

**MANCHESTER COLLEGE**  
Education Department

LESSON PLAN by: Celsie Myers

**Lesson:** Cloud Formation      **Length:** 15-20 Minutes per session

**Age or Grade Intended:** 5<sup>th</sup> Grade

**Academic Standards:**

5.3.5 Observe and explain that clouds and fog are made of tiny droplets of water.

**Performance Objectives:**

Given a data chart, the students will record their observations of the cloud formation with 100 % accuracy.

Given various art supplies, the students will create a drawing of how a real cloud would form in the mountains (with the effects of the warm earth and cool air) with 80% accuracy.

Given a data chart, the students will record their research about different types of clouds with 100% accuracy.

Given various art supplies, the students will draw different types of clouds with 100% accuracy.

Given a data chart, the students will record their research about the water cycle with 100% accuracy.

Given various art supplies, the students will draw the water cycle process with 100% accuracy.

**Advanced Preparation by Teacher:**

1. materials needed:
  - a. 5 large jars
  - b. 5 plastic bags of ice that will fit over the jar opening
  - c. 5 pitchers of warm water
  - d. 5 sheets of black paper
  - e. a flashlight
  - f. a book of matches
  - g. table to record observations
2. a designated area such as a back table needs to be set up for students involved in the experiment
3. variety of books about different types of clouds
4. station set up for drawing and labeling clouds
  - a. various art supply
  - b. construction paper
5. variety of books about the water cycle
  - a. various art supply
  - b. construction paper

**Procedure:**

The class will start out in a group and then be split into groups of four (based on a class

of 20 students). Each group will go through the stations set up throughout the room. The stations include the experiment of making a cloud formation, researching different types of clouds, drawing and labeling each different cloud type, researching the water cycle and drawing a picture of the water cycle. One group will be doing the experiment with the teacher at a time, one group will be researching different types of clouds, one group will be drawing and labeling different clouds, one group will be researching the water cycle, and the last group will be drawing the water cycle. The students will turn in their experiment observation sheet, their research on different clouds and the water cycle along with their drawings.

### **Introduction/Motivation: (Engagement)**

As a group, the class will discuss the weather and how weather changes during each season. What are some of the different types of clouds seen in the sky? What are they made of? How do you think clouds form? The responses to these questions will be written on an overhead to return to after the students complete the lesson. The teacher will split the class into five groups of four students and explain each station. Explain to the class that she will be helping with the experiment group and expect the other students to behave and act appropriately while doing the various activities. Otherwise, it could result in forfeiting the activity and returning to bookwork.

### **Step-by-Step Plan: (Exploration and Explanation)**

In the groups of four, give each student a number 1-4. Explain that they are going to perform a simulation of the forming of a cloud. Take out one jar and a piece of black paper. Have student 1 tape the piece of black paper to the back of the jar. Hand student 2 the jar of warm water and tell them to pour it into the jar until it is a third full. The teacher will light a match and hold it over the jar for a few minutes and then drop it in. Student 3 will quickly cover the jar with the bag of ice. Student 4 will shine the flashlight on the jar while making observations. The students will record their observations on a chart given to them by the teacher. Once the students have had a chance to record observations, tell the class it is the time to switch groups. Once each group has completed each station, come back as a group.

Once the whole class has gathered back together, ask the students questions. What did you see in the jar? Where did the cloud come from? How did the warm water effect the cloud formation? What did the ice cubes do to help the cloud form? What role did the match and its smoke play in the cloud formation? Compare these answers to the responses written on the overhead.

### **Closure: (Elaboration or Extension)**

The students will get back into their groups and discuss the process of cloud formation from what they just learned and experimented. The students will then return back to their seat. Each student will draw a picture of how a real cloud would form and what effects the warm earth and the cool air in the mountains would have.

### **Assessments: (Evaluations)**

The students will turn in their drawings of how a real cloud would form with the effects of the warm earth and the cool air in the mountains, drawings of different types of clouds and the water cycle. The students will also turn in their data chart of the recording of observations, different types of clouds and research on the water cycle.

**Adaptations/Enrichment:**

For the students with learning disabilities, I would create a model of each different type of cloud and let the students label them using marker. Also, the student could have a partner in drawing a picture of how a real cloud would form in the mountains. I would also give the student a handout on the experiment, including pictures and labels of what happened. For the advanced students, they would repeat the process without using the match but by using dust, flour, sand, cedar shavings, or other materials to see if the cloud would still form. After experiment, writing in their journal on what they saw happen and why they think it happened.

**Self-Reflection:**

How could I make this more effective for the students? Does the experiment work every time? Was the water too hot or too cold? How could I do the activity where I could observe and help each group not just working with the experiment?