

Can we make it rain?

Exploration 23 min

Hands-On Activity 25 min

Wrap-Up 7 min

Activity Prep

In this Mystery, students develop a model to explain how water cycles from the Earth's surface to the atmosphere and back again. In the activity, Make It Rain, students create simple models of the ocean and sky to see how these two systems interact. Students compare how the temperature of the ocean and the temperature of the sky affect evaporation and condensation.

Number of students:

Clean-up Supplies (Eg. Paper Towels)

1 roll

Coolers

Details ▼

One for the hot water bottles and one for the cold water bottles. You can line 2 cardboard boxes with bath towels to create homemade coolers.

Blue Food Coloring
(about 40 drops)

Details ▼

Clear Plastic Cups (10 oz)
Frosted cups won't work. Cup must be tall enough to extend at least an inch above the Dixie Cup.

Details ▼

Dixie Cups (3 oz)

32 cups

Plastic Bottles (8oz)
Each group needs four bottles. We suggest having a few extras on-hand. We encourage you to use recycled bottles.

Details ▼

Red Food Coloring
(about 40 drops)

Details ▼

Thick Paper Plates
The thick paper acts as insulation.

Details ▼

Rainmaker Experiments printout

Print 30 copies

Prep Instructions



You will need access to a refrigerator and microwave for this activity.

We recommend students work in groups of four, which works well because there are four experimental set-ups. Homeschool students can work on their own, but will need all four experimental set-ups so that they can make comparisons.

You will need several small plastic bottles for this activity (4 bottles for every group of four students, plus a few extras to have on-hand). We encourage you to use recycled bottles when possible.

Prepare the Water Bottles

You'll need to start preparing for class the night before by refrigerating the cold bottles overnight. You can prepare the hot bottles in a microwave an hour before class.

First, if you are using recycled bottles, fill all the bottles with tap water. Then divide your bottles evenly. Half of these will be your cold water bottles and half will be your hot water bottles.

To prepare the cold water bottles:

- Open each bottle, drip in a few drops of blue food coloring, and close them back up.
- Place them in the refrigerator for at least a few hours to cool them down.
- If you're in a rush, you can chill them faster in the freezer. You don't want them to freeze, just be really cold.

To prepare the hot water bottles:

- Open each bottle and drip in a few drops of red food coloring.
- Leave the bottles open. (This is important! If you don't, they may burst.)
- In our microwave, we heat 6 to 8 bottles at a time. We heat on high for one minute, check the temperature, then repeat until the water is hot. You will have to determine the best power setting, time, and number of bottles for your microwave. We suggest erring on the side of less power and time, to avoid overheating the bottles.
- When the water is hot, carefully remove the bottles (you may want to wear oven mitts!) and screw the tops back on.

Store hot and cold bottles in separate coolers until class. In our experience, they'll stay warm or cool for at least an hour in a cooler.

Separate Materials for Easy Distribution

You may want to separate supplies for easier classroom distribution. Each group of four students needs the following:



