

Geology Field Trip Rendezvous Elementary

Purpose: Students will connect classroom learning about geology (fossils, rock cycle, and layers of the earth) to an understanding of the geologic formation of the Teton Valley Landscape.

Dates:
Grade:
Location:
Instructors:

Goals:

Students will:

- Understand that fossils are evidence of past life, and can help us to learn about changes that have occurred in the earth's surface and climate.
- Understand how natural processes such as erosion, mountain building, glaciations, and volcanic activity have shaped the way the Teton Valley looks today
- Understand the role of water in shaping the Teton Valley Landscape

Objectives:

Students will be able to:

- Infer, based on identification, that the fossils at Grand Targhee are evidence of marine life
- Apply knowledge learned in the classroom to explain how marine fossils can be found in the Tetons
- Use kinesthetic motions to represent the stages in the rock cycle
- Explain how each stage of the rock cycle (igneous, metamorphic, and sedimentary rock formation) has affected what we see in Teton Valley today
- Identify metamorphic, sedimentary, and igneous rocks
- Explain how erosion and weathering have changed the landscape over time
- Correctly organize, in chronological order, events on a geologic calendar that represents events that have shaped the Teton Valley

Program Outline

Part 1: Intro, Weathering & Erosion

- Students arrive at Grand Targhee approx. 9:30 AM
- Introduction to Field Day
 - Introduce schedule, expectations, safety, tools of a geologist/scientific inquiry
 - Split into field groups
- Hike to canyon
 - Ask students to make observations of the canyon – what makes it look that way?
- Bathroom break by plaza stairs



Part 2: Fossils & Rock Cycle

- Fossil Bed Exploration –*one small group lead hikes to fossil beds near yurt*
 - In Small Groups: Introduce the question, “what can fossils tell us about the past?” At fossil beds, have students sketch a fossil, and use keys to identify and tally fossil types.
 - Discussion (In Small Groups): Review the question, “What can fossils tell us about the past?” Based on what students discovered in the fossil beds, what do we know about the geologic history of this area? Based on what students have learned in the classroom, what has happened to this area since then? Review concepts of plate tectonics, and piece together the geologic history of the Rockies (see attached article), focusing especially on marine deposition and uplift. Use geologic calendar cards to reinforce story. Ask students: What other evidence do we see to confirm this story? If possible, find a viewpoint where sedimentary layers are evident in rock bands on peaks. Return to village center area.
 - Work Sheet: At the station closest to the parking area, have students sketch their favorite fossil/do a fossil rubbing.
- Rock Cycle Review (In small groups):
 - Rock Cycle Story (Rock to Rock)
 - Discussion: How did each of the stages in the rock cycle play a part in the geologic formation of this area?

Part 3: Lunch & Game

- Lunch: students will eat lunch outdoors in the forest/camping area, or indoors if the weather is inclement.
- Rock Cycle Game (large group)

Part 4: Drive to Teton Canyon Overlook

- Weathering and Erosion:
 - In Small Groups: At the overlook, students will look for signs of weathering and erosion, focusing specifically on glaciation.
- Rockety! Rock! Rock!...another Rock Cycle game for review

Part 5: Drive to Teton Canyon

- Rock Identification
 - In Small Groups: Walk down to creek. On the way to the creek, have students look for signs of weathering and erosion. At the creek, identify and sort rocks according to whether they are metamorphic, igneous, or sedimentary in origin. Discuss how they formed, and how they ended up where they are today. Focus on water as an erosive force.
- Evidence of Understanding:
 - In Small Groups: Pass out geologic calendar cards to group. Be sure that you keep the key. Students should work together to put the events in order, based on what they have learned/reviewed today.
- Return to school by 2:30 PM



Idaho Content Standards Addressed:

Goals:	Objective 1
<p>Goal 4.1: Understand Scientific Theories of Origin and Subsequent Changes in the Universe and Earth Systems</p>	<p>5.S.4.1.1 Describe the interactions among the solid earth, oceans and atmosphere (erosion, climate, tectonics and continental drift). (609.01.a)</p> <p>CL: D Content Limit: The role wind and water play in erosion, different cloud types, and the formation of earthquakes and volcanoes can all be addressed.</p>
<p>Goal 4.2: Understand Geo-chemical Cycles and Energy in the Earth System</p>	<p>5.S.4.2.1 Explain the rock cycle and identify the three classifications of rocks. (609.02.a)</p> <p>CL: D Content Limit: How sedimentary, igneous, and metamorphic rocks are formed.</p>
<p>Goal 1.2: Understand Concepts and Processes of Evidence, Models, and Explanations</p>	<p>5.S.1.2.1 Use observations and data as evidence on which to base scientific explanations and predictions. (603.02.a)</p> <p>CL: E Content Limit: Explanations and predictions are limited to directly described or illustrated information in the item.</p>



Geology Journal

5th Grade Geology Program

Friends of the Teton River

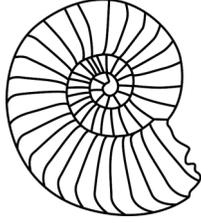
P.O. Box 764

36 E. Little Avenue

Driggs, ID 83422

This Journal Belongs To:

Stop #2: Fossil Beds



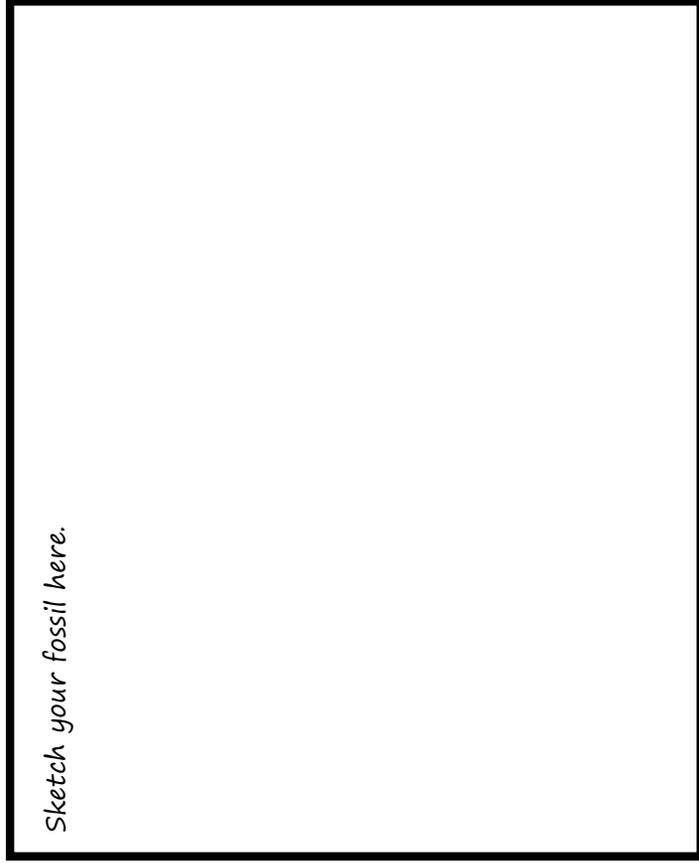
What can fossils tell us about the past?

Find your favorite fossil on the ground around you.

Pick it up gently and inspect.

What kind of fossil do you have?

Sketch your fossil here.

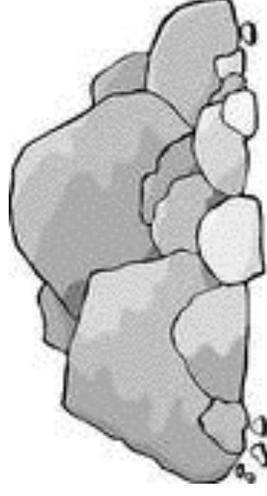


Stop #3: Teton Canyon Overlook

What erosive force do you think shaped this valley?

How is it different from the Peaked Mountain
Overlook?

What geological feature are we standing on?



Stop #4: Teton Creek

Write a descriptive story about how geologic processes formed this area.

Stop #1: Peaked Overlook

What erosive force do you think shaped this valley?

Describe what the rock outcrops look like up on Peaked Mountain.

What kinds of rocks are these? Circle your answer.

Metamorphic

Sedimentary

Igneous

How can you tell?