Let’s Learn About WOOD & ROCK

Quick View

What Kinds of Everyday Items Can We Create When We Combine Wood and Rock?

Take a fresh look at wood and rock to discover how these materials are combined to create useful new objects we use in our daily lives.

Materials

Slate chalkboards, pencils, mortar and pestles (wood and stone versions), baking stone, wood utensils, rolling pins, cutting board, construction paper, chalk, stones, twigs, tissue paper (reds, oranges and yellows), flat rocks, wood piece for game board, white chalk paint or acrylic paint.

A more detailed list can be found on Page 2.

Standards

NCECDTL, ELOF: Goal IT-ALT 3, 4, 5, 6, 7, 8; 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-SCI 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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<th>STEAM</th>
<th>ELA/LIT</th>
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<tr>
<td><strong>Explore</strong></td>
<td><strong>Discover</strong></td>
<td><strong>Create</strong></td>
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<tr>
<td>Ask what students remember about how wood and rock are used.</td>
<td>Create trails for students to follow using the Native American trail markers sheet.</td>
<td>Create a picture using chalk on construction paper.</td>
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<td>Compare and contrast the characteristics of wood versus rock.</td>
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<td>Make a classroom “campfire” to read stories by.</td>
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<td>Explore the classroom and playground for items made with wood and rock.</td>
<td>Paint tic-tac-toe rocks to play on a wooden board.</td>
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<tr>
<td>Stay Curious, Collaborate, Uncover</td>
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<td>Stay Curious, Be Empathetic</td>
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</table>
Let’s Learn About
WOOD & ROCK

Explore
Activity — Touch Exploration
- Teachers should provide as many examples of wood and rock objects as possible for touch exploration.

Create
Project One — Chalk Drawing on Construction Paper
- Chalk, various colors
- Construction paper

Create
Project Two — Inspiring Stories Campfire
- Enough rocks to make a circle
- Enough sticks, 1-2 inches thick, to fill in the circle
- Tissue paper in shades of yellow, orange and red

Create
Project Three — Tic-Tac-Toe Game
- 10 rocks
- Wood board, large enough to accommodate all 10 rocks or 4 sticks large enough to create a tic-tac-toe grid
- Chalk paint, white (other paint will also work, such as acrylic)
Let’s Learn About
WOOD & ROCK

Lesson Guide

Explore
Stay Curious, Collaborate, Uncover
What Can Be Made with Wood and Rock? Compare, Contrast, Combine
Activity: Touch Exploration
Links & Photos

Discover
Stay Curious, Collaborate, Uncover
Activity: Trail Markers Using Wood and Rocks

Artifact of the Day
Stay Curious, Uncover
Coaling Tower
Links & Photos

Create
Collaborate, Learn from Failure, Design
What Can We Make with Wood and Rock?
Project 1: Chalk Drawing on Construction Paper
Project 2: Inspiring Stories Campfire
Project 3: Tic-Tac-Toe Game

Inspiring Stories
Stay Curious, Be Empathetic
Read Stories to Inspire Your Students

Review & Extend
Stay Curious, Collaborate
Ask Students Specific and Open-Ended Questions
Family Connection
Coloring Sheet
Let’s Learn About
WOOD & ROCK

What Can Be Made with Wood and Rock?

Teachers can help students remember how wood and rock are used from previous lessons: Early on, wood was used in cars and airplanes, furniture, boats and building homes; rock has been used to grind food and medicine, to write with, to build with.

Compare, Contrast, Combine

Teachers can help students think of the differences between wood and rock: which is stronger, which can float, which can make pans for the oven, which can bend, etc.

Teachers can help students discover what happens when you combine the two materials by reviewing with them the pictures of the Loranger Gristmill, a wooden building that housed the grinding stones that turned kernels of grain into flour. Teachers can share snacks of corn, wheat or oats and explain that the gristmill made flour that was turned into food products like these. Teachers can also show Cotswold Cottage, a wood frame home where all the walls are then made with stones. Also show the Child’s Slate to demonstrate items for students made with wood and rock.

Teachers can help students imagine why wood and rock might be used together and what else might be made with wood and rock. Bring their focus to pencils as a common combination of wood and rock. Most pencils are graphite, which is a natural element occurring in metamorphic and igneous rock.

Activity

Touch Exploration

Students can explore how wood and rock have been used around the classroom, school and playground (weather permitting) to create everyday items.

Perhaps your playground has a wooden play scape with fine stone as the base, or your school building is made with concrete (crushed rock) but has wood features (doors, arches, floors, etc.) or a marble top table in the classroom, library or office.

Model i Innovation Learning Framework

Stay Curious, Collaborate, Uncover

• Ask questions like what, why, how.
• Talk about helping, working together.
• What do you see (characteristics, properties)? What problems does this material help us solve?
Let’s Learn About
WOOD & ROCK

Explore — Links

Loranger Gristmill, 1832

thf.org/collections-and-research/digital-collections/artifact/107365#slide=gs-214033
Let’s Learn About
WOOD & ROCK

Explore — Links

Grindstones
thf.org/collections-and-research/digital-collections/artifact/107365#slide=gs-221988
Let’s Learn About
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Explore — Links

Cotswold Cottage, 1614, Wood Frame, Stone Walls

thf.org/collections-and-research/digital-collections/artifact/209967
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Explore — Links

Interior of Cotswold Cottage

thf.org/collections-and-research/digital-collections/artifact/389381

thf.org/collections-and-research/digital-collections/artifact/389368
Let’s Learn About
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Explore — Links

Child’s Slate, 1880-1910
thf.org/collections-and-research/digital-collections/artifact/124876
Activity
Trail Markers Using Wood and Rocks
Teachers can explain that rocks and wood have been used together for centuries as ways to mark trails. Using the guide with this lesson, teachers can lay out trail markers and help students use the guide to follow the trail, or teachers can help students use twigs and rocks to make Native American trail marker signs.

Model i Innovation Learning Framework
Stay Curious, Collaborate, Uncover
• Ask questions like what, why, how.
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<tr>
<th>STRAIGHT AHEAD</th>
<th>TURN RIGHT</th>
<th>TURN LEFT</th>
<th>DO NOT GO THIS WAY</th>
<th>I HAVE GONE HOME</th>
<th>NUMBER OF PACES IN DIRECTION INDICATED</th>
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<tr>
<td>ROCKS</td>
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Let’s Learn About
WOOD & ROCK

Artifact of the Day

What Is a Coaling Tower?
Coaling towers, like the replica of one built for Greenfield Village in 2014 pictured on the next page, were an essential part of steam railroading. Without them, there was little way to effectively fuel the motive power of the trains. Built of wood, this tower delivered coal (a sedimentary rock) that is burned to create steam in the boilers of locomotives.

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 12-14.
Let’s Learn About
WOOD & ROCK
Artifact of the Day — Links

Coaling Tower
Let’s Learn About
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Artifact of the Day — Links
Let’s Learn About

WOOD & ROCK

Artifact of the Day — Links
Project 1: Chalk Drawing on Construction Paper

Students can create a fun and colorful picture with wood pulp (paper) and crushed rocks (chalk).

Materials
• Chalk, various colors
• Construction paper

Instructions
1. Give students various colors of chalk and paper to create their own designs.

Model i Innovation Learning Framework

Collaborate, Learn from Failure, Design
• Talk about helping, working together.
• Talk about “trying again,” what’s another way to...
• Make, build and create.
Let’s Learn About
WOOD & ROCK
Create — What Can We Make with Wood and Rock?

**Project 2: Inspiring Stories Campfire**

Students can work together to make a campfire to gather around for their Inspiring Stories.

**Materials**

- Enough rocks to make a circle
- Enough sticks, 1-2 inches thick, to fill the circle
- Tissue paper in shades of yellow, orange and red

**Instructions**

1. Place rocks in a circle.
2. Place sticks inside circle.
3. Cut 12-inch squares of the various colors of tissue paper. Square size can be adjusted, according to size of rocks.
4. Put differing colors of tissue paper together, and push centers of squares into spaces between sticks to create your “flames.”

**Model i Innovation Learning Framework**

**Collaborate, Learn from Failure, Design**

- Talk about helping, working together.
- Talk about “trying again,” what’s another way to...
- Make, build and create.

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![Campfire Image](thf.org/innovationlearning)
Let’s Learn About
WOOD & ROCK
Create — What Can We Make with Wood and Rock?

Project 3: Tic-Tac-Toe Game
Teachers can assist students in painting X’s and O’s on small rocks and drawing lines on wood for tic-tac-toe.

Materials
- 10 rocks
- Wood board, large enough to accommodate all 10 rocks or create a tic-tac-toe grid with 4 sticks.
- Chalk paint, white (other paint will also work, such as acrylic)

Instructions
1. Using chalk paint, draw 2 vertical parallel lines and cross with 2 horizontal parallel lines on board for tic-tac-toe or create a tic-tac-toe grid with 4 sticks.
2. Paint an X on 5 of the rocks and an O on the other 5 using the chalk paint.
3. Optional: Board and rocks can be coated with polyurethane to preserve.

Model i Innovation Learning Framework
Collaborate, Learn from Failure, Design
- Talk about helping, working together.
- Talk about “trying again,” what's another way to...
- Make, build and create.
Let’s Learn About
WOOD & ROCK
Innovating Stories

Read Stories to Inspire Your Students

What Do You Do with an Idea?
by Kobi Yamada

Stone Soup
by Jon J. Muth

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 the stories make others feel?
Let’s Learn About
WOOD & ROCK
Review & Extend

Ask Students Specific and
Open-Ended Questions

• What was the most interesting/fun activity we did today?
• Tell me what happened in the stories today.
• What was the best thing made of wood and rock that we talked about today and why was it the best?
• What would you make with wood and rock?

Family Connection
Send the worksheet on Page 19 home with students to be completed at the end of the lesson.

Coloring Sheet
Have students color the picture on Page 20 as a part of the lesson, or send it home to be colored.

Model i Innovation Learning Framework

Stay Curious, Collaborate

• Ask questions like what, why, how.
• Talk about helping, working together.
Let’s Learn About
WOOD & ROCK

Review & Extend — Family Connection

Take the Learning Home

We are learning **wood and rocks** as they are combined to make many items we use every day.

Please take your student on an "I Spy" adventure through your home to see what wood and rock items you can find. What are some of these things? (Maybe your kitchen cabinets are wood with some type of stone countertops?) A trip through your neighborhood might also reveal some interesting ways wood and rock have been used in homes, businesses or playgrounds. Have them draw what they find.

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

*The Street Beneath My Feet* by Charlotte Guillain

*Not Yet* by Lisa Cox

*The Thing Lou Couldn’t Do* by Ashley Spires
Coaling Tower