WAYNE STATE UNIVERSITY

STEM Day Lesson Plan

Title: Cloud in a Bottle

Subject Area: Science

Learning Activity Description: Students will figure out how clouds form by making a cloud in a bottle.

Lesson Activity Objective: The learner will gain an understanding of how even though they can't see water molecules; that they are in the air all around us. That they are bouncing around in the atmosphere, that they have lots of motion energy, and that they do not normally stick together.

Lesson Activity Outcomes: Students will see a cloud form in a bottle. They will gain an understanding that warm air rises and its pressure is reduced; causing clouds to form on Earth.

Materials/Supplies Listed:
-Two-(2) liter bottles
-60 16 ounce water bottles
-Rubbing Alcohol
-Hand air pump (2)
-2 Rubber Stoppers #3
-Water
-Droppers
Note: All materials/supplies listed will be supplied by the presenter

Teacher Procedures:
-Greet/Welcome Students
-Have a discussion with students regarding air pressure and clouds (knowledge check)
-Demonstrate how clouds are formed by modeling clouds in a bottle with pump (2 liter bottle)
-Have a discussion around what students witnessed happening in the bottle
-Distribute 16 ounce bottles to students; have students put a dropper full of water in their bottle
-Students will twist water bottle with cap on and then release to create their own cloud in a bottle (no pump)
-Have a discussion around what worked and what did not work
-Have a discussion around how clouds are formed
-Reflection

Preparation Time for Learning Activity:
20 minutes

Room set-up: The ability to group students in six groups of five

Group Strategies (example, group size, expected time for groups, etc.)
-Six groups of five
-Each group will discuss the amount of water they will need to create their own cloud in a bottle and how many twists of the bottle the predict they will need in order to build up pressure in the bottle
-Students will need to strategize on how to remove the cap in order to release the cloud

Student Products/Artifacts/work pages:
-Student worksheets

Assessment Criteria/Rubric:N/A

Closing/Transition to next activity:
Closing reflection from each group as to how they think the project went.