Let’s Learn About ROCKS

Quick View

What Are Some of the Ways We Use Rocks in Everyday Life?
We will seek out some of the many uses of stone as a tool, trade, fashion or building material. We’ll explore fancy rocks, useful rocks, edible rocks and fun rocks.

Materials
Collection of rocks (Petoskey stone, quartz, marble, sand, salt), stone mortar and pestle, items for comparison made from other materials, chalkboards, paper, sidewalk chalk, stones and pebbles.
A more detailed list can be found on Page 2.

Standards
NCECDTL, ELOF: Goal IT-ALT 3, 4, 5, 6, 7, 8, 9; Goal P-ATL 6, 7, 8, 9, 10, 11, 12, 13; Goal P-LC 1, 2, 3, 4, 5, 6, 7; Goal P-LIT 4, 5; Goal IT-C 1, 2, 3, 5, 6, 7, 9, 10, 12, Goal P-MATH 7, 8, 10; Goal P-SC 1, 2, 4, 5, 6; Goal IT-PMP 1, 2, 3, 4, 5, 6, 7, 8; Goal P-PMP 2, 3; MI Standards: SS 1, 3.

Model i Innovation Learning Framework
Throughout this lesson, there will be opportunities to bring in Model i’s Habits of an Innovator and Actions of Innovation.

More information on Model i can be found at:
thf.org/education/teaching-innovation/modeli

Lesson Overview

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<td>Explain that rocks come from the ground.</td>
<td>Discover the properties of rocks through a worksheet.</td>
<td>Write and draw with sidewalk chalk. Create art with rocks.</td>
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<td>Show the Loranger Gristmill and Dr. Howard’s Office to show how hard rock was used to grind grain and medicine.</td>
<td>Read stories to inspire your students, including A Rock Can Be by Laura Purdie Salas, Stone Soup by Jon J. Muth, The Magic School Bus: Inside the Earth by Joanna Cole.</td>
<td>Show students Cotswold Cottage at The Henry Ford.</td>
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<td>Provide many examples of rocks for touch exploration.</td>
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Materials

Explore
Activity: Touch Exploration
- Marble
- Granite
- Salt
- Mortar and pestle
- Chalk
- Pumice
- Slate
- Salt lamp
- Piece of drywall
- Coal
- Cooking stones

Create
Project 1: Sidewalk Chalk
- Sidewalk chalk
- Chalkboards, paper or the sidewalk

Create
Project 2: Rock Art
- Assortment of rocks
- Paper

Discover
Activity Sheet
- Assortment of rocks
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Lesson Guide

Explore

Stay Curious, Uncover

What Are Rocks? .......... Page 4
Why Choose Rocks? ........ Page 4
Activity: Touch Exploration ...... Page 4
Links & Photos .................. Pages 5-8

Discover

Stay Curious, Collaborate, Uncover

How Do Rocks Reach the Surface? .......... Page 9
Links & Photos ........................ Page 10
Activity Sheet ......................... Page 11

Artifact of the Day

Stay Curious, Uncover

Cotswold Cottage ............... Page 12
Links & Photos ..................... Pages 13-14

Create

Design, Learn from Failure

Can You Write with Rocks?
Project 1: Sidewalk Chalk ........ Page 15
Links & Photos ..................... Page 16

What Can You Make with Rocks?
Project 2: Rock Art ................. Page 17

Inspiring Stories

Stay Curious, Be Empathetic
Read Stories to Inspire Your Students ........ Page 18

Review & Extend

Stay Curious, Collaborate
Ask Students Specific and Open-Ended Questions .... Page 19
Family Connection .................. Page 20
Coloring Sheet ..................... Page 21
Let’s Learn About ROCKS

What Are Rocks?

Teachers should start this lesson by briefly explaining to students that rocks come from the ground and can have very different properties, like shape, size, color, texture and hardness, depending on the types of rocks they are.

Types of Rocks:
- Marble
- Granite
- Limestone
- Slate
- Pumice
- Coal
- Chalk
- Rock salt

Explain that rocks are made of different minerals found in the ground. Some can burn, like coal, for heat, while others can be used in food, like salt, to add flavor. Some minerals can also make rocks harder than others, which can be very useful.

Why Choose Rocks?

Let students compare and contrast everyday items made from rocks with similar items made from other materials to discover why rock is more durable, versatile, useful or beautiful.

Show students the images of the Loranger Gristmill along with images of the grindstones that would have been used to grind large quantities of grain. Teachers may also choose to show students a stone mortar and pestle, which would have been used at Dr. Howard’s Office. This is how early doctors would have made their own medicine. If available, demonstrate how a mortar and pestle can grind grain or might be used for medicine.

Show pictures from Grimm Jewelry of rocks being used in beautiful settings.

Have a discussion with students about why they think some items would be made of more durable rocks and others might be made of less durable rocks.

Everyday Item Ideas:
- Marble bowls
- Candle holders
- Cutting boards
- Jewelry
- Salt lamp
- Piece of drywall
- Cooking stones

Activity

Touch Exploration
- Provide students with as many different examples of rocks as possible.
- Have students identify other items they think might be made of stone.

Links and photos for this section are on Pages 5-8.

Model i Innovation Learning Framework

Stay Curious, Uncover
- Ask questions like what, why, how.
- What do you see (characteristics, properties)? What problems does this material help us solve?
Let’s Learn About
ROCKS

Explore — Links

Loranger Gristmill Grindstones
thf.org/collections-and-research/digital-collections/artifact/107365#slide=gs-221988

Additional Resources
Loranger Gristmill, 1832
thf.org/collections-and-research/digital-collections/artifact/107365#slide=gs-214033
Let’s Learn About
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Explore — Links

Mortar and Pestle

Additional Resources
Dr. Howard’s Office, 1839
thf.org/collections-and-research/digital-collections/artifact/25075
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Explore — Links

Grimm Jewelry, originally built on Michigan Avenue, Detroit, 1835

thf.org/collections-and-research/digital-collections/artifact/246683
Let’s Learn About ROCKS

Explore — Links

**Necklace, Pendant, Earrings, gold and amethyst (mineral), 1865**
thf.org/collections-and-research/digital-collections/artifact/272282

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**Additional Resources**

**Brooch, gold and garnet (mineral), 1860**
thf.org/collections-and-research/digital-collections/artifact/6086#slide=gs-177717

**Mourning Ring, gold and lapis lazuli (rock), 1716**
thf.org/collections-and-research/digital-collections/artifact/57146
Let’s Learn About
ROCKS

Discover

How Do Rocks Reach the Surface?
Show clip of plowing with horses (link on Page 10), still pictures of Firestone Farm fall preparation or ask if anyone has ever seen plowing in a field. Discuss how, when turning over the earth, more rocks work their way to the surface and how rocks are then removed by farmers so they do not interfere with growing crops.

Activity
Where Do Rocks Live?
After learning about how rocks make their way to the surface, students should discover how they can also remove rocks from the ground by exploring outdoors or by digging through sand (with stones added) in a container in the classroom. Have students collect a number of different rocks. Using the rocks they collected, have students complete the Activity Sheet on Page 11.

Model i Innovation Learning Framework
Stay Curious, Collaborate, Uncover
- Ask questions like what, why, how.
- Talk about helping, work together.
- What do you see (characteristics, properties)? What problems does this material help us solve?
Let’s Learn About
ROCKS

Discover — Links

Greenfield Village Harvest: Firestone Farm — Plowing
https://www.youtube.com/watch?v=2ixuA2GrDq0

Additional Resources
Firestone Farmhouse
thf.org/collections-and-research/digital-collections/artifact/20858
Examine Your Rocks
Write down how many you have for each question.

How many SMALL rocks? ________________________  How many LARGE rocks? ________________________

How many SMOOTH rocks? ________________________  How many ROUGH rocks? ________________________

How many LIGHT rocks? ________________________  How many DARK rocks? ________________________

Draw them!
Let’s Learn About
ROCKS

Artifact of the Day

Establish Context

Cotswold Cottage is from the Cotswold Hills in southwest England. Henry and Clara Ford were attracted to the distinctive character of Cotswold buildings, which are characterized by yellow-brown stone, tall gables, steeply pitched roofs and stone ornamentation around windows and doors.

What Is Cotswold Cottage Made Of?

Show students pictures of the cottage, barn and fences, all of which are made of stone.

Early glass windows were made by blowing and then flattening the glass bubbles. Note: An upcoming lesson will be about sand and glass.

Additional Activities

Discover the various stone materials, like cement or brick, in your building by going on a scavenger hunt with your students.

Let students try to stack rocks to see if they can build with rocks. What ways can they think of to make this work?

Model i Innovation
Learning Framework

Stay Curious, Uncover

- Ask questions like what, why, how.
- What do you see (characteristics, properties)? What problems does this material help us solve?

Links and photos for this section are on Pages 13-14.
Let’s Learn About
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Artifact of the Day — Links

Cotswold Cottage, 1619
thf.org/collections-and-research/digital-collections/artifact/209967
Let’s Learn About ROCKS

Artifact of the Day — Links

Cotswold Barn and Stable
thf.org/collections-and-research/digital-collections/artifact/196426

Additional Resources

Cotswold Dovecote
thf.org/collections-and-research/digital-collections/artifact/247086

Cotswold Forge
thf.org/collections-and-research/digital-collections/artifact/169611
Let’s Learn About ROCKS

Create — Can You Write with Rocks?

Project 1: Sidewalk Chalk

Explain to students that rocks have many uses as tools or even as writing instruments. Then provide sidewalk chalk for drawing on paper or outside.

Slate chalkboard can also be used to demonstrate writing with rocks. Show pictures of Miller School (link on Page 16), where teachers would have written lessons on the chalkboard.

Materials

• Sidewalk chalk
• Chalkboards, paper or the sidewalk

Instructions

1. Give students various colors of chalk and paper to create their own designs.
2. Weather permitting, this project can be moved outside.

Model i Innovation Learning Framework

Design, Learn from Failure

• Make, build and create.
• Talk about “trying again,” what’s another way to...

Create — Can You Write with Rocks?
Let’s Learn About
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Create — Links

Miller School, 1943

thf.org/collections-and-research/digital-collections/artifact/172734
Let’s Learn About ROCKS

Create — What Can You Make with Rocks?

Project 2: Rock Art
Give students a collection of rocks and stones that they can arrange to create pictures on a sheet of paper or outdoors on a sidewalk.

Materials
- Small rocks and stones, various shapes, sizes and colors
- Options: paper or outdoors

Instructions
- Give students a variety of stones and paper to create their own designs.

Model i Innovation Learning Framework
Design, Learn from Failure
- Make, build and create.
- Talk about “trying again,” what’s another way to...

Create — What Can You Make with Rocks?
Let’s Learn About ROCKS

Inspiring Stories

Read Stories to Inspire Your Students

A Rock Can Be...
by Laura Purdie Salas

Stone Soup
by Jon J. Muth

The Magic School Bus: Inside the Earth
by Joanna Cole

Model i Innovation Learning Framework

Stay Curious, Be Empathetic

• Ask questions like what, why, how.
• How did the characters in the stories feel? How might it make others feel?
Let’s Learn About ROCKS

Review & Extend

Ask Students Specific and Open-Ended Questions

- What was your favorite part of the stories we read?
- Tell me about your favorite activity today.
- What else could you do with rocks?

Model i Innovation Learning Framework

Stay Curious, Collaborate

- Ask questions like what, why, how.
- Talk about helping, work together.

Family Connection

Send the worksheet on Page 20 home with students to be completed at the end of the lesson.

Coloring Sheet

Have students color the picture on Page 21 as a part of the lesson, or send it home to be colored.
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Review & Extend — Family Connection

Take the Learning Home

We are learning about rocks because they are used in many items we use every day.

Please take your student on a scavenger hunt through your home and neighborhood to see what stone items you can find. What are some of these things? Have them draw what they find.

These are some of the stories related to our learning. You might enjoy reading them with your student.

- If Rocks Could Sing by Leslie McGuirk
- Everybody Needs a Rock by Byrd Baylor
- Rhoda’s Rock Hunt by Molly Beth Griffin
Let’s Learn About

ROCKS

Coloring Sheet

Cotswold Cottage