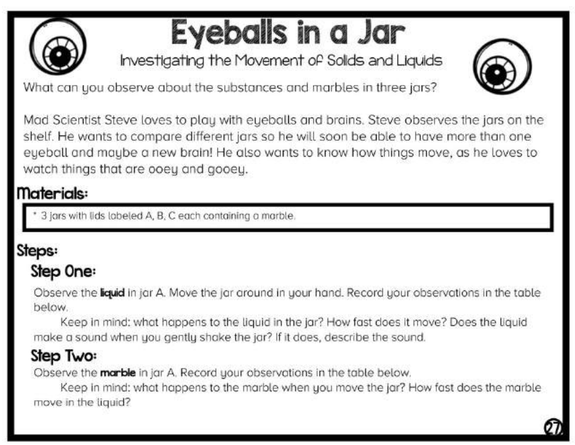
Step Two:
Repeat Step One with bag B and bag C.

Step Three:
Infer from your observations whether the materials in each balloon is a solid, liquid, or a gas. Write your inferences in the table.

Step Four:
Place Cup A, Cup B, and Cup C in front of you.

Step Five:
Pull out the balloons from the bags. Cut off the top of each balloon and pour the materials in each balloon into the cup with the same label.

Step Six:
Observe the materials in each cup. Record your observations in the table.



Eyeballs in a Jar

Investigating the Movement of Solids and Liquids

What can you observe about the substances and marbles in three jars?

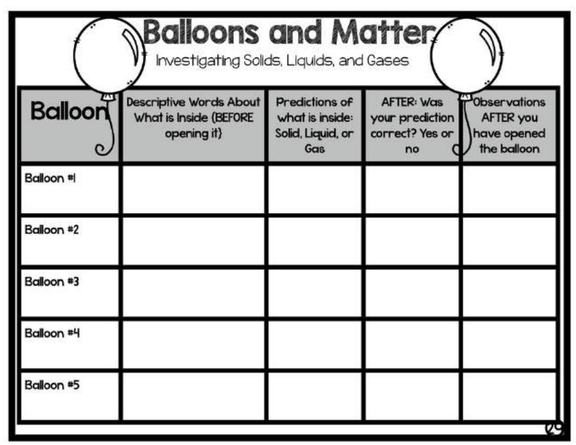
Mad Scientist Steve loves to play with eyeballs and brains. Steve observes the jars on the shelf. He wants to compare different jars so he will soon be able to have more than one eyeball and maybe a new brain! He also wants to know how things move, as he loves to watch things that are ooey and gooey.

Materials:
* 3 jars with lids labeled A, B, C each containing a marble.

Steps:

Step One:
Observe the **liquid** in jar A. Move the jar around in your hand. Record your observations in the table below.
Keep in mind: what happens to the liquid in the jar? How fast does it move? Does the liquid make a sound when you gently shake the jar? If it does, describe the sound.

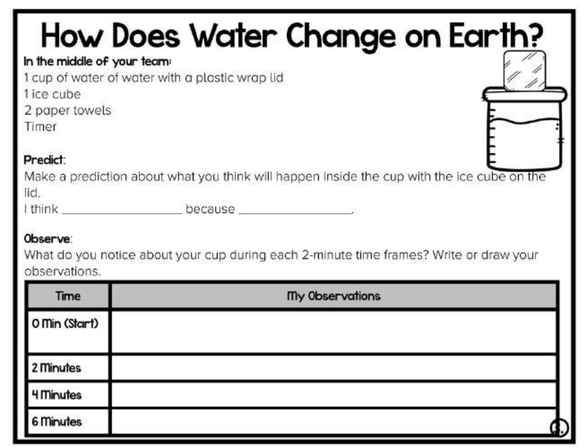
Step Two:
Observe the **marble** in jar A. Record your observations in the table below.
Keep in mind: what happens to the marble when you move the jar? How fast does the marble move in the liquid?



Balloons and Matter

Investigating Solids, Liquids, and Gases

Balloon	Descriptive Words About What is Inside (BEFORE opening it)	Predictions of what is inside: Solid, Liquid, or Gas	AFTER: Was your prediction correct? Yes or no	Observations AFTER you have opened the balloon
Balloon #1				
Balloon #2				
Balloon #3				
Balloon #4				
Balloon #5				



How Does Water Change on Earth?

In the middle of your team:
1 cup of water of water with a plastic wrap lid
1 ice cube
2 paper towels
Timer

Predict:
Make a prediction about what you think will happen inside the cup with the ice cube on the lid.
I think _____ because _____.

Observe:
What do you notice about your cup during each 2-minute time frames? Write or draw your observations.

Time	My Observations
0 Min (Start)	
2 Minutes	
4 Minutes	
6 Minutes	

Close-Up Look at Investigation

Objective

Relatable Scenario

Materials

Steps

Experiment

Observations

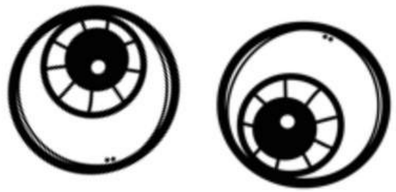
Reflection

Step Three:

Repeat Steps One and Two with the jar of brains (jar B).

ree:

eps One and Two with jar C.



Jar	Observations of Liquid/ or solid	Observations of Marble
e Liquid)		
B (Brains)		
en Liquid)		

the shape the contents

_____

_____

marble move the same w

you infer from this observation? _____

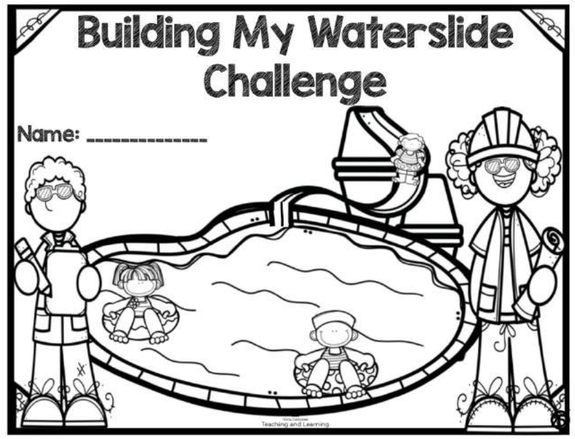
_____

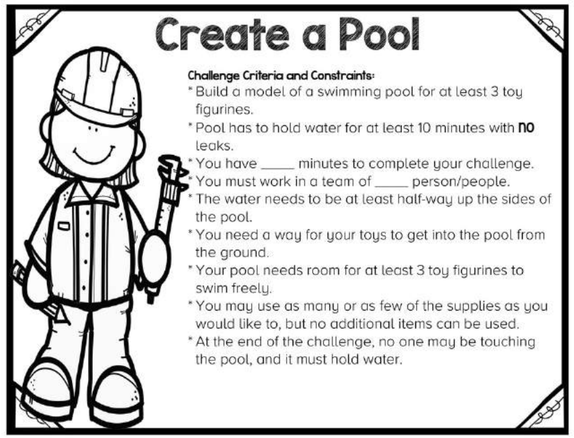
> This is so incredibly thorough! I could not ask for better directions and information. It was easy to write plans with and each experiment is well thought out and clearly hits the mark. I will be purchasing more units in the future!

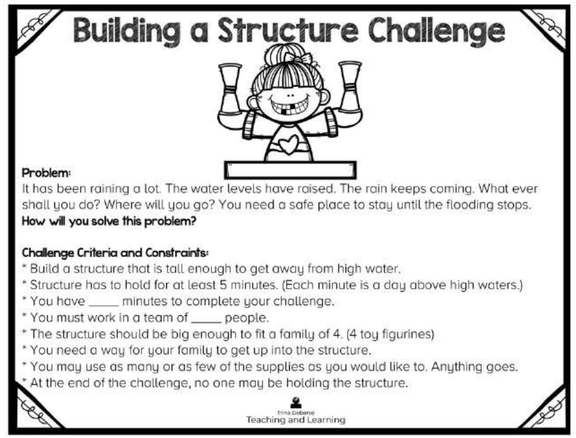
More

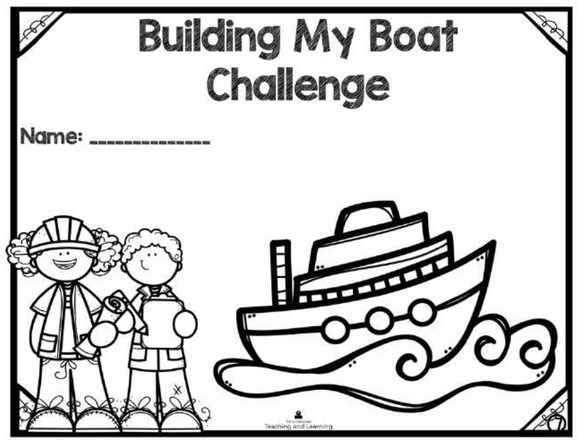
10 Open-Ended Critical Thinking STEM Challenges Using Simple Materials

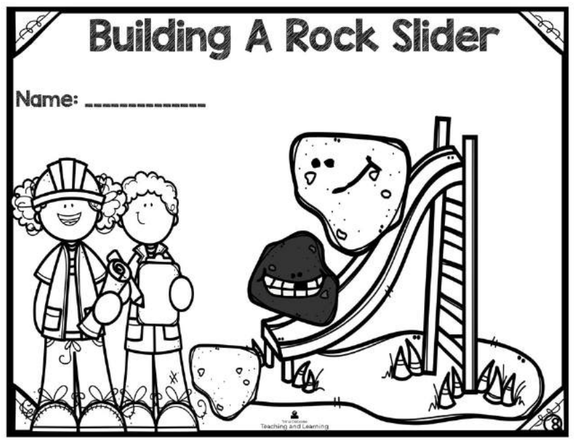
SAMPLE

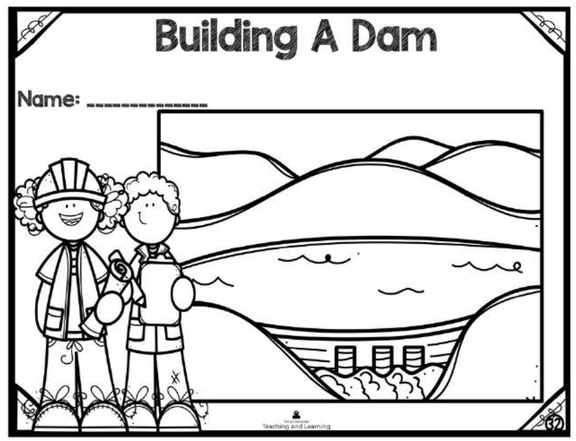


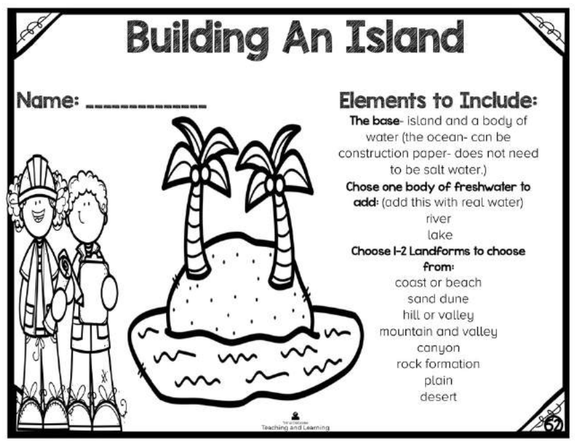


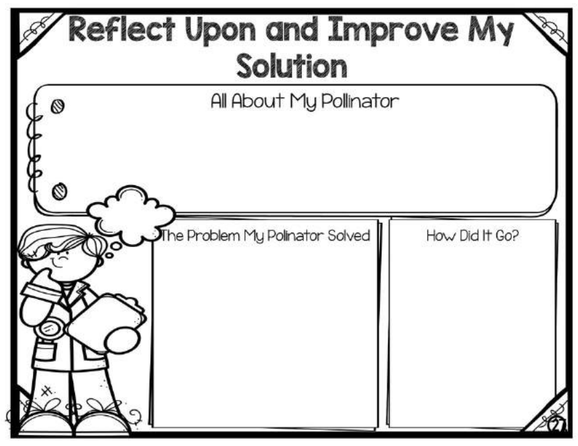


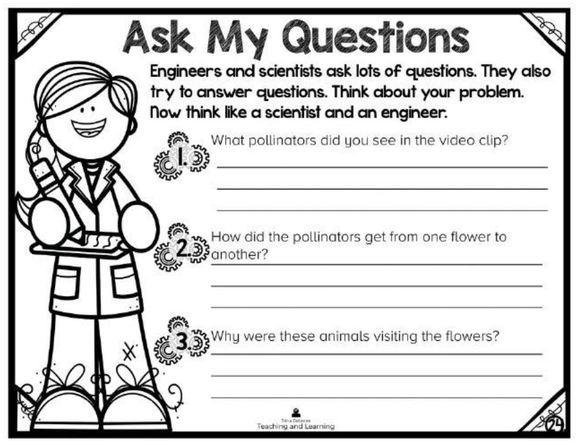












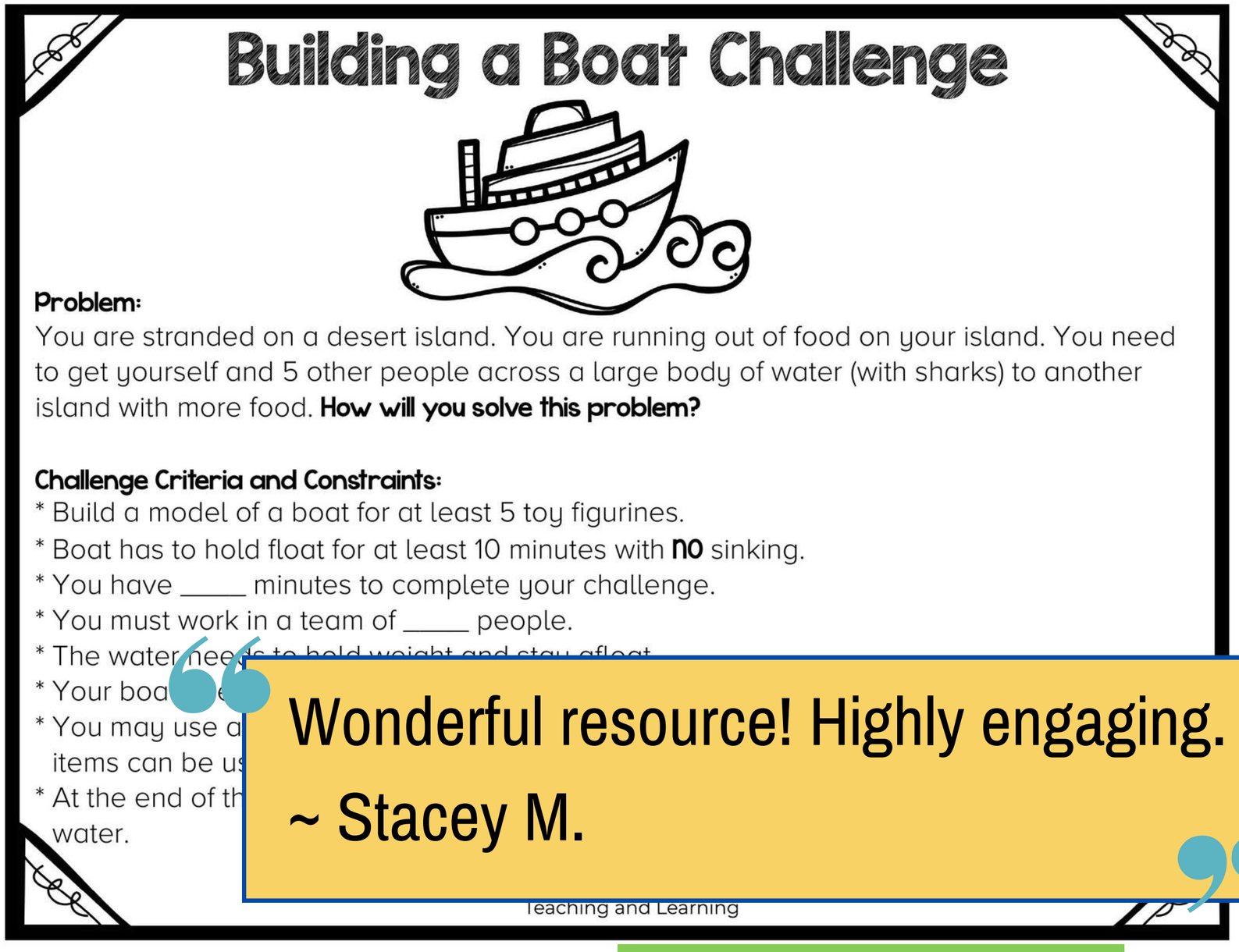
Close-Up Look at STEM Challenge

Problem

Challenge Criteria & Constraints

Think Sheets

Work Through Engineering Design Process

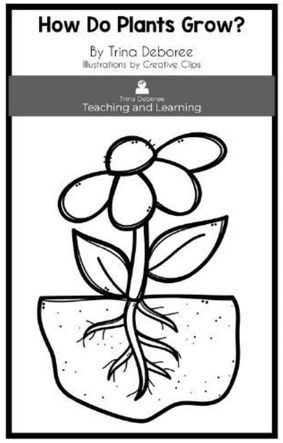


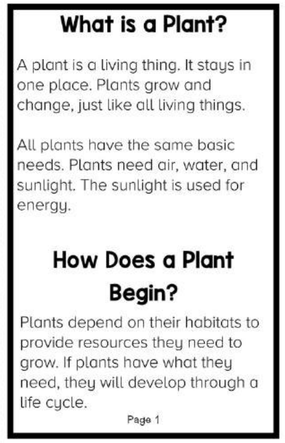
> Wonderful resource! Highly engaging.
>
> ~ Stacey M.

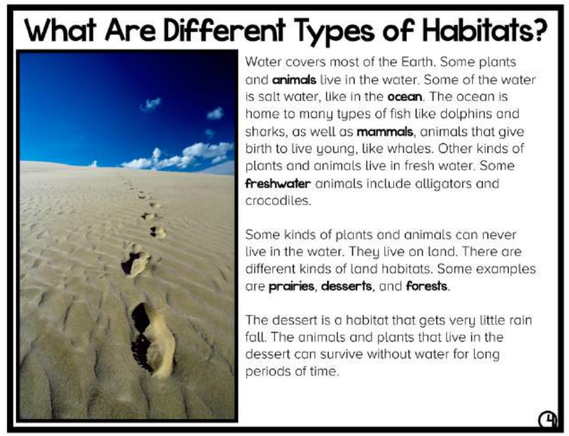
More

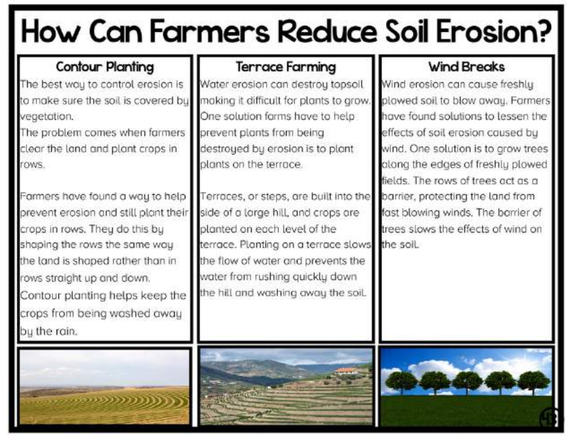
Use parts of your Reading Block to cover nonfiction. Steal back your time!

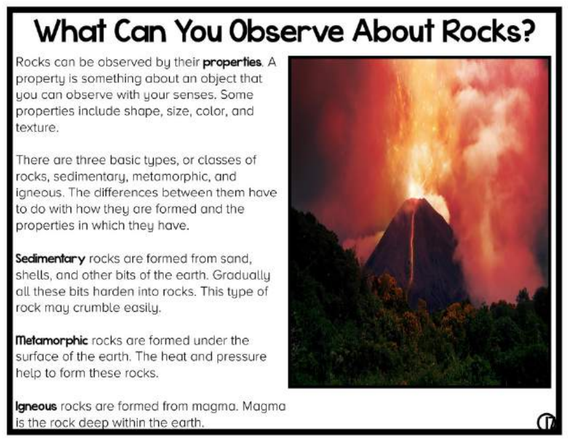
SAMPLE

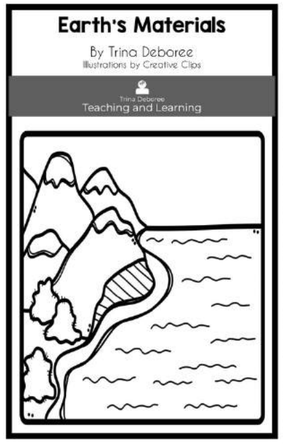


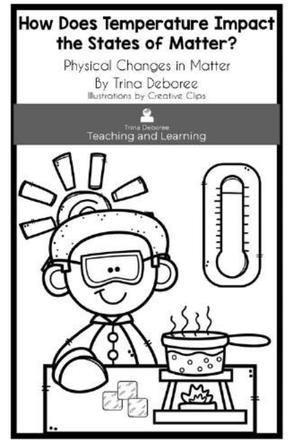


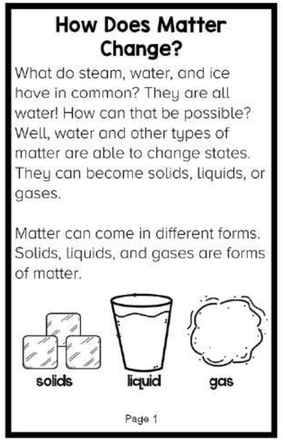


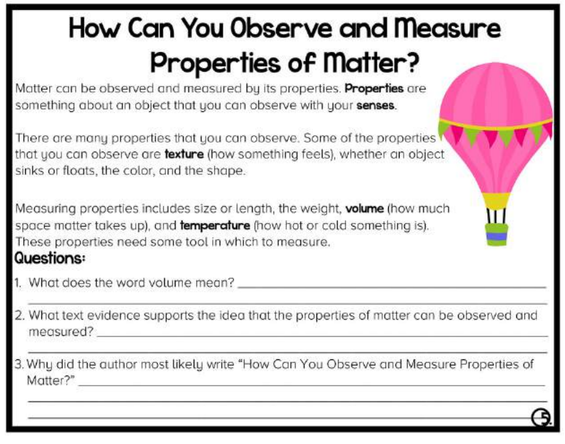


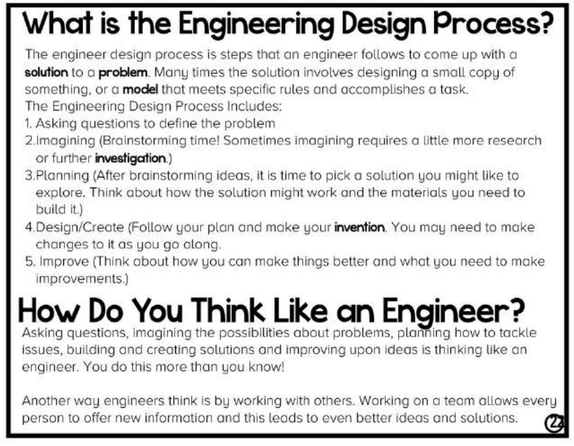


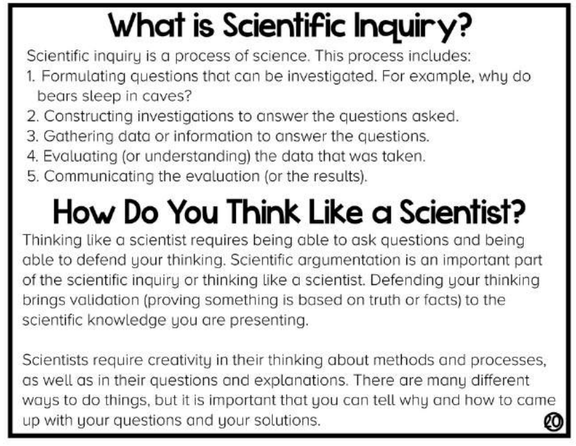












Close-Up Look at Nonfiction

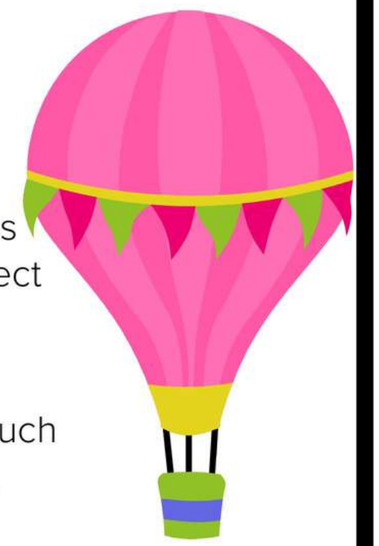
Informational

Nonfiction Reading Standards

Questions

Student Thinking Required

How Can You Observe and Measure Properties of Matter?



r can be observed and measured by its properties. **Properties** are something about an object that you can observe with your **senses**.

are many properties that you can observe. Some of the properties ou can observe are **texture** (how something feels), whether an object or floats, the color, and the shape.

uring properties includes size or length, the weight, **volume** (how much space matter takes up), and **temperature** (how hot or cold something is). These properties need some tool in which to measure.

tions:

at does the word volume mean? _____

_____

at text evidence supports the idea that the properties of matter can be observed and asured? _____

_____

did the author most likely write "How Can You Observe and Measure Properties of ter?" _____

_____

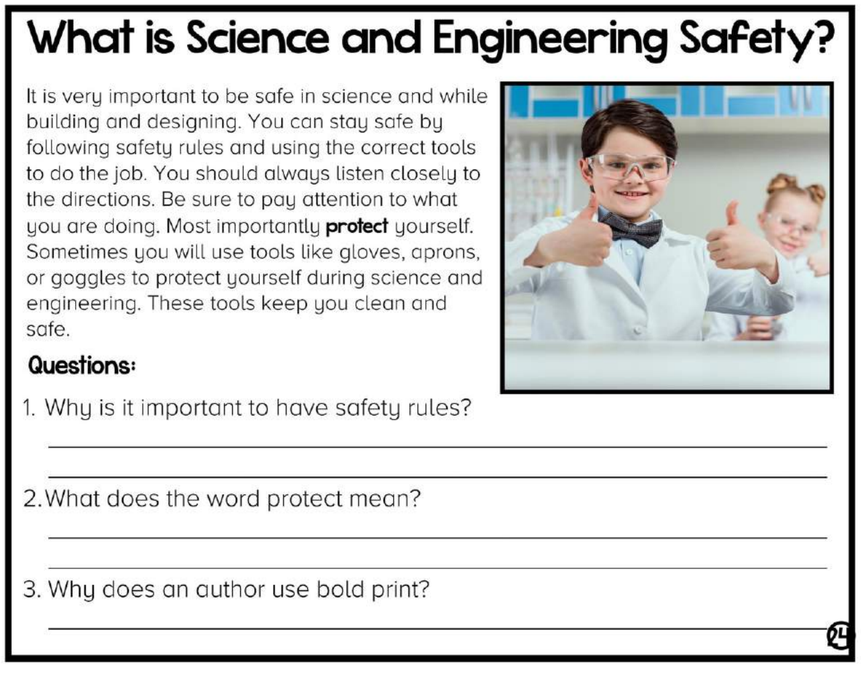
_____

5

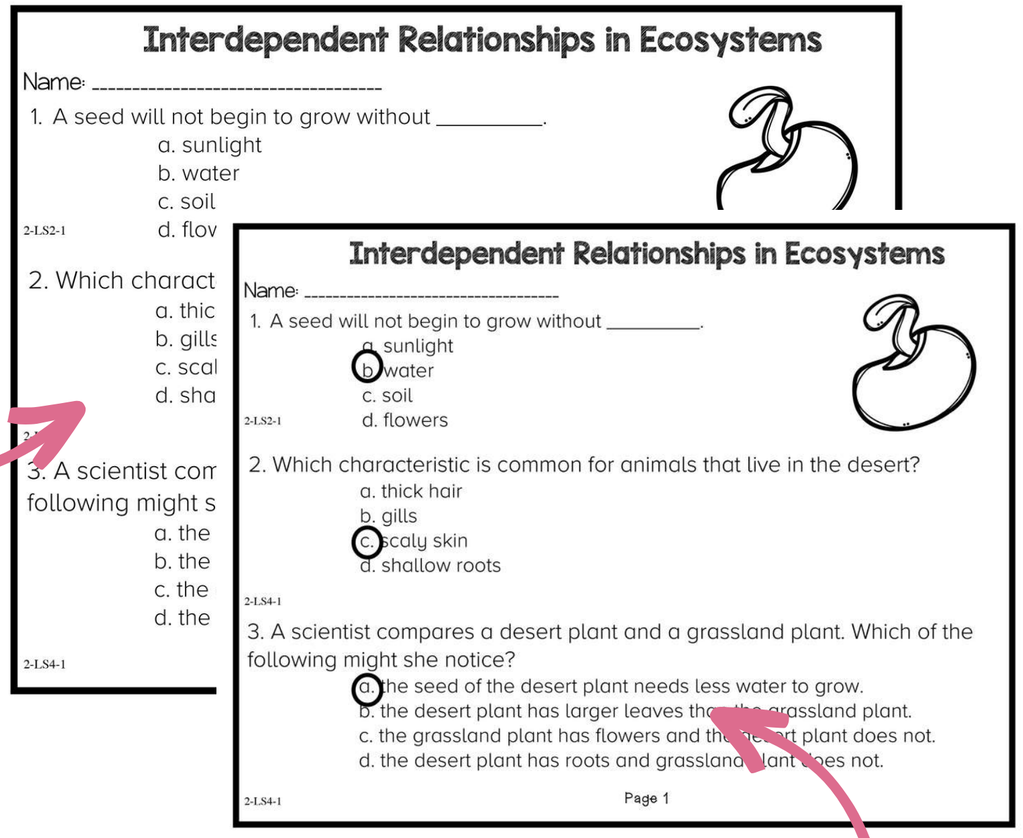
More

5 Assessments Included

Formative assessment inside student notebooks.



Summative assessment included.

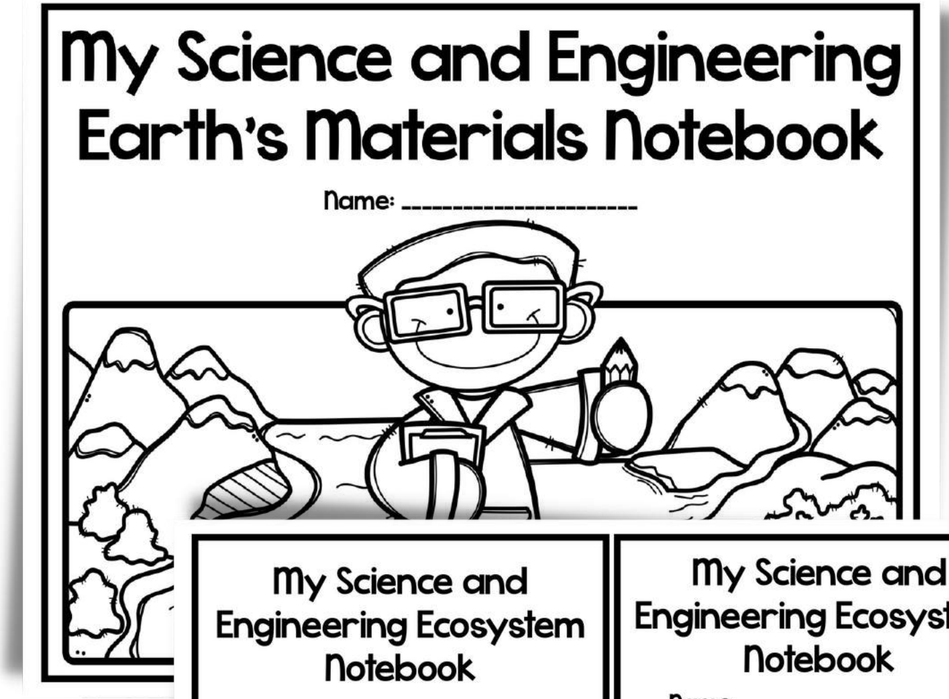


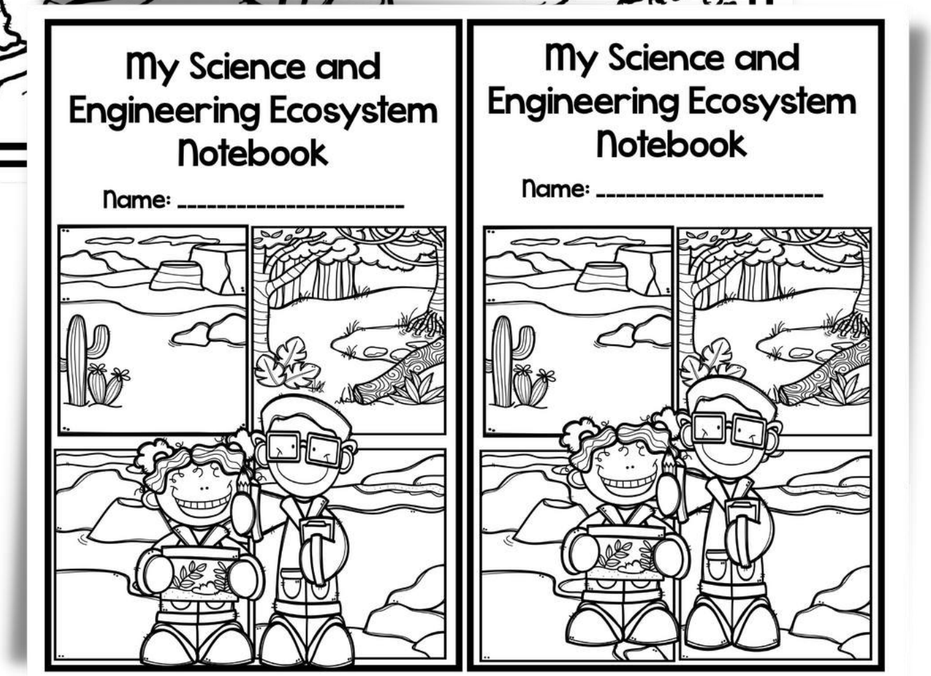
Lots of options inside each notebook.

With Answer Keys

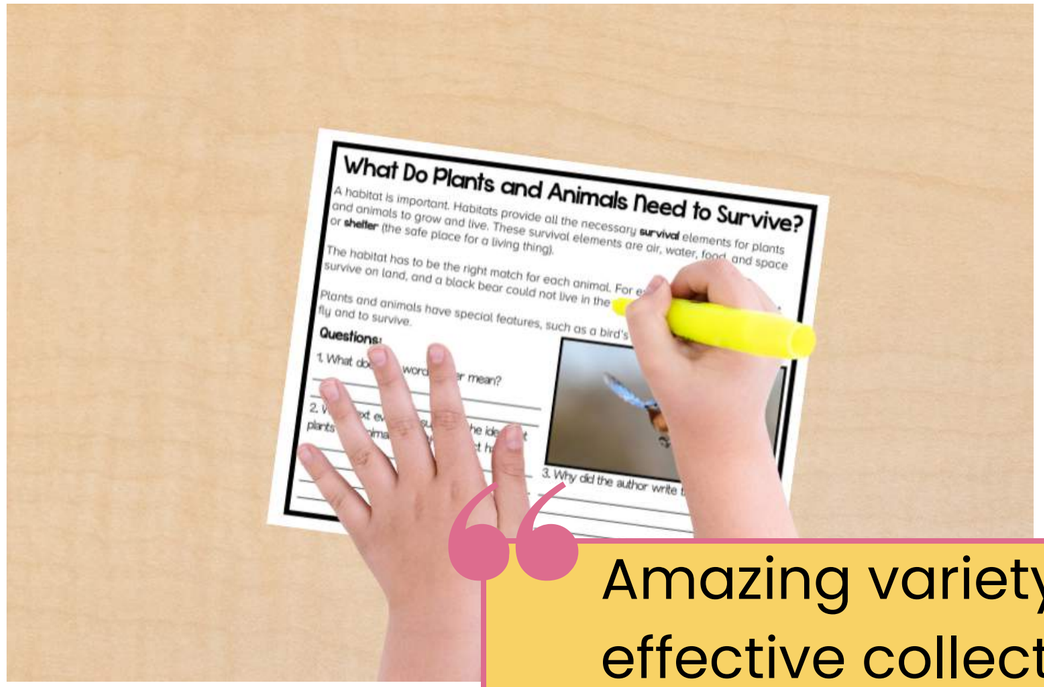
4 Student Notebooks

- Each student notebook contains student sheets, reading materials, and more inside of the notebook.
- 2 Print options available per notebook.





> Love the activities! It includes A LOT! I was sad to not be able to get to all of it, it takes a lot of time but very engaging and science-based. ~Cathryn A.



"I love this resource! It's very well set up, and it is very engaging! Great resource!

~Nicole N."

"Amazing variety and simple and effective collection of resources! I can't wait to use them all!
~Sandra T."

"Wonderful resource, just what I was looking for for STEAM!

~Renea W."