

Sedimentary Sleuths- Program Planner

We are looking forward to your visit to Acadia National Park, which will provide your students with a special opportunity to explore weathering, erosion, and mapping on and around Sand Beach. Although the program activities take place mostly on the beach itself, there is also a portion of the program that includes a short hike up a rocky and uneven section of trail that is more strenuous.

Please meet your ranger at the agreed upon time at **Sand Beach Parking Area** (on the one-way section of the Park Loop Road). Your ranger will meet your bus out on the Park Loop Road just before the parking area; they will escort the bus to the appropriate parking spot along the road and then walk the group down to the bathrooms. The program is **three hours long**. Plan a bathroom break just before departing school. If you have any questions about the program in advance, please call the education office at 288-8823, or 288-8825 on the day of the program. If you will be more than 15 minutes late, please call the Visitor Center at 288-8832 so that they can contact the ranger by radio.

Program Schedule (timing and sequence may vary)

9:00 Welcome, Coordinate with Ranger, Introduction
9:15 Sand Magnification Weathering Investigation, Ocean Erosion Relay, Sedimentary Treasure
9:45 Snack
10:00 Build a Topography Map
10:30 Wind Erosion Relay, Sediment Size Line-Up and Sieve
11:00 Short hike and Glacier Sculpting
11:30 Conclusion and walk back to parking area
12:00 Depart for school or stay in Park to eat lunch

Plan to Bring

Chaperones: Plan early! Acadia requires a chaperone for every ten students. Extra chaperones are welcome. Please communicate to all chaperones the description of the terrain beforehand.

Food: No food is available at Sand Beach. Each student needs to bring a snack and a water bottle or re-sealable drink (no cans or glass bottles). There is a water fountain available at the beginning of the program. Although a lunch break will not be included in the program, you are welcome to plan to eat bag lunches afterwards before heading back to school.

Clothing: Wear layered outdoor clothing to accommodate changing weather conditions. Supportive shoes are essential—no sandals or flip-flops. Students do not go into the ocean during this program. Shoes must remain on.

Nametags: Students and adults need name tags. A piece of masking tape with name in marker is sufficient.

Signed photo release forms: Please send photo releases home with students for parent signatures.

Educational Fee Waiver: To access Sand Beach for your program, you will need to show an approved educational fee waiver at the Entrance Station. The waiver form for your trip will be prepared by the park's Fee Management Office and e-mailed to you in advance of your trip by the Education Office.

Teachers' Responsibilities

- **Prepare students** for the program by utilizing the suggested classroom activity.
- **Adherence to school procedures** such as permission slips, insurance, transportation, etc.
- **Recruit chaperones** and inform them of their responsibilities. Please photocopy and distribute the chaperone handout.
- Prepare students to follow **Leave No Trace** practices:
- Stay on trails if possible.
- Respect, listen, and use quiet voices.
- Leave natural objects. Take trash with you. (You may want to bring a trash bag.)
- **Supervise students** and help them stay focused while on the program.
- **Notify trip participants** about the recommendation to check for ticks after visiting the park. Tick numbers here have risen in recent years. Here is a link a Maine Tick/Lyme Disease Information Sheet for your reference:
www.maine.gov/dhhs/mecdc/infectious-disease/epi/vector-borne/posters/documents/tick-id-card.pdf
- Ensuring that **safe practices** are followed throughout.

Program Goals:

- To provide an opportunity for students to connect to the resources of Acadia through sensory exploration & discovery.
- To help students gain a first-hand understanding of how weathering and erosion have shaped Acadia.
- To introduce the concept of topographic maps and their importance.
- To foster a sense of respect and stewardship for Acadia and the environment.

Program Objectives:

Students will be able to:

- Define weathering and erosion.
- Name two different ways weathering can occur.
- Describe how the energy of waves affects the sand on the beach.
- Explain how wind can move sand particles around.
- Describe how a topographic map works.
- Name three different types of sediment.
- Describe two ways that glaciers affect the landscape.
- Compare and contrast different methods of erosion.
- Give one reason why resources are protected by Acadia National Park.

Learning Standards:

From Next Generation Science Standards

Earth's Systems: Processes that Shape the Earth:

- 4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.
- 4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.
- 4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features.

Disciplinary Core Ideas

ESS2.A: Earth Materials and Systems – ...Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. (4-ESS2-1)

ESS2.B: Plate Tectonics and Large-Scale System Interactions - ... Maps can help locate the different land and water features areas of Earth. (4-ESS2-2)

ESS2.E: Biogeology - Living things affect the physical characteristics of their regions. (4- ESS2-1)

From the Common Core:

Speaking and Listening: Comprehension and Collaboration:

CCSS.ELA-LITERACY.SL.4.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.

Classroom activities (Request PDFs):

Suggested pre-trip activity:

“Weathering, Erosion, or Deposition?”

Suggested post-trip activities:

“Make a Topography Map with Clay”

“Modeling Sedimentary Layers”

“Mechanical and Chemical Weathering”

Available resources:

Acadia's Teacher Resources: www.nps.gov/acad/forteachers

WebRangers: www.nps.gov/webrangers

Map of Acadia: www.nps.gov/acad/planyourvisit/maps.htm

Topographical Map of Sand Beach area (PDF)