**Williamson Fellows Lesson Planning Template**

|  |  |  |
| --- | --- | --- |
| **Grade(s):** *6,7,8* | **Topic:** Water Cycle | **Lesson #** 1 **in a series of** 3 **lessons** |
| **Brief Lesson Description**: *This lesson will reinforce the 7 main components of the water cycle through an interactive game (water cycle jeopardy).* |
| **Learning Outcome(s):** *Students should be able to identify the 7 main components of the water cycle.**Students should have an appreciation of how only a fraction of water is available for human use.**Students should have an appreciation of how human activity can impact the water cycle.* |
| **Background Information**  |
| *Provide necessary background information about ideas or concepts that students need to know* ***before*** *beginning this lesson (e.g., students should know that CO2 is a major greenhouse gas, or students should understand the role that water plays in weathering and erosion, etc.). You may want to describe why these ideas are important.**For HW the night before, students will watch an introductory video on the water cycle. There are many effective videos on Youtube. The Brain Pop video on the water cycle (linked below) is a good resource.*  |
| **Science & Engineering Practices:** *List up to three Science & Engineering Practices that students will engage in during this lesson.**Developing and using models* | **Disciplinary Core Ideas:** *List up to three Disciplinary Core Ideas that are addressed in this lesson.**(PS1) Matter and its interactions**(ESS2) Earth’s systems**(ESS3) Earth and Human Activity* | **Crosscutting Concepts:** *List up to three Crosscutting Concepts that are addressed in this lesson.**Energy and matter**Systems and system models**Scale, proportion, and quantity* |
| **Possible Preconceptions/Misconceptions:** *The amount of water on the planet is declining due to climate change. This statement is false. Climate change impacts the water cycle (precipitation patterns, temperature, etc.), but does not impact the amount of water on earth.* |
| **LESSON PLAN** *This template uses the “5E” model to help with planning: Engage, Explore, Explain, Elaborate and Evaluate* |
| **ENGAGE** *Describe how you will start the lesson. How will get students engaged? What prompts will you use to help students access prior knowledge? How will you stimulate their interest and generate questions? This could be an interesting picture, a video with background information, an activity, a game, or even just a series of questions that you ask the students. You can include a pre-assessment here as well – this could be a written “quiz” or just asking questions of the students to gauge what they already know about the subject.**Students will participate in a water cycle Kahoot as a warmup activity. The link is provided below. At the end of each question, teachers should go through and briefly explain correct answers to the entire class to clear up any misconceptions.* |
| **EXPLORE Lesson Description***Jeopardy!! (with different rules from normal jeopardy)**Teachers will administer a jeopardy game for the class (template provided below). Students will be divided into teams of three to four. Teachers will determine a random order prior to starting the game.**At the start of each turn, each group will have the opportunity to pick the topmost unpicked square in any row. The teacher will then click on the link in the corresponding square, and this will prompt the students with a question. All groups will have 60-120 seconds to discuss answers to the question and come to a consensus before presenting their answers to the class (if there is access to handheld white boards, have students write their answers on them). All groups that present a correct answer will be awarded the amount of points shown in the square. Incorrect answers will not receive points. The teacher will keep tally of scores on the whiteboard (or in a Zoom chat if done virtually). The next group in the predetermined order will pick a new square to start the next turn.**Teachers should encourage their students to share their thought process when giving their answers, particularly on more difficult questions.* *Once the game ends (7 minutes prior to the end of class or once all questions are answered), there will be a post assessment quiz that students will have 5 minutes to complete.*  |
| **EXPLAIN** **Concepts:** *This lesson will cover the 7 main components of the water cycle.* **Vocabulary:** *Evaporation:* the change of water from a liquid state to a gas state due to an increase in temperature*Condensation:* the process by which water changes from a gas to a liquid state*Precipitation:* water that falls from clouds in the form of rain, snow, sleet, or hail*Runoff:* excess water, not absorbed by the soil, that flows downhill*Infiltration:* the flow of surface water into the subsurface (ground)*Storage:* water that is stored in a location for a long period of time and is not actively moving through the water cycle (ex: snowpack)*Transpiration:* the release of water vapor into the atmosphere by plant leaves |
| **ELABORATE:** [The distribution of water on, in, and above the Earth (usgs.gov)](https://www.usgs.gov/media/images/distribution-water-and-above-earth)To get a sense of the distribution of water on earth, teachers can create a mini-lesson or hw assignment with information contained on the web page linked above.  |
| **EVALUATE:** **Formative Assessment:** *Each question answered in Jeopardy will provide a check-in opportunity to assess how the lesson is going. Teachers will be able to elaborate on correct answers given by students, and they will also be able to clarify any concepts from incorrectly answered questions.***Summative Assessment:** *In the last 5 minutes of class, students will receive a diagram that they will be asked to label with the components of the water cycle. This can be graded as a quiz. Students that paid attention during the class activity and the pre-assessment (the Kahoot) should have minimal trouble completing this activity.* |
| **Notes for Instructors:** *This can be anything from where to find more information, to troubleshooting activity problems, to where to find certain supplies.* |

|  |
| --- |
| **Materials Required for This Lesson/Activity** |
| *Insert any diagrams, handouts, pictures, or other materials that aren’t available online HERE.**Include any hyperlinks to online videos, maps and other resources in the “Explore” part of the lesson.**List any other materials, including quantity, potential supplier and price if it is significant.**Jeopardy link: See powerpoint on lesson webpage**Post-assessment link: See word doc on lesson webpage**Pre-video link:* [WATER CYCLE - YouTube](https://www.youtube.com/watch?v=aOCX4qJ3ztQ)*Warmup activity link:* [*https://create.kahoot.it/share/water-cycle/ce9e8558-80ea-4fc3-ad1d-4dfc1276e50c*](https://create.kahoot.it/share/water-cycle/ce9e8558-80ea-4fc3-ad1d-4dfc1276e50c) |