



Water Cycle

Subject: Science

Grade level: K-5

Rationale or Purpose: This lesson demonstrates the basic principles of the water cycle, especially evaporation and condensation.

Materials:

- clear jars
- water
- plastic wrap
- rubber bands

Lesson Duration: 60 minutes.

Objectives:

- Science 112.2 (1A), demonstrate safe practices during field and lab investigations
- Science 112.2 (1B), learn how to use and conserve resources and materials
- Science 112.2 (2A), ask questions about objects and events
- Science 112.2 (2B), plan and conduct simple descriptive investigations
- Science 112.2 (2D), construct reasonable explanations using information
- Science 112.2 (3C), explain a problem in his/her own words
- Science 112.2 (4A), identify and use senses as tools of observation
- Science 112.2 (5A), describe properties of objects
- Science 112.2 (5B), observe and identify patterns
- Science 112.2 (7A), observe, describe, and record changes
- Science 112.2 (7B), identify that heat causes change
- Science 112.2 (10A), observe and describe properties of water

- Science 112.3 (1A), demonstrate safe practices during field and lab investigations
- Science 112.3 (1B), learn how to use and conserve resources and materials
- Science 112.3 (2A), ask questions about objects and events
- Science 112.3 (2B), plan and conduct simple descriptive investigations
- Science 112.3 (2D), construct reasonable explanations using information
- Science 112.3 (3C), explain a problem in his/her own words
- Science 112.3 (5A), sort events based on properties
- Science 112.3 (7A), observe, describe, and record changes
- Science 112.3 (7B), identify that heat causes change
- Science 112.3 (10A), observe and describe properties of water
- Science 112.3 (10C), identify how water is used and how it can be recycled

- Science 112.4 (1A), demonstrate safe practices during field and lab investigations
- Science 112.4 (1B), learn how to use and conserve resources and materials
- Science 112.4 (2A), ask questions about objects and events
- Science 112.4 (2B), plan and conduct simple descriptive investigations
- Science 112.4 (2E), construct reasonable explanations and draw conclusions

- Science 112.4 (2F), communicate explanations about investigations
- Science 112.4 (3C), explain a problem in his/her own words
- Science 112.4 (5A), sort events based on properties
- Science 112.4 (7A), observe, describe, and record changes
- Science 112.4 (7B), identify that heat causes change
- Science 112.4 (10A), describe and illustrate the water cycle

- Science 112.5 (1A), demonstrate safe practices during field and lab investigations
- Science 112.5 (2A), implement descriptive investigations
- Science 112.5 (2B), collect information by observing
- Science 112.5 (2C), interpret information to construct reasonable explanations
- Science 112.5 (3A), analyze explanations as to their strengths and weaknesses
- Science 112.5 (3C), represent the natural world using models
- Science 112.5 (5A), observe simple systems
- Science 112.5 (7B), identify states of matter
- Science 112.5 (7B), identify that heat causes change
- Science 112.5 (11A), describe the importance of earth materials

Activity:

- Step 1: Hand out supplies and explain that the students will produce a model of the water cycle.
- Step 2: Have students fill their jars about 1/3 full with water. Instruct them to be careful with the water and jars and to report any spills or drops immediately.
- Step 3: Have students cover the top with plastic wrap and secure with a rubber band.
- Step 4: Students should place the jars directly in sunlight.
- Step 5: Ask students to predict what will happen in their jars.
- Step 6: Discuss the water cycle to the students, being sure to use and define terms such as evaporation and condensation.
- Step 7: Discuss more detailed aspects of the water cycle and have students brainstorm places/environments where evaporation, condensation, run off, etc. might occur. Be sure to mention that condensation can occur in different forms.
- Step 8: Have students get their jars.
- Step 9: Ask students what processes occurred inside their jars, and what caused each of the processes.

Modification: Depending on the amount of sunlight and the time spent discussing the water cycle, more time might be required before water condenses on the jar and plastic wrap.

Student Product: A model of the water cycle. In Step 9, the questions could be written if you choose – giving another student product.

Closure: The questions at the end should be discussed orally, even if the students turned in a written response. Ask further questions: would the same processes

occur in a smaller jar? In a bigger jar? What would happen if the entire jar was very cold? What if the jar was huge, and the top was much colder than the bottom?

Assessment or evaluation: Evaluate students on experiment directions and answers to the questions in Step 8. In some classes, answering the closing questions on paper may also be appropriate.

Extension: A quick follow up activity would be to repeat a modified version after water contamination was introduced. For the repeat, use water with food coloring added. Have students note the color of the water at the bottom of the jar and the drops condensing elsewhere. Discuss what happened to the coloring and the implications for cleaning water (and removing solutes like salt).

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