



Spiral Jetty Day for Science Teachers

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Educator Resources and Lesson Plans
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***Spiral Jetty*, Robert Smithson**



The monumental earthwork *Spiral Jetty* (1970) was created by artist Robert Smithson and is located off Rozel Point in the north arm of Great Salt Lake. Made of black basalt rocks and earth gathered from the site, *Spiral Jetty* is a 15-foot-wide coil that stretches more than 1,500 feet into the lake. Undoubtedly the most famous large-scale earthwork of the period, it has come to epitomize Land art. Its exceptional art historical importance and its unique beauty have drawn visitors and media attention from throughout Utah and around the world.

Rozel Point attracted Smithson for a number of reasons, including its remote location and the reddish quality of the water in that section of the lake (an effect of bacteria in the water). Using natural materials from the site, Smithson designed *Spiral Jetty* to extend into the lake several inches above the waterline. However, the earthwork is affected by seasonal fluctuations in the lake level, which can alternately submerge the Jetty or leave it completely exposed and covered in salt crystals. The close communion between *Spiral Jetty* and the super-saline Great Salt Lake emphasizes the entropic processes of erosion and physical disorder with which Smithson was continually fascinated.

The Utah Museum of Fine Arts works in collaboration with the Dia Art Foundation and the Great Salt Lake Institute at Westminster College to preserve, maintain, and advocate for this masterpiece of late twentieth-century art and acclaimed Utah landmark.

Gianfranco Gorgoni (1941-), Italian
Robert Smithson's *Spiral Jetty*, 1970
Gelatin silver print
Gift of John Weber Gallery
UMFA 1996.022.001
Art © Estate of Robert Smithson/Licensed by
VAGA, New York, NY

Earthwork Ecosystems

Laura Decker

Objectives

Using *Spiral Jetty* as inspiration, students will:

1. use art to see first hand the effects of climate change and natural disasters, and begin to understand the greater implications for the environment as a whole.
2. make hypotheses and conduct experiments. They will observe and document the results using scientific language.
3. learn the basic background of *Spiral Jetty*, Great Salt Lake, and Land art.
4. analyze the impact of location on site-specific artwork.

Intended Audiences/Grade Levels 7-12

State Core Links

8th Grade Integrated Science

Standard 2: Conduct experiments and assess the effects that changing the environment may have on living organisms.

- Objective II Formulate and test hypotheses on the effects of air, temperature, water, or light on the ecosystem and apply conclusions to the greater environment.
- Objective III Analyze human influence on the capacity of an environment to sustain living things.

Secondary Earth Science

Standard 2: Students will understand Earth's internal structure and the dynamic nature of the tectonic plates that form its surface.

- Objective III Demonstrate how the motion of tectonic plates affects Earth and living things.

Standard 3: Students will understand the atmospheric processes that support life and cause weather and climate.

- Objective II Examine the natural and human-caused processes that cause Earth's climate to change over intervals of time ranging from decades to millennia.

Standard 5: Students will understand how Earth science interacts with society.

- Objective I Characterize Earth as a changing and complex system of interacting spheres.
- Objective III Indicate how natural hazards pose risks to humans.

Social Studies

Standard 1: Students will understand the interaction between Utah's geography and its inhabitants.

Objective II Examine the interrelationship between Utah's climate, location, landforms, and life.

Objective IV Examine how people affect the geography of Utah.

Language Arts

Writing production and distribution of writing, range of writing

Language conventions of standard English

Fine Arts (Art History)

Standard 4: Contextualizing

Objective A Align works of art according to history, geography, and personal experience.

Objective B Synthesize art with other educational subjects.

Objective C Evaluate the impact of art on life outside of school.

Fine Arts (Sculpture)

Standard 1: Making

Objective A Refine techniques and processes in a variety of media.

Objective B Create sculptures using art elements and principles.

Standard 2: Perceiving

Objective A Critique sculpture.

Objective B Evaluate sculpture.

Standard 3: Expressing

Objective A Create content in sculpture.

Standard 4: Contextualizing

Objective A Align sculptures according to history, geography, and personal experience.

Objective B Synthesize sculpture with other educational subjects.

Objective C Evaluate the impact of sculpture on life outside of school.

Materials

1. Image of Robert Smithson's *Spiral Jetty* by Gianfranco Gorgoni UMFA 1996.22.1
2. Found objects representing students' significant place
3. Container (roughly shoe-box size)
4. *optional*: field trip to *Spiral Jetty* at Rozen Point

Duration Allow at least 45 minutes for construction and “show and tell.”

Vocabulary/Key Terms

- earthwork/ land art** a work of art consisting of a portion of land modified by an artist
- entropy** (dictionary) the degree of disorder or uncertainty in a system
(Smithson) chance operations of nature that lead to a state of transformation
- climate change** change in global or regional climate patterns, in particular a change apparent from the mid to late 20th century onwards and attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels
- natural disaster** natural event such as a flood, earthquake, or hurricane that causes great damage or loss of life

Activity

Part One: Introduce *Spiral Jetty* and Robert Smithson. Talk about earthworks and land art.

Take a field trip to *Spiral Jetty*. Bring a copy of Gianfranco Gorgoni’s photograph *Spiral Jetty* and Smithson’s essay “The Spiral Jetty.” You can check the water level of Great Salt Lake through USGS National Water Information System to see if *Spiral Jetty* will be visible. Whether it is visible or not, discuss the location and Smithson’s reasons for choosing Rozel Point.

- Why would Smithson create a work that would be completely submerged under water for decades?
- How and why do you think *Spiral Jetty* has changed in the past 30 years? Use the photograph as reference from 1970.
- Why did Smithson choose Rozel Point, Great Salt Lake, Utah, etc? How would your perception of the artwork change/not change if it were in a different location?
- Discuss the idea of entropy and introduce Robert Smithson’s definition. How might his interest in entropy have informed his decision? Smithson discusses his interest in Rozel Point in his essay “The Spiral Jetty.”

Part Two: Have students visit a place in nature with some significance to them. They should write a few short paragraphs about this place in a journal they will reserve specifically for this project:

- Describe your place as if you were describing it to someone who had never been there.
 - What do you see? (colors, objects, plants, animals)
 - What does it smell like? (sweet, earthy, stinky)
 - What does it feel like? (wet, dry, hard, scratchy, soft, hot, cold)
 - What are some sounds that would help identify it? (birds, silence, rustling tees)
 - What is totally unique about this place?
- Why did you choose this place?
- What significance does it have to you?

Students will collect items from their places to use in making their own earthwork. They could collect: dirt, rocks, lichen, plant matter, water, sand, seeds, etc. Discourage them from collecting insects or living creatures.

Next, students will need a container that is roughly shoebox sized. Everything will need to fit into their container. It should be light permeable with a tightly sealed lid. The container can be as simple as Tupperware or something found at a thrift store.

Have students bring these items to class and make their own earthwork with materials that they brought from their place. Leave some time at the end of class for students to walk around and see each others' work. Students should take at least one photograph of their earthwork and display it in the classroom or in their journals.

Part Three: Introduce *Spiral Jetty* and Robert Smithson. Talk about earthworks and land art. Students will use their earthworks to see first hand the effects of climate change and natural disasters.

The time line and experiments should be tailored to your classroom schedule, school schedule, etc. Below are some examples of potential experiments your students could conduct using their earthworks. They are meant as jumping-off points.

Students should imitate the natural climate of their place for about two weeks to allow it to stabilize. For example: if they collected objects from the desert, they might not water their earthwork ecosystem very often, if at all. Or, if they journeyed into the mountains, they might spritz it with a spray bottle every few days. Since they harvested objects from different ecosystems, students will learn about the native habitats of different ecosystems by observing their classmates' earthworks as well.

After the brief stabilization period, have your students begin to introduce some effects of climate change and natural disasters. For example:

- flood
- drought
- dust storms
- acid rain
- wild fire
- earthquake

- extreme cold
- extreme heat

Part Four: Students should first make hypotheses about how each change will affect their earthwork. Have them write about it in their journals using proper scientific terminology and language. After conducting the experiments, they should evaluate their hypotheses based on the observable evidence. Continue experimentation as long and as often as fits into your curriculum. Have them take photographs after each experiment and include them in their journal along with their writing.

- How would this experiment have affected organisms, plants, animals had they been a part of your earthwork?

Reintroduce Smithson’s definition of entropy. Have students discuss the effects of climate change as they relate to his definition and *Spiral Jetty*.

- Based on the results from your experimentation how do you think climate change may have or will continue to change Smithson’s *Spiral Jetty*?
- How do you think climate change fits into Smithson’s definition of entropy? Is it a chance operation?
- If Smithson were alive today, how do you think he would react to the effects of climate change on *Spiral Jetty*?
- Using your earthwork as a reference, what implications do you think climate change and the resulting increase in natural disasters has on land art and the greater environment?

Method(s) for Assessment

Have students create a Venn diagram for each experiment. In one circle write a short list detailing the basic ideas of their hypothesis. In the other circle have them note their conclusions. In the middle, note the overlap.

Emphasis should be placed on active participation as a method of assessment rather than “the right answer.”

Additional Resources

- *Spiral Jetty* partnership: http://umfa.utah.edu/land_art_jetty_partnership
- Dia Art Foundation: <http://www.diaart.org>

- Great Salt Lake Institute: https://www.westminstercollege.edu/great_salt_lake_institute/
- *Spiral Jetty*:
http://umfa.utah.edu/land_art_smithson
<http://umfa.utah.edu/SpiralJettyExperienced>
<http://www.diaart.org/sites/page/59/2156>
<http://umfa.utah.edu/SpiralJettyExplained>
- Robert Smithson's writing/essays/interviews

Smithson, R., & Flam, J. (1996). *Robert Smithson, the collected writings*. Berkeley: University of California Press.

<http://www.robertsmithson.com/essays/entropy.htm>
http://www.robertsmithson.com/essays/entropy_and.htm
<http://www.robertsmithson.com/essays/interviews.htm>
<http://www.robertsmithson.com/essays/ess.htm>