



## **Make a Cloud**

There's water vapor all around us. These simple experiments help explain how clouds form.

First, make some water vapor yourself! Put your hand in front of your mouth and breathe out quickly five times. Now touch your hand. What do you feel? Moisture! You can really see water vapor during cold weather when you breathe.

Now try the experiment below to make a cloud.

### **Here's what you need:**

Clear, empty glass  
Freezer  
Oven mitt

### **Here's what you do:**

1. Put a dry, empty, clear glass into the freezer. Leave it in the freezer for 15 minutes.
2. Remove the glass from the freezer with an oven mitt and breathe gently into the glass.
3. Watch what happens.

### **What happened?**

There's a "cloud" inside the glass. The cloud formed when the water vapor in your warm breath came in contact with the cold glass surface. This is similar to how clouds form in the sky. Remember, temperatures at higher altitudes can be considerably below zero even when it's warm on the ground. In the sky, the extra air condenses to form clouds. Water vapor inside the clouds will eventually condense and the water will fall back to the ground as rain, snow or hail.



## **Indoor Rainbow**

### **What you need:**

glass jar or a large drinking glass  
small mirror  
flashlight  
dark room with white walls

### **Here's what you do:**

Fill the jar or glass with water.  
Place the mirror inside the water filled jar or glass.  
Tilt the mirror slightly upward.  
In a very dark room with white walls, shine the flashlight onto the mirror.

A rainbow will appear! (Note: If no rainbow appears at first, just change the angle of the light from the flashlight or change the angle of the mirror.)

### **Explanation:**

The mirror reflects light that passes back through the water, traveling at an angle. The water bends, or refracts, the light. As the light bends, it separates into the colors of the rainbow...red, orange, yellow, green, blue, indigo and violet.



## **Make a Rain Gauge**

### **What you need:**

clear jar

ruler

### **Here's what you do:**

Put a jar outside in an open area before it starts raining.

After it stops raining, measure how many inches of rain are in the jar with your ruler.

### **Explanation:**

You've just created your own rain gauge and can measure how much you received from the storm.



## **MAKE FOG**

### **What you need:**

- glass jar
- strainer
- water
- ice cubes

### **Here's what you do:**

Fill up the jar completely with hot water for about a minute.

Pour out almost all the water, but leave about one inch in the jar.

Put the strainer over the top of the jar.

Place a few (3-4) ice cubes in the strainer.

Watch what happens!

### **Explanation:**

The cold air from the ice cubes collides with the warm, moist air in the bottle causing the water to condense and forming an eerie fog.



## **Make it Rain**

This experiment teaches you about the water cycle. It's a neat trick – you can make it rain without a cloud in the sky!

### **What you need:**

A two-liter plastic bottle  
Scissors  
Gravel (aquarium gravel works well)  
Potting soil  
Peat moss  
Two buckets  
Two scoop-type measuring cups  
Seeds (marigolds work well)  
Small plants  
Water  
Plastic wrap  
Rubber bands

### **Here's what you do...**

1. Use the scissors to cut off the tops of the bottles about two inches down.
2. Mix the potting soil and peat moss in a bucket. Place the gravel in the other bucket.
3. Place about an inch of gravel into the bottle.
4. Place about three inches of the dirt on top of the gravel.
5. Plant a few seeds about one inch below the soil on one side of the bottle. Put the plants about an inch below the soil on the other side.

6. Water the plants and seeds. Make sure to give the plants plenty of water.
7. Seal the bottles by using plastic wrap and the rubber bands.
8. Place the bottle in a windowsill or another sunny location.
9. Watch the bottles over the next three weeks and write down what happens!

### **What you learned...**

After a few days condensation (water drops) appeared on the lid. The condensation made the air in the bottle get saturated with water. Then the water fell from the lid like raindrops onto the plants and soil.

Because of the rain, the plants grew!

The key to this experiment is to begin with enough water. By watering thoroughly in the beginning you created enough water to evaporate, condense, and fall onto the plants.

This is how the water cycle works! Mother Nature doesn't make "new" water every year. We use the same water over and over again.

Water falls to the ground as rain or snow; it eventually evaporates back into the air and then falls to the ground again.

That's why it's possible to drink water as old as a dinosaur!