Hydrosphere 5e Lesson Plan

Planning Stages Within the 5-E Inquiry Model (**Engage**, **Explore**, **Explain**, **Elaborate**, **Evaluate**)

Engage

PURPOSE:

- to convey the idea that the water cycle does not add more water and to recognize a variety of storm types, describe the weather conditions associated with each, and explain when they occur (e.g., thunderstorms, hurricanes, and tornadoes);
- to engage students in investigating the water cycle and to analyze and report information about temperature and precipitation on weather maps;
- to look at percipatation data and to measure locally with a rain gauge; and
- to excite students about data, the weather cycle, and available NASA and NOAA websites.

What is the teacher doing? What are the students doing?

1. The teacher will introduce the topic of the hydrosphere by showing the video "Water Falls, Show Me the Water."
2. Students will watch the video and take notes.
3. The teacher will ask the driving question, "How might the water cycle affect us on Earth?"

Explore

PURPOSE:

- to investigate NASA Hydrosphere & NOAA websites for information through explorations, investigations, experiments,
- to predict, modify, and record ideas as they change due to information and data,
- to develop new questions and work together to try to answer them.

Activities (list)	Driving Question
Introduction of fresh water on Earth. Watch Video "Water Falls, Show Me the Water." Class Discussion	How might the water cycle affect us on Earth?

Student Communication Product:

Students will demonstrate understanding and knowledge through whole class discussion, team data explorations, analysis, and graphing, and measuring water fall locally.

Explain

PURPOSE:

- to answer the Driving Question through explanations found in variety of resources; and
- to provide students with relevant vocabulary and explanations of water cycle and related concepts.

Content Media: (written material, video, teacher lecture, technology)

Water Falls, Show me the Water

Exploring Science All Around Us, Level 4 (Textbook) by Ponds Press, student pages 100-101 (Teacher Edition page 190-191)

Whole Class discussion

Student Communication Product: (assessment, unit test, written report, oral presentation, poster, etc.**)**

Class will begin with a brief introduction to fresh water. What is it? Where is it? What other questions do we have?

Students will watch the video and then participate in a whole class discussion.

Students will work with partners, explore a list of resources, including NASA, NOAA, and Encyclopedia Brittanica, and prepare to share their findings verbally with the class.

Students will also record their findings in their Science Journal.

Hydrosphere 5e Lesson Plan

Elaborate
PURPOSE: ● to extend students' conceptual understanding through application or practice in new settings they will analyze and record rainfall data locally, as well as evaluating how much water is around us and where it is located.
Activities: Students will watch, “Water Falls, Show Me the Water.” Students will particiapate in a whole class discussion. Students will explore NASA, NOAA, The Weather Channel, and Encyclopedia Brittanica websites. Students will create and use a rain gauge either at their home or on the school campus for a week (Mon.-Fri.). **Content Media: (written material, video, teacher lecture, technology)** My NASA Date, https://mynasadata.larc.nasa.gov/basic-page/about-hydrosphere The National Weather Service, NOAA, http://www.weather.gov/ and https://water.weather.gov/ahps/ Encyclopedia Brittanica, http://www.britannica.com/ **Extending/Application Questions for Whole/Small Group Discourse:** extension work may be related to analyzing sea levels around the world & evaluating what is specifically causing **Student Communication Product (assessment):** (unit test, written report, oral presentation, poster, etc) Students will create and use a rain gauge locally (either at their home or at school). Students will share verbally what they have researched, created, and learned. Students will create and use a rain gauge for one week (Mon.-Fri.). Students will also record their findings in their Science Journal.
Evaluate
PURPOSE: For students to research and critically evalaute how the water cycle affects us on Earth.

Skill/Reasoning Learning Objectives	Assessment Instrument
Students will be able to research a topic effectively. Students will be able to create and use a rain gauge.	Students will present an oral presentation of what they have learned from their research. Students will create a rain gauge.
Knowledge Learning Objectives	**Assessment Instrument**
Students will learn about the hydrosphere and the water cycle.	Students participate in conversations that demonstrate their level of knowledge.

Unit or Lesson Title:	Hydrosphere (Water Cycle)
Grade Level Standardsl	**Science 4.1** The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which a) distinctions are made among observations, conclusions, inferences, and predictions. **Science 4.6** The student will investigate and understand how weather conditions and phenomena occur and can be predicted. Key concepts include: a) weather phenomena; b) weather measurements and meteorological tools; c) use of weather measurements and weather phenomena to make weather predictions.

Hydrosphere 5e Lesson Plan

	Science 4.9 The student will investigate and understand important Virginia natural resources. Key concepts include a) watersheds and water resources. **English Language Arts 4.6** The student will read and demonstrate comprehension of nonfiction text: e) Draw conclusions and make inferences using textual information as support, f) Distinguish between cause and effect. **Writing 4.7** The student will write in a variety of forms to include narrative, descriptive, opinion, and expository a) Engage in writing as a process. **Math 4.14a** Collect, organize, and represent data in bar graphs and line graphs.
Topic/Theme/Nature of the Investigation:	
NGSS Performance Expectation(s) **Next Generation Science Standards**	4-ESS2-1 Students will make observations and/or measurements to provide evidence of the effects of weathering by water, ice, wind, or vegetation.
NGSS Dimension 1 component (Scientific and Engineering Practices) Dimension 1	Analyzing and interpreting data
NGSS Dimension 2 component (Crosscutting Concepts) Dimension 2	Patterns
NGSS Dimension 3 component (Disciplinary Core Ideas) Dimension 3	Earth and Space Systems
Duration:	Two 50 minute classes