Satellites, Weather and Climate
Lesson plan summary: Water Cycle
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Grade Level: 4
Curriculum Target Benchmarks:
Subject keywords: Water, Water Cycle

INTRODUCTION: This lesson is the first in a unit on the water cycle for a grade 4 class. Specifically this lesson introduces students to new vocabulary words: evaporation, condensation, and precipitation. The idea that the same water completes the cycle is another key concept. This lesson and unit on the water cycle is part of a larger year-long study of weather.

STANDARDS/GRADE LEVEL EXPECTATIONS:

ENDURING UNDERSTANDINGS: Evaporation is when the sun heats up water in rivers or lakes or the ocean and turns it into vapor or steam. The water vapor or steam leaves the river, lake or ocean and goes into the air. Water vapor in the air gets cold and changes back into liquid, forming clouds. This is called condensation. Precipitation occurs when so much water has condensed that the air cannot hold it anymore. The clouds get heavy and water falls back to the earth in the form of rain, hail, sleet or snow.

ESSENTIAL QUESTIONS:

How do we get the water we use each day in our lives?

What is our role in the water cycle?

LEARNING OBJECTIVES:

a. By the end of this activity, the students <u>will know</u> (concepts/ideas)...
what the water cycle is and how water moves through the water cycle.

b. By the end of the activity, the students <u>will be able to</u> (skills)…
describe the water cycle, using new vocabulary words: evaporation, condensation and precipitation.

c. By the end of the lesson, the students will have <u>developed these habits of mind</u>…
   - thinking and then communicating thoughts with clarity
   - questioning ideas and then posing problems

MATERIALS

- two plastic bags per student, ½ cup of tap water per student, markers

a. Materials will be left on the shelf at the front of the room and distributed to students after directions are given

b. Technology will be utilized through the use of a computer which will have the screen projected onto the classroom board through a smart board. Students will gain visuals of the water cycle and see the different essential parts to the water cycle.

LESSON FORMAT:

a. **Start-Up/Motivator:** Students will watch a short three minute clip of Bill Nye the Science Guy introducing the water cycle. We will then talk about the new words Bill Nye used in the video. Students will make a small visual diagram in their science notebooks of the water cycle, labeling the different parts with the new words.

b. **Mini lesson:** After watching the video and creating the diagram, students will be given the definitions for precipitation, evaporation and condensation. Up until this point in the lesson students have talked about these ideas, but now will record the exact definitions in their notebooks. Students will also be asked whether water can ever leave the water cycle and how it might do that. After a 5 minute conversation students should have come to the conclusion that the water that we drink today has been a part of the water cycle since the cycle began. There is a finite amount of water on our earth. If they do not come to this conclusion, share it with them and explain they will witness it for themselves in the following activity.

c. **Independent/ Small Group Work:** Students work alone to create their own water cycle in a bag. Using a plastic bag students will first decorate it using markers. A sun, clouds, ground, streams and lakes can all be drawn on. Next students will fill the bag with ½ cup water and then seal the top closed. The bags will be taped to the classroom window where students will make observations about the water in the bag for 5 minutes once a day for one week.

d. **Wrap-Up/ Closure:** After observing the plastic bag students should see that the water warms in the sunlight and evaporates into water vapor. As that vapor cools, it begins changing back into a liquid just like a cloud. When enough water condensates, the air can't hold it anymore and the water falls down as precipitation. Students will bring home their observations and explain to a parent the experiment. Parents will be welcomed to view the water cycle in a bag during our Friday afternoon show and tell time with parents and community members.

e. **Adapt/Modify Instruction:** Students who need extra support with writing will be given the option to type their notes on school laptops. Students who need assistance closing the bag can work in groups to pour the water and seal the bags. For daily observations students who need extra vocabulary support will be given a word bank to help them think of new terms for the water cycle.

ASSESSMENTS (FORMATIVE AND SUMMATIVE):

a. The assessment for this lesson will be the collection of students' science notebooks which should contain the definitions precipitation, condensation and evaporation and their observations using new terms and scientific vocabulary which students have been using for observations all year. I will check off whether students recorded the definitions and whether

their observations used the new words and scientific vocabulary. If their notebooks to not demonstrate these new ideas I will meet with those students in a small group to review.

RESOURCES/BIBLIOGRAPHY:

http://www.glasgowsciencecentre.org/teacher-resources/water-cycle-in-a-bag.html

https://www.youtube.com/watch?v=hehXEYkDq_Y

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