

**Topic: Environmental Monitoring**  
**Lesson Title: Environmental Monitoring Lab**  
**Post Visit R-A-F-T Activity**  
**Grade Level: 6<sup>th</sup> - 8<sup>th</sup> Grade**  
**Science Domain: Earth Science**

### Connecting to the Next Generation Science Standards

ESS2.A – EARTH'S MATERIALS AND SYSTEMS: All Earth processes are the result of energy flowing and matter cycling within and among the planet's systems.  
 ESS2.D- WEATHER AND CLIMATE: Weather and climate are influenced by interactions involving the sunlight, the ocean, the atmosphere, ice, landforms, and living things.

**The materials/lessons/activities outlined below are intended to help students reach the Performance Expectations listed below.**

**Performance Expectations:**

Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.

**Connections to Classroom Activity**

**Students:** Students will use the knowledge they have gained in the Environmental Monitoring lessons and from their visit to Infinity Science Center to make a R-A-F-T.

***Science and Engineering Practices***

- Constructing explanations
- Obtaining, evaluating, and communicating information

- Students will apply what they have learned at the Science Center and through the Environmental Monitoring lessons to write about the concepts learned.

***Disciplinary Core Idea***

ESS 2.A: Earth's Materials and Systems: All Earth processes are the result of energy flowing and matter cycling within and among the planet's systems. This

- Students should be able, at this point in the unit of study about Earth's systems, to explain through writing how Earth's systems are connected and how the ocean and

energy is derived from the sun and Earth's hot interior. The energy that flows and the matter that cycles produce chemical and physical changes in Earth's materials and living organisms.	atmospheric conditions are monitored to keep humans safe as well as monitoring the impact humans are having on those systems.

<b>Teacher Background Information</b>
<p>The Environmental Monitoring area in the Infinity Science Center consists of six interactive computer stations, each providing a specific type of live data. This lesson focuses around water quality which is one of the areas of focus at the Science Center. Students can better understand how contaminants can affect Earth's water system and terrestrial system. When visiting the Infinity Science Center, students will see an exhibit in the Environmental Monitoring exhibit about water quality and what contaminates water. After completing the other lessons about the Environmental Monitoring exhibit, students will be asked to compile that information and evaluate the information to plan a R-A-F-T activity. In a R-A-F-T activity, the student is asked to write to different audiences and with different formats about a certain topic. It is a writing strategy to help support the conceptual learning in many subject areas.</p>
<p><b>Statement of Learning Objective:</b> ABCs – Audience, Behavior, Condition</p> <p>Students will write using a R-A-F-T format to explain the concepts that have been learned during the visit to the Infinity Science Center's Environmental Monitoring exhibit and by the completion of the lessons on their website.</p>
<p><b>Materials:</b></p> <ul style="list-style-type: none"> <li>• students notebooks</li> <li>• Student R-A-F-T sheets</li> </ul>
<p><b>Vocabulary:</b>  <b>solute, solution, solvent, serial dilution, concentration, dilution factor, buoy, ocean current, air current, wave height, convection, monitor</b></p>

**Adaptations/Accommodations for Exceptional Students:**

Students may need support with this writing activity. Alternate RAFT activities can be made to differentiate in your classroom. Also, doing a R-A-F-T together as a whole class helps to model how to use this writing strategy.

**Literacy Connections:**

- Oceans by Seymour Simon
- DK Eyewitness Books: Oceans by Miranda Macquitty
- Scholastic Discover More: Ocean and Sea by Steve Parker

**5E Instructional Process:****Engage:****Activity****What have you learned about environmental monitoring?**

- Ask students to get out all of the work they have done about environmental monitoring (example: their notebooks, data sheets, writing, etc).
- Conduct a class discussion about what kind of things are monitored and how they are monitored.
- Next, review how the data that is collected is used by scientists.
- Then, listen as your teacher explains and gives examples about a R-A-F-T writing assignment.
- Look at your student sheet to learn what role, audience, format, and topic you have been assigned. Ask questions about the assignment if you any.

**Explore:**

- Brainstorm in your science notebook about ideas you have for your R-A-F-T writing assignment.

**Explain:**

- Write your persuasive writing using the R-A-F-T format.

**Elaborate:**

**Activity –Communicating the writing**

- Give students the opportunity to share their writing within their small groups, as a whole group, or during a Gallery Walk.
- Encourage students to question the writers and allow for elaboration of the topics.
- Complete the activity with a class poster about things they still want to know about these topics.

**Evaluate:**

1. The R-A-F-T writing should be evaluated for the rich use of vocabulary and the correct explanations of the concepts taught during this unit.