

Project FOCUS  
Best Lessons  
FOURTH GRADE

**Title of Lesson: The Water Cycle**

**Theme: Water Cycle**

**Unit Number: 2      Unit Title: Weather**

**Performance Standard(s) Covered (enter code):**

- **S4E3 Students will differentiate between states of water and how they relate to the water cycle and water.**
  - a. Demonstrate how water changes states from solid (ice) to liquid (water) to gas (water vapor/steam) and changes from gas to liquid to solid.
  - b. Identify the temperatures at which water becomes a solid and at which water becomes a gas.
  - c. Investigate how clouds are formed.
  - d. Explain the water cycle (evaporation, condensation, and precipitation).

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**Enduring Standards (objectives of activity):**

**Habits of Mind**

- Asks questions**
- Uses numbers to quantify**
- Works in a group**
- Uses tools to measure and view**
- Looks at how parts of things are needed**
- Describes and compares using physical attributes**
- Observes using senses**
- Draws and describes observations**

**Content (key terms and topics covered):**

- **Water Cycle**
- **Evaporation**
- **Condensation**
- **Precipitation**
- **Water Vapor**
- **Cloud Formation**

**Learning Activity (description in steps)**

**Abstract (limit 100 characters): Students will observe the three states of water and their roles in the water cycle: including cloud formation, and evaporation.**

**Details:** [Click here to enter text.](#)

1. **Set up hot plate in front of class with 1000 mL beaker on top. Fill the beaker with ice and watch the phase change from solid to liquid to ice.**
2. **While the hot plate is heating up, introduce/revisit the concept of the three phase changes of water. Tie these concepts back to the water cycle: evaporation,**

**condensation, and precipitation. Describe everyday situations in order to tie these in together (i.e. condensation on a cold glass of water, etc.)**

- 3. After discussing evaporation, and showing the example on the hot plate, show the student a Bill Nye the Science Guy video on youtube to better explain condensation. Link to the video is on the sources/references part below. (The video is only three minutes long)**
- 4. After the video, ask students if they know how to make a cloud? Ask them the “ingredients” necessary for proper cloud formation.**
- 5. End the lesson by replicate the experiment to see if the students truly understand the concept (use 1000 mL round bottom flask, matches, water and a pump). Make sure that they understand that dust particles are needed for cloud formation, so the water vapors have something to stick to. Also make sure the students fully grasp the solid, liquid and gas concepts and how they pertain to the water cycle.**

**Materials Needed (type and quantity): One 1000mL Round Bottom (or similar) flask**

- **Pump**
- **Matches**
- **Water**
- **Ice**
- **Hot plate**
- **1000 mL flask**
- **1000 mL round bottom flask**

**Notes and Tips (general changes, alternative methods, cautions): Make sure that the hot plate is heated up prior to class. Also make sure that there is some water with the ice, it will help make the ice melt faster.**

**Sources/References:**

- 1) [http://www.youtube.com/watch?v=hehXEYkDq\\_Y](http://www.youtube.com/watch?v=hehXEYkDq_Y)**
- 2) Click here to enter text.**
- 3) Click here to enter text.**