

## SEASHELL MAPPING

<b>OVERVIEW</b>	During this cooperative group activity, students work with seashells to build science skills in classifying, identifying, organizing, observing, interpreting, reaching consensus and drawing conclusions.
<b>OBJECTIVES</b>	Following completion of this lesson, the students will be able to: <ul style="list-style-type: none"><li>• Sort objects based on their visual characteristics;</li><li>• Gain experience using taxonomic keys;</li><li>• Observe the physical attributes of seashells in detail;</li><li>• Gain scientific understanding of seashells and the animals that once lived inside them.</li></ul>
<b>GRADE LEVELS</b>	4 <sup>th</sup> - 8 <sup>th</sup> grades
<b>NJCC STANDARDS</b>	<p><b>Science Indicators:</b> <b>5.1:</b> End of Grade 4: A2, B1, B2, End of Grade 8: A2, B2; <b>5.3:</b> End of Grade 4: D1, End of Grade 8: A1; <b>5.5:</b> End of Grade 2: A2, B1 End of Grade 4: A3, B1, B2; End of Grade 6: C1, End of Grade 8: B1, B3; <b>5.8:</b> End of Grade 4: D1, End of Grade 6: D1; <b>5.10:</b> End of Grade 2: A1, End of Grade 4: B1, End of Grade 6: A1</p> <p><b>Mathematics Indicators:</b> <b>4.1:</b> 6A5, 6B1, 6C3, <b>4.2:</b> 2A1, 2A2, 2A3, 2A4, 4A1, 4A2, 4A3, 4A5, 4B3, 4D5, 6A3, 6A4, 6B2, 8A3, 8A4, 8A5, 12A4; <b>4.3:</b> 2A1, 4A1, 6A1, 6C1, 6B1, 8A1, 8C2, 12B1, 12D3; <b>4.4:</b> 2A1, 2C1, 4A1, 4C1, 6A1, 12A5; <b>4.5A:</b> 2, 3, 4, 5; <b>4.5B:</b> 1, 3, 4; <b>4.5C:</b> 1, 2, 3, 4; <b>4.5D:</b> 1, 2, 3, 4, 5, 6; <b>4.5E:</b> 1, 2, 3.</p> <p><b>Language Arts Indicators:</b> <b>3.1:</b> End of Grade 4: C1, H3; <b>3.3:</b> End of Grade 4: B6, D1, End of Grade 8: A1, D3, <b>3.4:</b> End of Grade 2: B1, End of Grade 4: A1, B2, End of Grade 8: B2; <b>3.5:</b> End of Grade 4: A1, A3.</p>
<b>MATERIALS</b>	<ul style="list-style-type: none"><li>• A paper bag for each team that contains shells from a slipper snail,</li><li>• a moon snail, a whelk, a surf or hard clam,</li><li>• a scallop, an oyster and a ribbed mussel,</li><li>• “Seashell Mapping” worksheet (included in this lesson plan),</li><li>• Reference materials about seashells and mollusks</li></ul>
<b>PROCEDURES</b>	Separate students into small cooperative teams. Give each team one copy of the worksheet entitled “Seashell Mapping” and one (closed) bag of shells. Tell

students they cannot open the bag until instructed to do so. Explain to students that the bag contains seven seashells that they will have to sort out into the “Map” according to each shell’s visual characteristics. Before students open the bag to start the activity, tell them they can ask you two to three questions about the “Map.” Generally the questions will be about the difference between **bivalves** and **univalves** (two-part or one part shell) and the meaning of symmetrical. If the students have trouble asking questions or do not ask about bivalve/univalve and symmetrical, prompt them.

After questions have been addressed, allow students to open bag, remove contents and sort shells into the worksheet. Perform ongoing assessment by observing students as they work together to solve the puzzle. When each team has completed their “Map” check it and discuss for appropriateness of solution. There is no definitive correct solution, especially if the team can justify their thought processes to you. After each team has completed the activity and teacher has checked each team’s work, bring activity to closure by explaining that this type of sorting is typical of what scientists do to classify and identify all types of organisms (this is basically a very simple taxonomic key); identify and discuss each shell and/or have student’s research each shell and report out.

## REFERENCES

Abbott, T.R. 1993. Seashells of the Northern Hemisphere. Longmeadow Press, Stamford, CT.

Gosner, K.L. 1978. The Peterson Field Guide Series - A Field Guide to the Atlantic Seashore from the Bay of Fundy to Cape Hatteras. Houghton Mifflin Company, Boston.

Weiss, H.M. 1995. Marine Animals of Southern New England and New York. DEP Maps and Publications Office, 79 Elm Street, Hartford, Connecticut, 06106.

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