

Descriptions of Marina Exploration Stations

Students were divided into four groups of peer-mentor partnerships and rotated through the stations with those same groups throughout the day.

Water Quality Data Collection
Learning Objectives: (3rd) I can explain how water quality affects organisms that live in/near water. (6th) I can apply my prior knowledge to help younger students better understand how water quality affects wetland ecosystems. Students will use the materials and water quality measurement tools listed below to collect and record data, hypothesize about possible inhabitants of the wetland, and discover and document actual inhabitants of the wetland. <i>*The safe and successful implementation of this learning station requires the use of safety goggles and/or gloves during some of these water quality tests.</i> Materials: • Safety Goggles (as needed) • Safety Gloves (as needed) • Water quality measurement tools (<i>see below</i>) • Student field journals for- ○ Recording water quality data ○ Recording their predictions for what organisms will be found ○ Recording what organisms were found • pencils • Macroinvertebrate nets • Microscopes • Petri Dishes • Macroinvertebrate dichotomous key Water quality Tests Performed • pH • dissolved oxygen • nitrate levels • turbidity • salinity Measurement Tools Used • pH strips • dissolved oxygen test kit • nitrate level test kit • turbidity tube • salinity refractometer
Floating Socratic Seminar

Learning Objectives:

(3rd)

- I can begin to understand how this reservoir might affect local communities of plants, animals, and humans.
- I can use my scientific discussion skills to appropriately participate in a Socratic seminar.

(6th)

- I can analyze the different ways in which this reservoir is used by different plants, animals, and humans.
- I can apply my skills of Socratic dialogue to help my third grade buddy appropriately participate in a Socratic seminar.

Students will participate in a Socratic seminar while canoeing on the reservoir. Teachers have developed prompts to guide discussion and should be prepared to redirect students if the conversation veers off-topic.

See Table 2 for more explicit details on Socratic seminars

**The safe and successful implementation of this learning station requires a knowledgeable person who is able to explain, model, and monitor canoe safety measures in a developmentally appropriate way.*

Teachers/Experiential Learning Director will explicitly teach students how to put on a life jacket; how to help each other into/out of the canoe; and proper protocol in case a canoe flips.

Materials:

- Canoes
- Life jackets
- Paddles
- Straps to be used to help haul student canoes in case of strong winds
- Water bottles

Waterfowl Survival Games

Learning Objectives:

(3rd) I can understand and explain how changes in an animal's environment affect that animal's ability to survive.

(6th)

- I can evaluate an animal's survivability based on changes in its habitat.
- I can help younger students draw inferences about how an animal is affected by changes in its environment.

In self-guided groups, sixth grade students will teach the third grader students how to play a waterfowl survival game that involves thinking critically about how changes in a bird's environment will affect its ability to survive.

Materials:

- Written game rules
- Data collection sheets
- Bird species game cards
 - o 2 for each species ("Normal" & "Low Lake Levels")
- Dice
- pencils

Documentary Film-making

Learning Objectives:

(Both grades) I can create a documentary film that describes how living and non-living things interact in an environment.

Students will use living and/or non-living things found in the immediate vicinity within the marina to use as subject matter for their documentaries. Sixth grade students will share their technological expertise with the third grade students as they work together to tell a story about the experiences of their subjects within the environment we're exploring. Students should be ready to share and reflect on their finished product with other groups back at school.

**Students will take great care not to disturb the environment in which they are working and exploring.*

Materials:

- iPads with a video editing app installed
- Living/non-living things found in an environment
- Field journals to record ideas, brain storm, create story outline, etc.

Name: _____

Great Salt Lake Bird Game Data Collection Sheet

Introduction: During this game you will visit 4 stations. At each station you will become one of the birds that relies on the Great Salt Lake ecosystem. Begin by using the Normal Lake Level sheet. Roll the dice, find out what happens to you and your classmates. If you survive play a second round. What happens this time? Record your data in the Normal Lake Level row on the chart. Once you have played the Normal Lake Level sheet, play two more rounds with the Low Lake Level sheet. How do the results of the game change? Record your data in the Low Lake Level row on the chart.

Data Collection: As you visit each station fill in the data charts below.

Bird: _____

	# of birds at start of game	# of birds after 2 rounds	What happened to you? Be specific.
Normal Lake Level			
Low Lake Level			

Bird: _____

	# of birds at start of game	# of birds after 2 rounds	What happened to you? Be specific.
Normal Lake Level			
Low Lake Level			

Bird: _____

	# of birds at start of game	# of birds after 2 rounds	What happened to you? Be specific.
Normal Lake Level			
Low Lake Level			

Bird: _____

	# of birds at start of game	# of birds after 2 rounds	What happened to you? Be specific.
Normal Lake Level			
Low Lake Level			

Analysis:

1. Review your data. What patterns do you notice?
2. How did the number of birds that survived differ between the normal lake level game and the low lake level game?
3. What caused birds to not survive during the low lake level game?
 - a. Pelicans:
 - b. Grebes:
 - c. Phalaropes:
 - d. Ducks:
4. How were other populations of organisms affected by the low lake levels?

Name: **Key**

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Data Collection: As you visit each station fill in the data charts below. **Answers will vary.**
Below is a sample

Bird: Pelican Fledgling

	# of birds at start of game	# of birds after 2 rounds	What happened to you? Be specific.
Normal Lake Level	7	6	Father got fish from Farmington Bay. Safe in nest; mild weather.
Low Lake Level	7	4	Bald eagle took me from my nest.

Bird: Wilson's Phalarope

	# of birds at start of game	# of birds after 2 rounds	What happened to you? Be specific.
Normal Lake Level	7	7	Found brine shrimp. Survived.
Low Lake Level	7	5	The salinity in the lake was too high, the brine shrimp didn't hatch. Did not survive.

Bird: Eared Grebe

	# of birds at start of game	# of birds after 2 rounds	What happened to you? Be specific.
Normal Lake Level	7	7	Found enough brine shrimp to survive.
Low Lake Level	7	2	The salinity in the lake gets too high, and the brine shrimp don't survive. Did not survive.

Bird: Duck

	# of birds at start of game	# of birds after 2 rounds	What happened to you? Be specific.
Normal Lake Level	7	7	Survived. Found plants in Willard Bay.
Low Lake Level	7	4	Survived. Found snails and invertebrates for food.

Analysis:

5. Review your data. What patterns do you notice?

We always started with the same number of birds in our group. During the normal level rounds most of the birds survived. During the low lake level rounds some of the birds did not survive.

6. How did the number of birds that survived differ between the normal lake level round and the low lake level round?

Fewer birds survived during the low lake level round than during the normal lake level round.

7. What caused birds to not survive during the low lake level game?

- Pelicans: Fledglings eaten by coyotes. Parents couldn't find food.
- Phalaropes: Less brine shrimp b/c of high salinity water.
- Grebes: Less brine shrimp b/c of high salinity water. Disease spreads through warm waters.
- Ducks: Do not find food in wetlands. Avian botulism, a disease, spreads.

8. How were other populations of organisms affected by the low lake levels?

Brine shrimp populations declined because of high salinity in the water. Coyote populations could have increased because they were able to reach pelican nesting sites.

Name:

Class:

Date:

Performance Task Assessment

Video Production

Element	Possible Points	Earned Assessment	
		Self	Teacher
Content - Research and Production Planning			
Video product shows evidence of effective research and understanding of concepts relevant to the task.			
Video product reflects accurate, specific, purposeful information that is extended and expanded to fully explain the topic.			
Supporting details are used to help explain the concepts.			
Video product is well-organized with a clear beginning, middle, and end and contains adequate transitions.			
The vocabulary is appropriate to both the content and the audience. Language choices are appropriate.			
The storyboard is complete, including visuals, narration, and production notes.			
Sources are cited properly.			
Form - Technical Design			
Video product uses lighting effectively as well as aesthetically.			
Camera work demonstrates appropriate use of long, medium, and close-up shots. The zoom feature is used appropriately.			
Images are clear and in focus. Camera movement is purposeful.			
Sound level is adequate. Music and sound effects enhance the presentation.			
Titles and graphics are clear, readable, well-composed, and creatively employed.			
Editing (optional) is sharp and concise with good beginnings and endings.			
Video progresses at a suitable pace. Length of the video product conforms to allotted time frame.			
Overall Impact			
All components fit together to provide an appealing, clear, and successful product which achieves its overall purpose.			
Total:			

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