

South Cove Islands Inquiry

Grade Level: Sixth Grade

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Learning goals: After completing this unit the student will

- demonstrate understanding of community differences in isolated habitats
- complete an inquiry using the scientific method
- be able to identify common intertidal organisms

Oregon State Science Standards addressed (Benchmark 3, Grade 8):

CCG: Forming the Question/Hypothesis (Formulate and express scientific questions or hypotheses to be investigated).

- Based on observations and scientific concepts, ask questions or form hypotheses that can be explored through scientific investigations.

CCG: Designing the Investigation (Design safe and ethical scientific investigations to address questions or hypotheses).

- Design a scientific investigation that provides sufficient data to answer a question or test a hypothesis.

CCG: Collecting and Presenting Data (Conduct procedures to collect, organize, and display scientific data).

- Collect, organize, and display sufficient data to support analysis.

CCG: Analyzing and Interpreting Results (Analyze scientific information to develop and present conclusions).

- Summarize and analyze data including possible sources of error. Explain results and offer reasonable and accurate interpretations and implications.

Materials list for the unit:

For class:

Intertidal organisms (for pre-lesson)

Thermometer

Refractometer

Wipes to dry refractometer

Rulers

Meter sticks

Magnifying glasses

Tape measures

Tide pool ID cards (laminated)

For each student:

Clipboards

Field journal

Writing instrument

Additional Resources:

Streaming videos www.unitedstreaming.com

Coastal Biomes: Where the Land Meets the Sea

How Scientists Work: What is the Scientific Method?

Scientific Method and Measurement

Ocean Habitats: Shoreline and Reef

Time needed for unit:

Pre-lessons: 3 to 4 lessons

Journal completion: 2 periods

Presentation Preparation: 2 to 5 periods

Presentations: 2 to 3 days

Time needed for the field trip: one day (9a – 2p, 30 minute lunch); be sure to pick a low enough tide for adequate access to upper tidepools over several hours

Best location(s) for the field trip: South Cove, Cape Arago in late April/early May

Summary of the unit:

This field inquiry is designed to go with the 6th grade islands studies. Since we are not able to access any islands near the school, we explore the tide pools of South Cove. ***Tide pools, like islands, are isolated.*** The word isolated means a person, organism, or group that has been separated, as by geographic, ecologic, or social barriers from others. Students construct their own inquiry dealing with the tide pools at the South Cove. They work independently, with a partner, and in a small group to complete the inquiry, and share their results with the rest of the class.

Pre-lessons:

- Review scientific method and work sample format
- Identify tidepool organisms (preferably by bringing in live organisms)
- Review and practice measurement (metric): dimensions, thermometer, refractometer
- Go over journal and field trip procedures, review tools that will be available, arrange small working groups

Field Trip:

In the morning, the students are given time to examine tidepools, make observations and come up with questions that can be tested with the tools available. They predict what might happen, and come up with a hypothesis to test and a procedure to do so. After lunch, they collect their data.

- Observation (15 min, independent)
- Questions (10 min, independent & follow-up with partner)
- Hypothesis (15 min, group)
- Predictions/Final Hypothesis (group, student writes own)
- Materials (teacher & group)
- Procedure (10 – 15 min, group)

Lunch (30 min, during which teacher checks hypotheses and procedures students have chosen)

- Distribute tools (15 min)
- Data Collection (small groups, remaining time, minimum 1.5 hours)

Follow-up at School:

- Graph Data (45 min, individual)
- Results and Conclusions (45 min, individual or with group)
- Reflection (independent)
- Presentation (PowerPoint or poster board or speech)

How does the unit address active inquiry learning?

Based on their observations, students formulate questions to investigate using the scientific method.

What is the work sample that students will produce?

- Field Inquiry Journal
- Presentation findings (PowerPoint, speech, posters, models, etc.)

How can the unit be integrated into the existing curriculum and into other disciplines?

Math: measuring, recording, comparison, graphing, etc.

Literacy: writing, speech, etc.

Art: drawing, models, etc.