

Parts of an Ecosystem

Grade Level: Grade 4

Subject: Science

Instructional time: 3-5 days

Abstract: Students will learn about the relationship between an individual of a species, a population of that species, a community that includes that population, and the ecosystem that includes the community of living things and the nonliving parts of that environment.

The Great Salt Lake, in Utah, has a very unique ecosystem. The environment, the geography, the wildlife, etc., have come together to make an ecosystem that can thrive in spite of the harsh conditions that exists there.

This unit will help students to gain a deeper appreciation and understanding of the Great Salt lake and the ecosystem that encompasses it.

Goals and Objectives:

Utah Fourth Grade Science Core Curriculum:

Standard I: Matter on earth cycles from one form to another. The cycling of water is an example of this process:

- Identify the relative amount and kind of water found in various locations.
- Investigate and record temperature data to show the effects of heat energy on changing states of water.
- Describe how the water cycle relates to the water supply.

Standard II: Weather describes conditions in the atmosphere at a certain place and time...Recording weather observations provides data that can be used to predict future weather conditions and to establish patterns over time. Students will understand that elements of weather can be observed, measured, and recorded to make predictions to determine simple weather patterns.

- Interpret recorded weather data for simple patterns.
- Evaluate weather predictions based on observations.

Standard III: Earth material changes over a period of time...Soil is continually being formed from weathered rock and plant [and animal] remains.

- Classify common rocks found in Utah
- Relate components of soil to plant growth.

Standard V: Utah has diverse plant and animal life that had adapted to and interacts in areas that can be described as wetlands...desert...The characteristics [of which] influence which plants and animals survive best there.

- Compare physical characteristics
- Locate examples of unique characteristics
- Create models of specific Utah Biomes
- Describe the common plants and animals that live in specific biomes

- Use a simple scheme to classify Utah plants and animals

Prior Knowledge: This is the second lesson in a Unit that is about the Great Salt Lake and the unique ecosystem that surrounds it. The students have already had an opportunity to learn many interesting and relevant facts about the Salt Lake Basin.

In addition, the students have a Handout with Internet sites that can be easily explored to learn more about this topic.

The class will discuss what they have learned about the ecosystems/biomes that exist in Utah and what they have learned about the living and non-living things that are in them.

Activity I: The students will go on a field trip to the Great Salt Lake (or other unique ecosystem in their local area) to observe and collect data:

- Students will be in groups of 3-4; each group will focus on one area of observation and data collection.
- Students will be given the necessary supplies and instructions to complete their observations.

Activity II: Students will share their observations and the data they collected with the class:

- Make four columns on the board with the headings: Individual, Population, Community, Ecosystem.
- Students will share their observations and data; and the information will be placed in the appropriate columns.

Activity III: Each student will write a two-page (Typed and double-spaced) research report on their topic that will include the data that they collected on the field trip and information gathered from the Internet.

- Each student will also create a poster or some other display that represents their topic.

Closure / Assessment:

- Class participation
- Ability of student to report on what they observed and learned.
- Clarity of presentation
- Rubric for Report (Modified from first lesson.)

Materials needed:

- The Great Salt Lake by Sandar Zicus, Museum of Natural History, Utah
- Paper, pens, colored pencils
- Internet sources (see Internet sources for first lesson)
- Poster board
- Camera
- Binoculars
- Containers for collecting samples
- Magnifying glasses
- Wading boots
- Nets

Sources:

Adapted from “Parts of an Ecosystem.” Lesson # 1900.

<http://www.teachers.net/lessons/posts/1900.html>

Utah Core Curriculum @ <http://uen.org>

Grading Rubric

Name: _____

- Each student will research and prepare a presentation on a topic of their choice. The topic chosen must have something to do with the interaction of the natural environment that is directly associated with the Great Salt Lake and the surrounding area. Teacher approval of your topic is required!

Quality of work	Exceptional	Admirable	Acceptable	Basic
Topic	In-depth research	Very interesting	Solid information	Discusses in class
Research	Documented and thorough – More sites than on handout	Documented and thorough	All sites are on handouts	Used information from class only
Accuracy	All facts are accurate and important	Most facts are accurate and important	Some facts are not accurate or important	Many facts are inaccurate or not important
Relevance	Directly related to topic	Closely related to topic	Somewhat related to topic	Right subject – but not topic
Format	Very easy to understand	Easy to understand	Some parts are confusing	Hard to understand
Editing	No mistakes	Few mistakes	Several mistakes	Mistakes are distracting
Graphics, Maps, Photos	Tell the story without words	Good examples of topic	Describe several aspects of your topic	Describe your topic
Quality and Effort	Fantastic	Great	Good	Poor
Participation in class discussions	Participates frequently in class	Regularly participates in class	Sometimes participates in class	Participates when called on

Exceptional = 10 points Admirable = 8 points Acceptable = 6 points Basic = 4 points
 Extra Credit: Two-paged double-spaced typed report on your chosen topic.

Internet Sites:

Utah State Government: Brine Shrimp:

<http://ut.water.usgs.gov/shrimp>

Biography of Brine Shrimp:

<http://raven.umnh.utah.edu/units/great.salt.lake.biogeography.html>

Utah Geological Survey:

<http://ugs.state.ut.us/online/PI-39/pi39pg123.htm>

Great Salt Lake Ecosystem:

<http://www.r6.fws.gov/pfs.gov/pfw/ut/ut#f.htm>

Brine Shrimp in the Great Salt Lake:

<http://www.earthsky.com/Features/Articles/brine-shrimp1.html>

Ecosystem:

http://encart.msn.com/encyclopedia_761582459/Ecosystem.html

Ecology:

http://encart.msn.com/encyclopedia_761576703?ecology.html

Water Cycle:

http://encart.msn.com/encyclopedia_761561145/water-cycle.html

Wetlands:

<http://encarta.msn.com/encyclopedia-761579617/wetland.html>

Water:

<http://encarta.msn.com/encyclopedia-761573158/water.html>

The Greater Salt Lake Ecosystem:

<http://colorado.edu/geography/virtdept/module/gsl>

Utah State Parks:

<http://stateparks.utah.gov/visiting/visiting.htm>

Video tours of Utah:

<http://visitsaltlake.com/visitors/tours.html>

Satellite shots of the Great Salt Lake:

<http://edcwww.cr.usgs.gov/earthshots/slow/GreatSaltLake/>

Friends of Great Salt Lake:

<http://www.xmission.com/ogsl/>

Utah State Government information on Utah and the Great Salt Lake:

<http://www.ugs.state.ut.us/PI-39/>

Maps of Utah and the Great Salt Lake:

<http://maps.state.ut.us/usg/gsl.htm>

More space shots of the Lake:

<http://geochange.er.usgs.gov/sw/changes/anthropogenic.gsl/>

Common myths about the Great Salt Lake:

<http://www.geocities.com/SouthBeach/Shores/9144/>

Where to purchase brine shrimp:

www.drwhitey.com/Ecology/Artemia/BrineShrimp.html