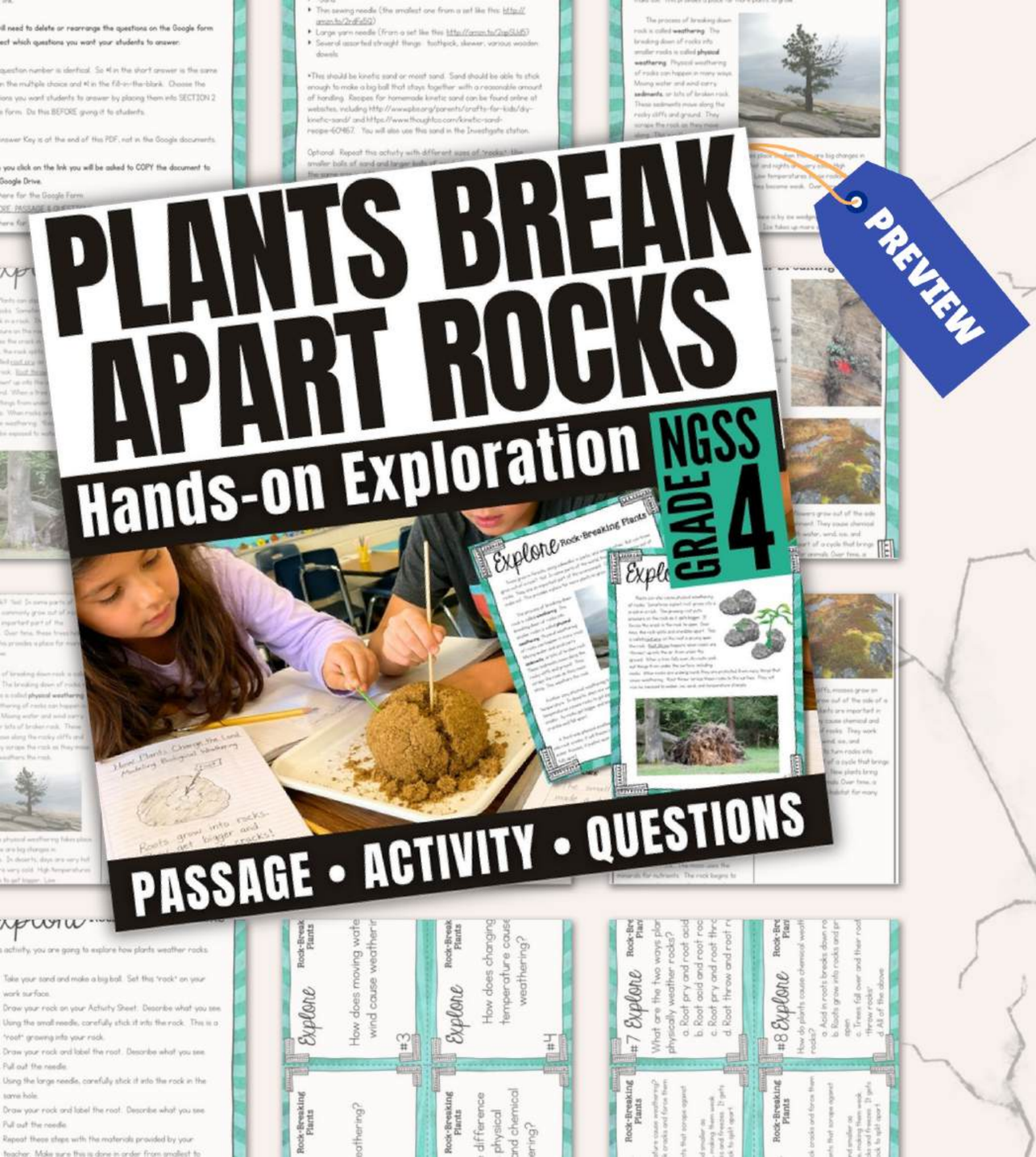


Plants vs. Rocks!

4TH GRADE

EXPLORE PLANTS THAT BREAK APART ROCKS

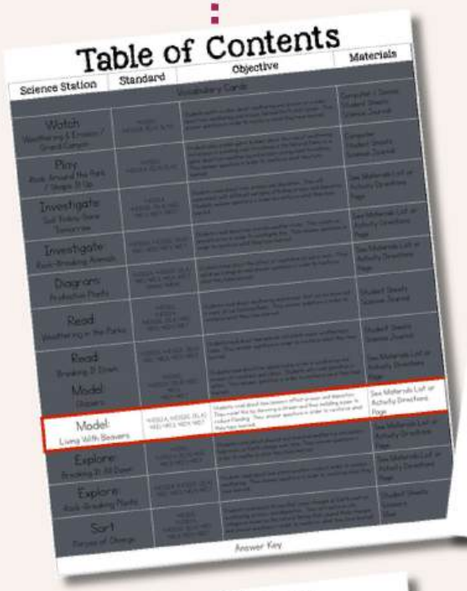
Weathering of Rocks 4th Grade Science

KEEP SCROLLING TO SEE WHAT'S INSIDE!

ACTIVITY OVERVIEW



- Students read a passage
- Students explore the flood water in a hands-on activity.
- Then lastly they will answer questions based on their exploration activity.


Table of Contents

Science Station	Standard	Objective	Materials
Watch			
Play			
Investigate			
Investigate			
Diagram			
Read			
Read			
Model			
Model: Living With Beavers			
Explore			
Explore			
Sort			

Answer Key


Science Stations Overview

Watch a Video
At this station, students will watch a video relevant to the topic and answer questions. You have the option of the included worksheet with the questions or use task cards and have students respond in their science journals.

Play a Video Game
Students play an online video game and answer questions about the experience. You have the option of the included worksheet with the questions or use task cards and have students respond in their science journals.

Investigate
Students use materials to investigate the science topic by following directions and recording results. Students answer questions about the investigation.

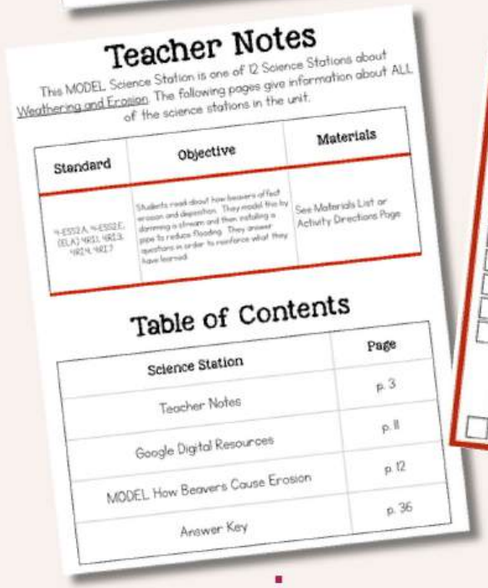
Draw a Diagram
Students draw and label a diagram specific to certain requirements. Students then explain how their diagram meets the requirements.

Read a Passage
Students read a short passage about the topic and answer questions about the information in the passage. You have the option of the included worksheet with the questions or use task cards and have students respond in their science journals.

Create a Model
Students use materials to illustrate the science concept and answer questions. You have the option of the included worksheet with the questions or use task cards and have students respond in their science journals.

Explore
Students create a sample and manipulate it using the new science concepts they have learned. Students answer question based on the effects.

Sort
Students sort cards into groups or put them in a specific order. Students record the sort and then describe their reasoning.

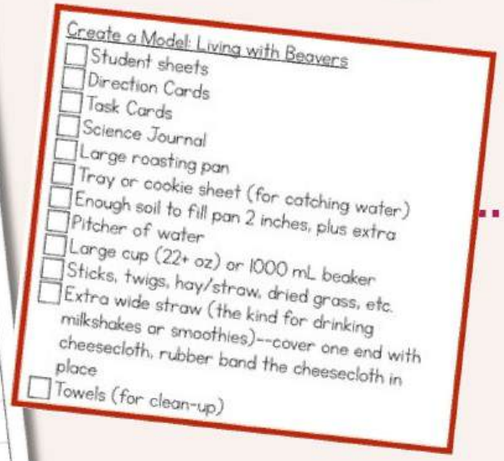

Teacher Notes

This MODEL Science Station is one of 12 Science Stations about Weathering and Erosion. The following pages give information about ALL of the science stations in the unit.

Standard	Objective	Materials
4-ESS2-A, 4-ESS2-E; ELA) RI.4.1, RI.4.3, RF.4.4, RF.4.7	Students read about how beavers affect erosion and deposition. They model this by damming a stream and then installing a pipe to reduce flooding. They answer questions in order to reinforce what they have learned.	See Materials List or Activity Directions Page

Table of Contents

Science Station	Page
Teacher Notes	p. 3
Google Digital Resources	p. 11
MODEL: How Beavers Cause Erosion	p. 12
Answer Key	p. 36


Create a Model: Living with Beavers

- [ ] Student sheets
- [ ] Direction Cards
- [ ] Task Cards
- [ ] Science Journal
- [ ] Large roasting pan
- [ ] Tray or cookie sheet (for catching water)
- [ ] Enough soil to fill pan 2 inches, plus extra
- [ ] Pitcher of water
- [ ] Large cup (22+ oz) or 1000 mL beaker
- [ ] Sticks, twigs, hay/straw, dried grass, etc.
- [ ] Extra wide straw (the kind for drinking milkshakes or smoothies)--cover one end with cheesecloth, rubber band the cheesecloth in place
- [ ] Towels (for clean-up)

Table of Contents

Science Station Overview

Materials Checklist

Table of Contents / Teacher's Notes

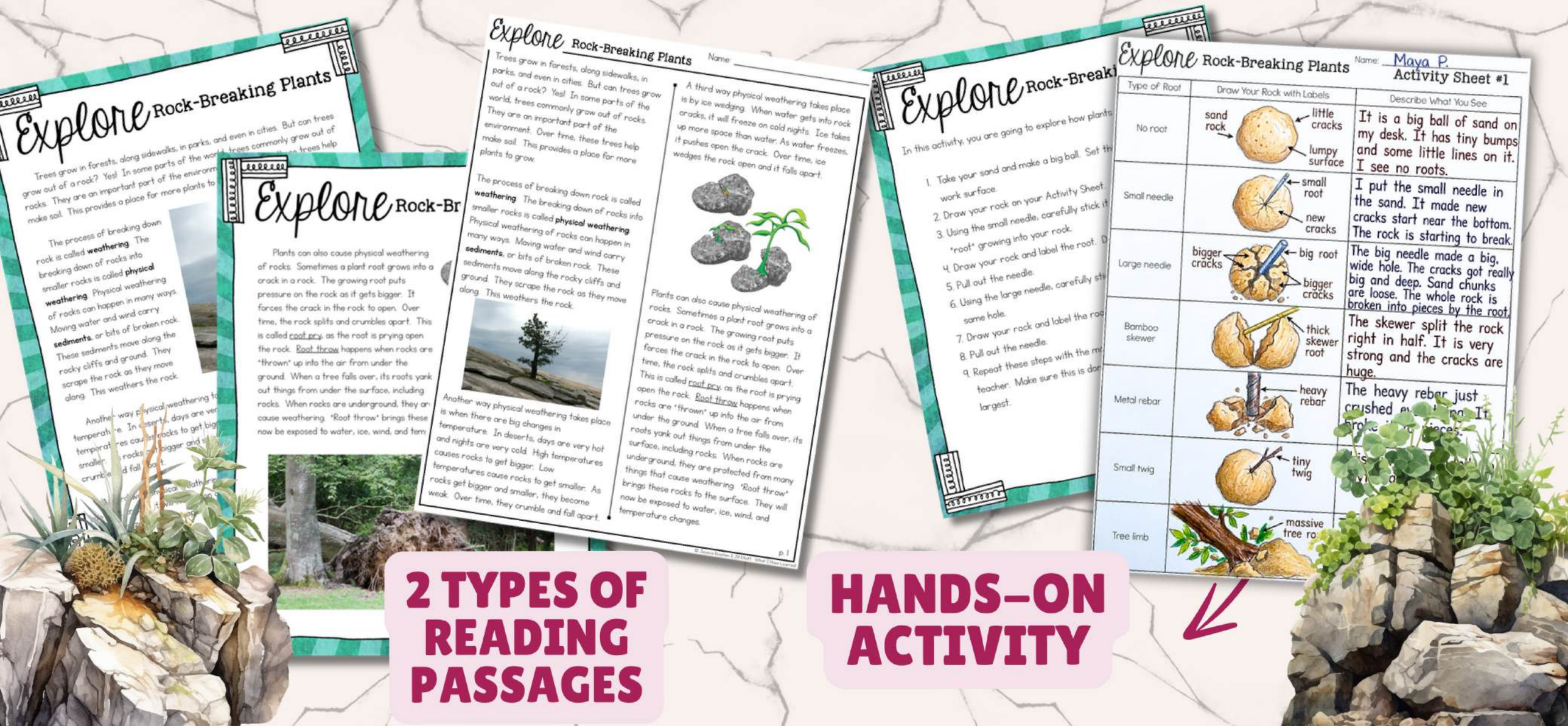
WHAT'S INCLUDED

EXPLORE SCIENCE STATION

- Teacher Notes
- Student Text in two formats
- Student Instructions
- Activity Sheets
- Differentiated Questions
- Answer Key
- Google Form
- Google Slides



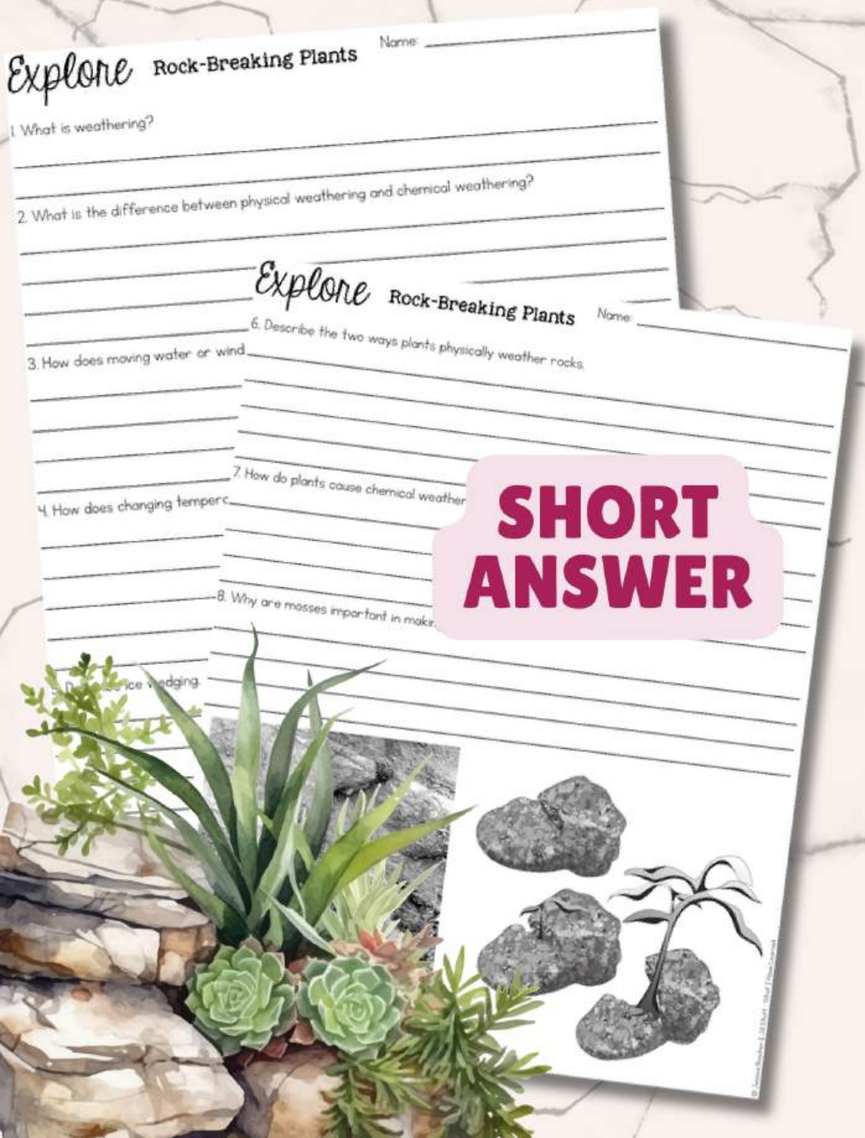
READING PASSAGE & ACTIVITIES

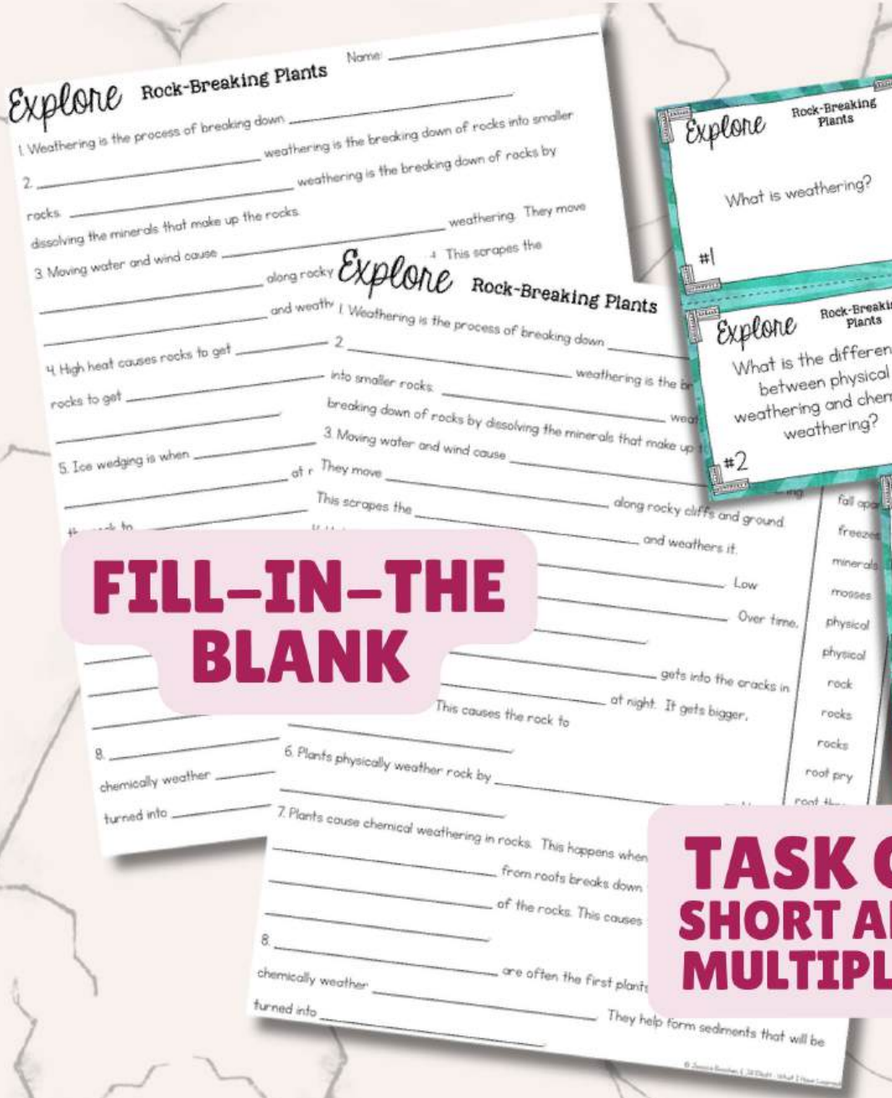


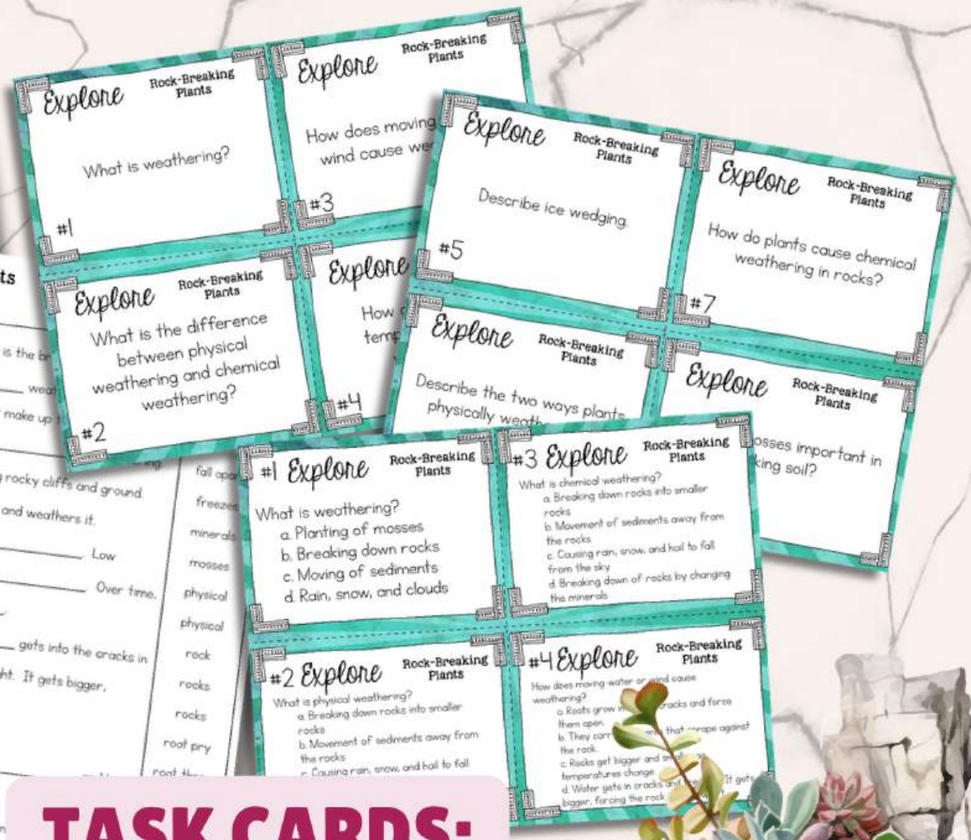
2 TYPES OF READING PASSAGES

HANDS-ON ACTIVITY

DIFFERENTIATED QUESTIONS







Explore Rock-Breaking Plants

Trees grow in forests, along sidewalks, in parks, and even in cities. But can trees grow out of a rock? Yes! In some parts of the world, trees commonly grow out of rocks. They are an important part of the environment. Over time, these trees help make soil. This provides a place for more plants to grow.



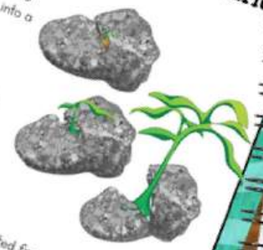
The process of breaking down rock is called **weathering**. The breaking down of rocks into smaller rocks is called **physical weathering**. Physical weathering of rocks can happen in many ways. Moving water and wind carry **sediments**, or bits of broken rock. These sediments move along the rocky cliffs and ground. They scrape the rock as they move along. This weathers the rock.

Another way physical weathering takes p
temperature. In deserts, days are very h
temperatures causes rocks to get bigg
smaller. As rocks get bigger and smal
crumble and fall apart.

A third way physical weath
into rock cracks, it will freeze
water freezes, it pushes op
falls apart.

Explore Rock-Breaking Plants

Plants can also cause physical weathering of rocks. Sometimes a plant root grows into a crack in a rock. The growing root puts pressure on the rock as it gets bigger. It forces the crack in the rock to open. Over time, the rock splits and crumbles apart. This is called root pry as the root is prying open the rock. Root throw happens when rocks are "thrown" up into the air from under the ground. When a tree falls over, its roots yank out things from under the surface, including rocks. When rocks are underground, they are protected from many things that cause weathering. "Root throw" brings these rocks to the surface. They will now be exposed to water, ice, wind, and temperature changes.





Explore Rock-Breaking Plants

Name: _____

1. Weathering is the process of breaking down _rocks_. _Physical_ weathering is the breaking down of rocks into smaller rocks. _Chemical_ weathering is the breaking down of rocks by dissolving the minerals that make up the rocks.
2. Moving water and wind cause _physical_ weathering. They move _sediments_ along rocky cliffs and ground. This scrapes the _rocks_ and weathers it.
3. High heat causes rocks to get _bigger_. Low temperatures cause rocks to get _smaller_. Over time, this causes rocks to _fall apart_.
4. Ice wedging is _water_ gets into the cracks in rocks. It then _freezes_ at night. It gets bigger, forcing the crack open. This causes the rock to _crumble_.
5. Plants physically weather rock by _root pry_ and by _root throw_.
6. Plants cause chemical weathering in rocks. This happens w _acid_ from roots breaks down the _minerals_ of the rocks. This causes the rock to _crumble_.
7. _Mosses_ are often the first plants to grow in a rocky place. They chemically weather _rock_. They help to form sediments that will be turned into _soil_.

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Explore Rock-Breaking Plants

What is weathering?

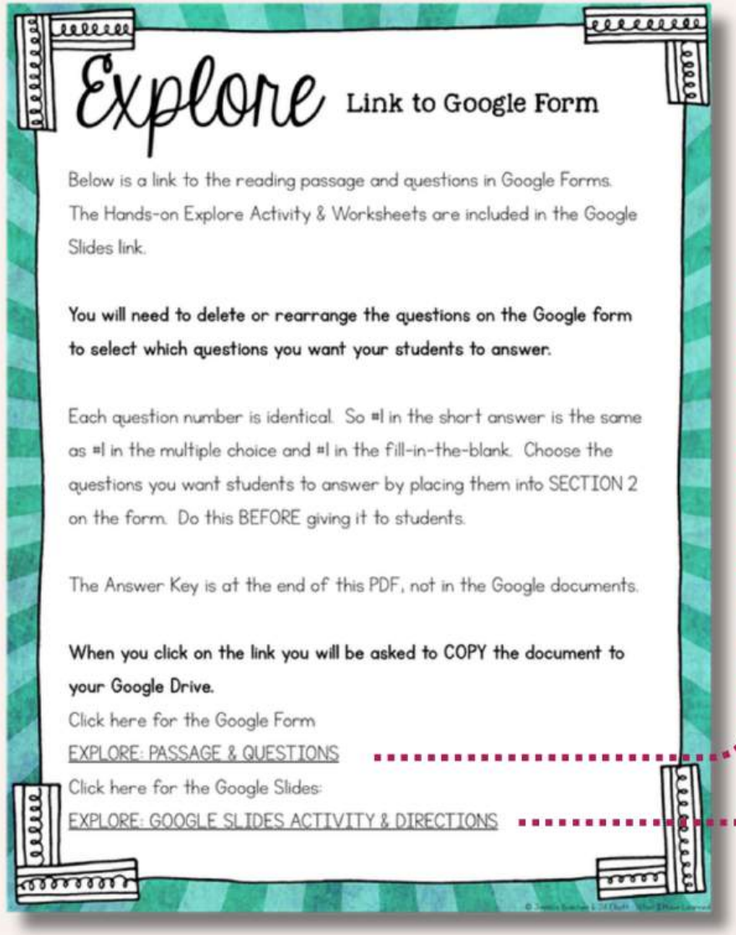
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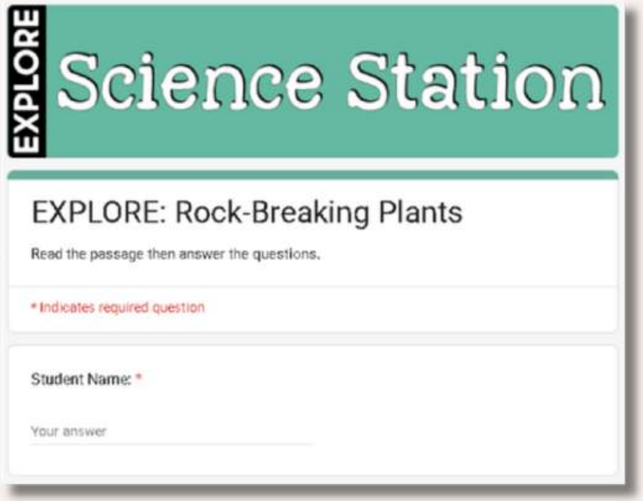
#1 Explore Rock-Breaking Plants

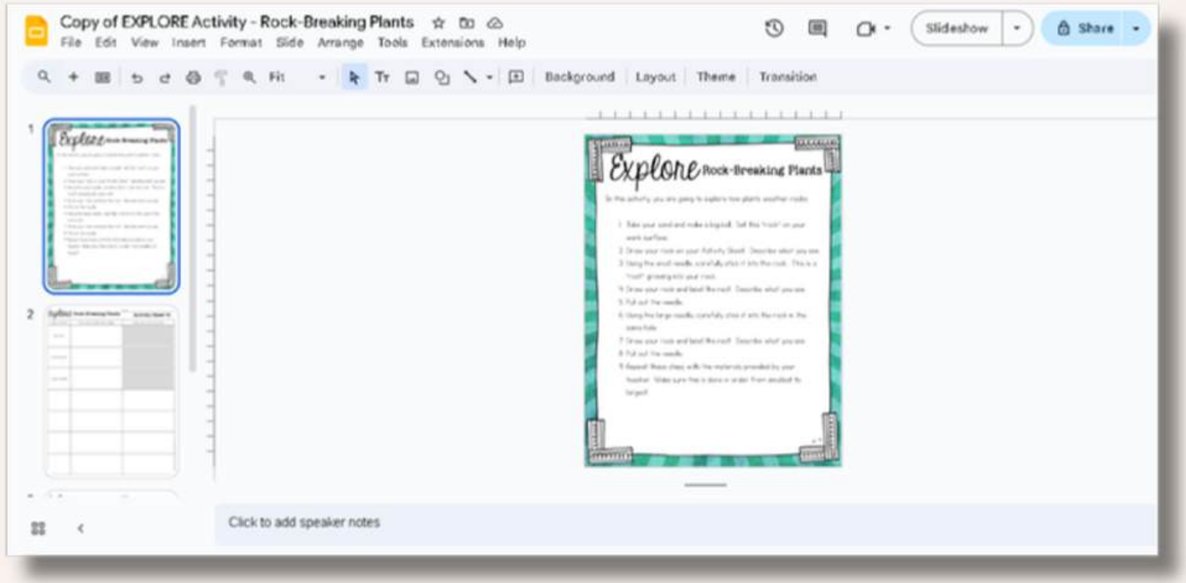
What is weathering?

a. Planting of mosses
b. Breaking down rocks
c. Moving of sediments
d. Rain, snow, and clouds

DIGITAL VERSIONS







DIGITAL VERSIONS

- ✔ Google Sheet with Activity & Directions
- ✔ Google Form with Reading & Questions

Answer keys provided

YOU WILL LOVE THIS BECAUSE



Interactive Activity

Students simulate how plant roots can break rocks using simple materials like kinetic sand and needles, allowing them to see the effects of root growth firsthand.



Aligned with NGSS

These lesson plans aren't just random; they're laser-focused on Next Generation Science Standards. No more curriculum guesswork!



Encourages Scientific Inquiry

Students develop hypotheses, conduct experiments, record data, and analyze their observations.

TEACHERS LOVE IT!

I love integrating science and reading, and this resource is great!

Jeana K.



Thank you for putting together this amazing science resource! My students were all engaged and I love the fact that it is differentiated.

Autumn K.



My passion is making learning accessible to all students.
I love scaffolding learning, breaking down the concepts and building them up so that students can see the connections.
I love figuring out the small components that build up to the big ideas and helping students see it all.



teach MATH | teach SCIENCE | teach READING | teach WRITING

What I have LEARNED