



Pools of Wonder

Acadia National Park Quarter Grades Kindergarten and One



OBJECTIVE

Students will identify tide pool communities and the plants and animals that live in tide pools.



MATERIALS

- 1 overhead projector (optional)
- 1 overhead transparency or other equivalent classroom technology of each of the following:
 - “Acadia National Park Quarter” page
 - “Pools of Wonder” page
 - “High Tide, Low Tide” worksheet
- Copies of the following:
 - “Pools of Wonder” worksheet
 - “High Tide, Low Tide” worksheet
- 1 copy each of two different age-appropriate texts that give information about a tide pool, such as:
 - *The Rock Pool* by David Bellamy
 - *One Small Place by the Sea* by Barbara Brenner
 - *Life in a Tide Pool (Rookie Read—About Science)* by Allan Fowler
 - *What’s in the Tide Pool?* by Anne Hunter
- Class map
- Chart paper
- Markers
- Pencils
- Crayons
- Sticky notes
- Access to video clips or images of tide pools.
- Internet access (optional)
- Age-appropriate materials that provide additional information about tide pools, such as Internet sites, videos, textbooks, reference materials, and other texts.

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PREPARATIONS

- Make an overhead transparency (or photocopy) of each of the following:
 - “Acadia National Park Quarter” page
 - “Pools of Wonder” worksheet
 - “High Tide, Low Tide” worksheet
- Make copies of each of the following:
 - “Pools of Wonder” worksheet (1 per student)
 - “High Tide, Low Tide” worksheet (1 per student)
- Locate texts that give information about tide pools (see examples under “Materials”).
- Bookmark the following web sites:
 - www.nps.gov/acad/photosmultimedia/Views-From-Around-the-Park.htm
 - www.nps.gov/acad/photosmultimedia/minuteoutinit.htm
- Make a chart web diagram labeled “Tide Pool.”



GROUPINGS

- Whole group
- Individual work



CLASS TIME

Two 20- to 30-minute sessions



SUBJECT AREA CONNECTIONS

- Science
- Language Arts
- Art



TERMS AND CONCEPTS

- Quarter
- Reverse (back)
- Tide pool/tidal pool
- High tide
- Recede
- Obverse (front)
- Acadia National Park
- Community
- Low tide
- Beach

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BACKGROUND KNOWLEDGE

Students should have a basic knowledge of:

- Plants
- Animals
- Water
- Ocean
- Basic needs of living things



STEPS

Session 1

1. Describe the America the Beautiful Quarters® Program for background information. Explain to the students that the United States Mint began to issue the quarters in the America the Beautiful Quarters® Program in 2010. By the time the program ends in 2021, there will be a total of 56 designs on the back of the coin. Each design will focus on a different national site—one from each state, territory, and the District of Columbia.
2. Tell the students that the back of a coin is called the reverse, and “obverse” is another name for the front.
3. Display the Acadia National Park quarter overhead transparency and discuss the image with the students, pointing out the lighthouse and rocky shore overlooking the ocean. Locate Acadia National Park on a class map. Ask the students to describe the ocean.
4. Display the Acadia National Park web site Photo Gallery view of Bass Harbor Head Lighthouse (www.nps.gov/acad/photosmultimedia/Views-From-Around-the-Park.htm). Ask the students to close their eyes and imagine they are standing near the lighthouse. Tell the students to open their eyes and look closely at the picture. If they could climb down the rocks to the sand below, just before they reach the ocean, they would find little hidden communities full of life. If they looked carefully between the rocks, they would notice little areas where ocean water had collected. This area is called a tide pool.
5. Tell the students they will learn about the plants and animals that make their homes in a tide pool. Explain to the students that these special little pools get their names from the ocean tides. All day and night, ocean waves crash upon the beach, which is the area of sand, rock, and land at the edge of the ocean. When the tide comes in (high tide), ocean waves crash on the rocks and the sandy beach. The ocean water covers some of the beach area. After a while, the tide recedes back to sea

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(low tide). During low tide, the ocean waves hitting the beach are smaller and do not cover as much of the beach with ocean water as the bigger waves do during high tide. Little areas of ocean water collect in between rocks and sandy areas, just like a puddle might form in the middle of a grassy area after a rain storm. This area filled with ocean water will remain until the next high tide. Write the word “recede” on chart paper and include the definition.

6. Introduce the students to the selected text about tide pools. As a group, preview the text and illustrations and allow students to generate observations about tide pools. Read the selected text to the class and attend to any unfamiliar vocabulary.
7. Display the “Tide Pool” web diagram. Ask the students what they learned about tide pools. Write all acceptable responses on sticky notes and place the sticky notes on the web diagram in the correct location.
8. Distribute the “Pools of Wonder” worksheet to each student. Have the students draw two animals and two plants that live in a tide pool.
9. Review the worksheet with the class. Display the worksheets on a teacher-created tide pool bulletin board.

Session 2

1. Review the information and charts about tide pools from the previous session. As part of the review, sort the sticky notes from the “Tide Pool” web diagram.
2. View the bookmarked “Bar Harbor Tides” and “Sea Star in Tide Pool” videos online at Acadia National Park. The time-lapse video demonstrates how high tide affects the beach at Acadia National Park at www.nps.gov/acad/photosmultimedia/minuteoutinit.htm.
3. Ask the students what animals need to live, focusing on food and air. Ask the students how animals in a tide pool get food and air. Explain to the students that high tide brings fresh ocean water to the tide pool. The new ocean water contains food and air for the animals in the tide pool. The high tide may also bring new animals to the tide pool. Add new animals to the chart paper.
4. Introduce the students to the second selected text about tide pools. As a group, preview the text and illustrations and allow students to generate observations about tide pools. Tell the students to focus on the differences between high and low tide. Read the selected text aloud, attending to any unfamiliar vocabulary. Record any new information on the Tide Pool Web Diagram chart paper.
5. Discuss with the students what would happen to the tide pool if there was no high tide to wash new ocean water into the tide pool. Discuss with the students what would happen to the tide pool if there was no low tide.

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6. Distribute the “High Tide, Low Tide” worksheet. Tell the students they will be drawing two different tide pool pictures: what the tide pool looks like during low tide, and what the tide pool looks like during high tide.
7. Allow time for the students to complete their pictures.
8. Review and display worksheets.



ASSESSMENT

- Take anecdotal notes about the students’ participation in the class discussion and group activity.
- Evaluate the worksheets for understanding of the lesson objectives.



ENRICHMENTS/EXTENSIONS

- Have students create a three-dimensional tide pool diorama using a cardboard box, modeling clay, construction paper, foam paper, rocks, fabric, and blue cellophane (to simulate water).
- Have students compare and contrast a tide pool with a pond.
- Have students pretend to be one animal in a tide pool.
- Have students write a journal entry about what it is like to be the animal during high tide and low tide.
- Have students act out what it would be like to live in a tide pool during high and low tides.



DIFFERENTIATED LEARNING OPTIONS

- Provide pictures of different animals and plants for the students to use, including labels.
- Allow students to work with a partner or scribe.
- Allow students extended time to complete work.



CONNECTION TO WWW.USMINT.GOV/KIDS

- Have students learn more about plants and animals through the Nevada quarter lesson plan for Kindergarten and Grade 1 at www.usmint.gov/kids/teachers/lessonPlans/50sq/download.cmf?grade=1.
- Have students learn more about coastal and inland regions through the Maine quarter lesson plan for Kindergarten and Grade 1 at www.usmint.gov/kids/teachers/lessonPlans/50sq/2003/_k01-3.pdf.

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- Have students learn more about habitats through the Idaho quarter lesson plan for Kindergarten and Grade 1 at www.usmint.gov/kids/teachers/lessonPlans/50sq/2007/_k01-3.pdf.
- Have students learn more about forest communities through the America the Beautiful quarters® lesson plan for Kindergarten and Grade 1 at www.usmint.gov/kids/teachers/lessonPlans/atb/view.cfm?id=1003.
- Have students learn more about life without water through the America the Beautiful quarters lesson plan for Kindergarten and Grade 1 at www.usmint.gov/kids/teachers/lessonPlans/atb/view.cfm?id=1102.



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Directions: Trace the outline of the tide pool below. Draw inside the pool two animals and two plants found in a tide pool. Label the animals and plants.





Name _____

High Tide, Low Tide

Directions: Draw a picture of a tide pool during high tide in the box labeled "High Tide." Draw a picture of a tide pool during low tide in the box labeled "Low Tide."



HIGH TIDE

LOW TIDE



Acadia National Park Quarter



