



Activity: Cloud in a Jar

What You'll Need:

Not included in the kit:

- Clear jar with a flat lid
- Water
- Ice
- Hairspray
- Matches (optional item/only with adult supervision)

Procedure:

CLOUD IN A JAR: WEATHER SCIENCE
Step 1 Fill up your jar with hot water (about half full).
Step 2 Take the lid of your jar, flip it over, and fill it with ice. Then, carefully place it on top of your jar.
Step 3 Add a few small sprays of hairspray or smoke from a match, and then place the upside-down lid (still with ice on it) back on top of the jar. Watch in amazement as your clouds form.
Step 4 Feel like a magician as you take the lid off your jar and watch your cloud escape!

OPTIONS

For step 1 above, add a few drops of food coloring to the water and swirl it around. This is not required but may help distinguish the cloud from the water below it.

You can also write down what happens as you observe with each step. The observations made during the experiment are referred to as experimental data. Experimental data is important in STEAM to test theories and to provide the basis for improving scientific knowledge.



The Science Behind It:

Vapor cannot turn back into a liquid without a seed. That's where the matches or the hairspray come in. When we introduced some particles into the environment within the jar—otherwise known as adding condensation nuclei or a seed—the vapor had something to latch onto and that's when we started to see our cloud. Tiny particles (of dust, pollen, salt, pollution, smoke, etc.) is needed for the water vapor to condense on in the air to form a cloud.

In this experiment we added water vapor to the jar by using warm water. The hairspray or smoke from the match acted as the cloud seed. When we put ice on the lid and put that on top, this cooled the warm air causing it to condense on the surface of the cloud seed particles, creating a cloud!