

# Jay Curriculum: Unit Cover Page

**Unit title:** Rocks **Grade Level:** 3  
**Content Area(s):** Science **Date Created:**  
**Designed By:** Jay Third Grade Teachers

## Year 1 Map & Template Development

- Map/Matrix Completed
- Material & Resources Listed
- Draft Design Template Completed
- Initial Draft Template Document

## Year 2 Piloting

- Develop:
- Performance Tasks
- Other Assessments
- Scoring Rubrics
- Piloted

## Year 3 Review & Complete Assessment

- Performance Tasks Development
- Other Assessments Completed
- Scoring Rubrics Completed
- Reviewed/Revised Templates

## Year 4

- Full Implementation
- Benchmarks Established

### Standard(s)/Performance Indicators:

- D1 Identify present day organisms that have not always existed, and past life forms that have become extinct
- D2 Describe how fossils form
- E1 Describe how the physical properties of objects sometimes change when one object chemically combines with another
- E2 Explain how matter changes in both chemical and physical ways
- F1 Describe the change in position of the continents over time
- F2 Demonstrate an understanding that many things about the earth (e.g. climate) occur in cycles that vary in length and frequency
- F3 Describe differences among minerals, rocks, and soil
- J1 Make accurate observations using appropriate tools and units of measure
- J2 Conduct scientific investigations: make observations, collect and analyze data, and do experiments
- J3 Use results in a purposeful way: design fair tests, make predictions based on observed patterns, and interpret data to make further predictions
- K1 Give alternative explanations for observed phenomena
- K2 Describe how feelings can distort phenomena
- K3 Draw conclusions about observations
- K5 Demonstrate an understanding that ideas are more believable when supported by good reasons
- K6 Practice and apply simple logic, intuitive thinking and brainstorming
- L1 Record results of experiments or activities (e.g. interviews, discussions, field work) and summarize and communicate what they have learned
- L2 Ask clarifying and extending questions
- L3 Reflect on work in science and technology using such activities as discussions, journals, and self-assessment
- L4 Make and/or use sketches, tables, graphs, physical representations, and manipulatives to explain

procedures and ideas

- L5 Gather and effectively present information, using a variety of media including computers (e.g. spreadsheets, word processing, programming, graphics, modeling)
- L6 Cite examples of bias in information sources and question the validity of information from varied sources
- L7 Function effectively in groups within various assigned roles (e.g. reader, recorder)

**Unit:** Rocks

### **Brief Summary of Unit/Topic**

#### **Summary:**

This unit is broken down into several studies:

- What's inside a rock? This part shows that rocks are made up of one or more minerals and these minerals have different properties.
- Do rocks change? A study of how weathering changes rocks and eventually they become part of the soil. Rocks change as a result of chemical exposure/mixture.
- How do rocks form? Different rocks are made and remade all over the earth. A simple experiment using a baby food jar, dirt, water and time shows how sedimentary rocks formed. To show pressure of layers within the earth, peanut butter and jelly sandwich experiments are used. Also, students will create their own fossils to understand that they are actually prints of plants and animals left in stone.
- How do land forms change? This piece shows how through millions of years water, wind, and ice change the surface of the earth. This will lead students to study about glaciers and their impact on "Mother" earth
- A final experience takes students to a rock mine for hands-on investigation.

### **Stage #1: Identify Desired Results**

#### **Essential Question/s:**

#### **General understanding/s (What is worth being familiar with?)**

Students will investigate to discover:

- What rocks are made of
- How they are formed
- Changes that take place to rocks from within and without
- That rocks form the surface of the earth
- That the masses of rock on the surface move and change

#### **Students will know:**

- That rocks are mixtures of different minerals
- That external forces (wind, water, ice) cause rock to change
- That exposure to chemicals causes change
- That rocks are formed by heat, pressure, and/or both
- That internal changes in the earth causes change (earthquakes, volcanoes)
- How to access a rock through prediction, examination, testing and reporting.

#### **Students will be able to:**

- Formulate a model
- Predict, observe, classify, and interpret data
- Keep activity logs
- Read science materials for information
- Conduct scientific investigation

#### **Enduring Understanding/s:**

- Student will understand how rock is formed and is changed by external and/or internal forces
- Student will identify rock as the substance that forms the surface of the earth.

## Stage #2: Evidence

What evidence will students have to provide in order to demonstrate that they have developed the skills, knowledge and understanding to successfully complete this unit?

Performance Tasks/Products/other assessments Performance tasks should have a <u>scoring guide</u> .	<i>Performance Indicators</i> for this task.* Example: <b>ELA: C- 1,2,3</b> <b>Science: B- 3,5,7</b> <b>SS His: H- 2</b>	<u>Modalities</u> <b>K</b> =Kinesthetic <b>O</b> =oral <b>V</b> =visual <b>W</b> =written	Are <u>examples</u> available to students ? <b>Y, N, or N/A</b>	Component of Local Assessment System?  <b>Y or N</b> (See <a href="#">aligned scoring guide</a> .)
Observe a diagram of the rock cycle that shows how forces deep within the earth and on the surface can change the form of rocks. Students will read clues and decide if the rocks are igneous, metamorphic and sedimentary.	F2			
Students will understand that all fossils are plant and animal parts or prints left in stone. Students will create a fossil using a choice of fossil items such as shells, leaves, or bone	D1,D2			
Students observe how chemical weathering changes rocks when chalk is immersed in vinegar by recording or drawing observations in science journals	E1, E2			
After sharing the book <u>Discovery of the Americas</u> students will vote their opinion on the possibility that our continents might have been one land mass and will follow up their hypothesis by cutting out a map of the continents to see if they will fit together as one land mass	F1			
Students will choose a "pet" rock and predict characteristics such as length, mass, hardness, acidity, and density. Using appropriate tools they will test these predictions and record their findings on a chart	J1, J2, J3, L1, L4, L3			
Students will compare and contrast the differences between minerals, rocks, and soils through literature study, activities and experiments	F3, L2			
Students will understand that every culture has its legends about how land forms were created. Students will work in groups to create their own legends explaining how Moosehead Lake, Mount Katahdin and the Androscoggin came to be.	K1-3, K5,6; L5-7			

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QUIZZES, TESTS, PROMPTS				
Students will create a legend to explain the creation of Moosehead Lake, Mount Katahdin and/or the Androscoggin River				
Unit test over rock concepts				
OTHER				
Teacher will evaluate student choices				
Students will have a created "fossil" to display				
Teacher evaluation of science journal				
Students will prove their hypothesis with the results of their activity				
Assess with rubric				
Students will display their findings on a bulletin board that has been labeled in each category (mass, hardness, acidity, density)				
Students will publish a booklet of their legends				
STUDENT SELF ASSESSEMENT				
Completion checklists				
Standards checklists				
Review of concepts before unit tests is administered.				

\*Abbreviate: English Language Arts= ELA, Career Preparation=CP, Modern and Classical Languages=MCL, Social Studies=SS, Visual and Performing Arts=VPA

**Stage #3: Plan learning experiences & instruction**

**What teaching & learning experiences may equip students to develop & demonstrate the targeted understanding(s)? (activities/plans):**

Rock Unit: See Rock Kit/Files for complete list of activities, resources to meet objectives of unit.

**REFERENCES:**