**CLOUD IN A BOTTLE** 

MATERIALS:

* 2-liter clear plastic pop bottle
* matches (children will need adult assistance to light matches)
* warm water

PROCESS:

Fill the clear plastic 2-liter bottle one-third full of warm water and place the cap on. As warm water evaporates, it adds water vapor to the air inside the bottle. This is the first ingredient to make a cloud.

Squeeze and release the bottle and observe what happens. You’ll notice that nothing happens. Why? The squeeze represents the warming that occurs in the atmosphere. The release represents the cooling that occurs in the atmosphere. If the inside of the bottle becomes cover with condensation or water droplets, just shake the bottle to get rid of them.

Take the cap off the bottle. Carefully light a match and hold the match near the opening of the bottle.

Then drop the match in the bottle and quickly put on the cap, trapping the smoke inside. Dust, smoke or other particles in the air is the second ingredient to make a cloud.

Once again, slowly squeeze the bottle hard and release. What happens? A cloud appears when you release and disappears when you squeeze. The third ingredient in clouds is a drop in air pressure.

EXPLANATION:

Water vapor, water in its invisible gaseous state, can be made to condense into the form of small cloud droplets. By adding particles such as the smoke enhances the process of water condensation and by squeezing the bottle causes the air pressure to drop. This creates a cloud!

**CREATE EVAPORATION**

MATERIALS:

* hand sanitizer

PROCESS:

Pour some hand sanitizer on your hands and rub your hands together, as if you were washing your hands.

Your hands are now wet, so do your hands feel cooler? Answer: Yes!

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Your hands are now wet, so do your hands feel cooler? Answer: Yes!

The hand sanitizer evaporated off your hands and your hands felt cool, therefore evaporation is a cooling process!

Repeat the steps above, but this time move your hands through the air. This simulates the wind. Do your hands feel even colder now? Answer: Yes!

EXPLANATION:

What happens? Again, evaporation is a cooling process and adding wind to the picture makes evaporation happen faster. This makes your hands feel even colder. This is why we have a "Wind Chill" factor. The wind causes moisture on your skin to evaporate at a faster rate, therefore making you feel colder.

**MAKE IT RAIN** 

MATERIALS:

* glass mayonnaise or canning jar
* plate
* hot water
* ice cubes
* index cards

PROCESS:

Pour about two inches of very hot water into the glass jar.

Cover the jar with the plate and wait a few minutes before you start the next step.

Put the ice cubes on the plate.

EXPLANATION:

What happens? The cold plate causes the moisture in the warm air, which is inside the jar to condense and form water droplets. This is the same thing that happens in the atmosphere. Warm, moist air rises and meets colder air high in the atmosphere. The water vapor condenses and forms precipitation that falls to the ground.