|  |  |  |
| --- | --- | --- |
| **Name: Nancy Schreder-Vossen** | **Contact Info:nancyschred@gmail.com** | **Date:2/14/2017** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Lesson Title : The Hydrologic Cycle** | **Unit #:****1** | **Lesson #:****1** | **Activity #:****1** |
| **Activity Title: Identifying parts of the hydrologic cycle** |

|  |  |
| --- | --- |
| **Estimated Lesson Duration:** | **2 Class periods** |
| **Estimated Activity Duration:** | **1 Class Period** |

|  |  |
| --- | --- |
| **Setting:** | **Classroom** |

|  |
| --- |
| **Activity Objectives:** |

Students will define key terms associated with the water cycle

Students will describe how water is able to move using the water cycle

|  |
| --- |
| **Activity Guiding Questions:** |

Where do we get water?

Are there water sources available that we cannot see?

How do plants get water from the ground?

How is water in the ground stored?

How is the water that is in the ground related to the water that we see on the surface of the earth?

| **Next Generation Science Standards (NGSS)**  |
| --- |
| **Science and Engineering Practices (Check all that apply)**  | **Crosscutting Concepts (Check all that apply)** |
| ☐ Asking questions (for science) and defining problems (for engineering) | ☐ Patterns |
| ☐ Developing and using models | ☐ Cause and effect |
| ☐ Planning and carrying out investigations | ☐ Scale, proportion, and quantity |
| ☒ Analyzing and interpreting data | ☒ Systems and system models |
| ☐ Using mathematics and computational thinking | ☐ Energy and matter: Flows, cycles, and conservation |
| ☐ Constructing explanations (for science) and designing solutions (for engineering) | ☒ Structure and function.  |
| ☐ Engaging in argument from evidence | ☐ Stability and change.  |
| ☐ Obtaining, evaluating, and communicating information  |  |

| **Ohio’s Learning Standards for Science (OLS)** |
| --- |
| **Expectations for Learning - Cognitive Demands (Check all that apply)** |
| ☐ Designing Technological/Engineering Solutions Using Science concepts **(T)** |
| ☒ Demonstrating Science Knowledge **(D)** |
| ☐ Interpreting and Communicating Science Concepts **(C)** |
| ☒ Recalling Accurate Science **(R)** |

| **Ohio’s Learning Standards for Math (OLS) and/or** **Common Core State Standards -- Mathematics (CCSS)** |
| --- |
| **Standards for Mathematical Practice (Check all that apply)** |
| ☐ Make sense of problems and persevere in solving them | ☐ Useappropriate tools strategically |
| ☐ Reason abstractly and quantitatively | ☐ Attendto precision |
| ☐ Construct viable arguments and critique the reasoning of others | ☐ Look for and make use of structure |
| ☐ Model with mathematics | ☐ Look for and express regularity in repeated reasoning |

|  |
| --- |
| **Unit Academic Standards (NGSS, OLS and/or CCSS):** |

Interdependence of living things

Biogeochemical cycles

|  |
| --- |
| **Materials**:  |

Notebook paper ( 1 sheet/student) Website: You Tube Flint water crisis <http://www.cnn.com/2016/03/04/us/flint-water-crisis-fast-facts/>

 Here’s how Flint’s water crisis happened

 Flint resident fighting for clean water

Worksheet: The Water Cycle

Website: water.usgs.gov

Text book

|  |
| --- |
| **Teacher Advance Preparation:** |

Make copies of the water cycle worksheets

|  |
| --- |
| **Activity Procedures:** |

Part 1: Introducing the Big Idea, Essential Questions and Challenge

* Have students watch the Hook Video – Flint Water Crisis
* Give students the Big Idea: Clean Water
* Pass out notebook paper for student to record their ideas.
* Ask the students to work with the person at their table to come up with at least 8 essential questions (3-4 minutes).
* Give the student teams 2 minutes to pick their top 2 essential questions and write them on the white board in the front of the room.
* Find a common essential question for the unit using the information put on the board by grouping common answers.
* Present the challenge to the students.
* Give students 3-4 minutes to come up guiding questions, working with their table partner (they should generate at least 8).
* Have each team select their top 2 guiding questions and write them on the white board in the front of the room.

Students will record their ideas about the essential question and guiding questions and turn them in to be used as a formative assessment.

Part 2: Introduce the water cycle

* Handout student worksheet 1.1.1a The Water Cycle.
* Direct students to the website listed or their text book.
* Each student will click on the term on the website that correlates to the term on the worksheet.
* After reading the information, each student will complete the worksheet by adding a brief description of each term.

**Formative Assessments:**

Students will turn in the notes they took while generating the essential and guiding questions.

**Summative Assessments:**

|  |
| --- |
| **Differentiation:** |

Water cycle worksheet will be corrected for accuracy.

Access the website regarding the water cycle and complete the water cycle worksheet key terms as a class. Rather than doing the assignment as independent work, complete it as a notes. Most text books also have the water cycle within the context of the reading. The textbook can be used to complete this assignment.

|  |
| --- |
| **Reflection:**  |

Students used their textbooks to complete the terms associated with the water cycle and asked to complete the other terms on their own. Terms that were not included in their textbook were discussed in class so all students had the same information.