Otters, Otters Everywhere (Learning Experience #1)
Opportunities for Student Assessment

Opportunities for ongoing formative assessment are embedded throughout the learning experience in questions that spark class discussions. Student worksheets, journal entries and class presentations also serve as formative assessments as the students work through the learning experience. The summative assessment for *Otters, Otters Everywhere* (Learning Experience #1) is an article for the school paper or a local newspaper or journal written in 1951. The goal of the article is to convince the reader through education and details that river otters have value, that they are disappearing, and there are ways to save them.

Student Science Journals

Journaling is an important part of a practicing scientist's day to day work. Student-scientists should reflect, write and draw in their journals or notebooks as they answer questions and plan next steps in the problem solving process. Entries should be labeled with names of team contributors, dates and where the team is in the planning process. An occasional look at journals provides an informal assessment of students' progress and their understanding of the content. Sharing the rubric with the students when you introduce the learning experience will help them meet your expectations for quality work.

Criteria		**N/A**	**Missing**	**Below Expectations**	**Meets Expectations**	**Exceeds Expectations**
Scenario Essential Question						
Learning Experience #1 Essential Question						
Reflection about river otters						
Comparing otter range maps						
Explanation of population loss						
Questions: Otter sightings						
Dangers of biomagnification						

Otters, Otters Everywhere Cross Curricular Connections

Literacy Connections

This lesson may be completed in part as an English assignment. Students are asked to research characteristics of the North American river otter, its life history and adaptations, and its niche within its habitat.

Mathematics Connections

The biomagnification activity was simplified to make clear the dangers of release of persistent toxins into the environment. In nature the transfer of energy and structural materials from one trophic level to the next is estimated at only 10% instead of the 50% level given. Ask your students to redo the activity at the 10% level and calculate a new set of ratios.

Social Studies Connections

Otters and other riparian species are not found where water quality is poor. Students could debate the pros and cons of local and state governmental regulations of water quality and the economic and ethical consequences of polluted water.

Have students research another example of biomagnification, such as DDT. How did Rachel Carson's *Silent Spring* contribute to the environmental movement and legislation that established the Environmental Protection Agency (EPA)?
