Make It Rain

WHAT YOU'LL NEED

- ❑ Clear jar (a jar that is suitable for handling heat, such as a canning jar)
- ❑ Plate (ceramic, plastic, foam, or coated paper plate)
- ❑ Hot water
- ❑ Ice cubes
- ❑ Ruler
- ❑ Paper towel to clean up spills

WHAT TO DO

Remember: The purpose is NOT to teach a specific topic but to help children experience the excitement of **science exploration!**

GETTING READY

1. Collect the supplies needed. Remember that adults should handle the very hot water.
2. Divide children into groups of two to four members with an adult to help. Groups should be small enough that each child can help with the experiment and easily observe what is happening.

LET'S GO

What kinds of weather have we had lately? Any snow? Rain? Warm and sunny?

Can you predict when it is going to rain?

Have you ever been outside when it was raining? What makes it rain? Do you think we could make it rain here in the room?

1. Let's see if we can make it rain. Have one child in each group get a clear jar for his/her group.
2. Have the adult pour about 2 inches of very hot water into the clear jar. Have another child cover the jar with the plate and wait a few minutes. *What do you **observe** happening inside the jar? Do you hear anything?*
3. Have another child put ice cubes on the plate while it is on top of the jar. *What do you **predict** will happen to the ice cubes on the plate? Why? Do you think the water in the jar will change? How?*

TALK IT OVER

*What did you **observe** happen to the air in the jar?* The steam in the jar is called water vapor.

What happens to the water vapor in the air in the jar when it hits the cold plate?

Where do the raindrops come from?

What happens to the rain when it falls to the bottom of the jar?

Can you think of anything in your world that is similar to the activity we just watched in the jar?

GOOD TO KNOW

0-to 5-year-olds:

Be especially careful with the hot water and talk with children about safety. This experiment is best done as a small group demonstration when working with small children. In small groups, children can see what's happening and help with the experiment. Children learn best when they are actively involved in the experience and able to use as many of their senses as possible. However, since this one uses very hot water, you need to address safety concerns.

9- to 12–year-olds:

After the initial activity, challenge youth to find out how big a raindrop is. Have them fill a shoebox lid with flour and level it off with a ruler. When it rains, take the lid out in the rain until 15 to 25 raindrops have fallen in the flour. Bring it inside and observe. Carefully pour the flour from the lid into a sieve over a bowl. Shake the sieve gently – the little lumps left behind are preserved raindrops. Carefully dump them out onto a table and use the ruler to measure them. *Why are the raindrops different sizes?*

THE SCIENCE BEHIND IT

All air holds moisture in the form of water vapor. Warm air has a higher saturation point than cold air – that means that it holds more water vapor than cold air. When hot water is put in the jar, the air is warmed and rises. When the plate is put on top of the jar, the warm air begins to condense and forms vapor that makes the jar look kind of steamy. When the ice is placed on the plate, the plate cools quickly. The cool plate cools the air inside the jar, causing the water vapor 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 as rain.

RESOURCES

- Your local university Extension office – http://msue.anr.msu.edu/county.
- Science Blast website – http://4h.msue.msu.edu/programs/science_technology/science_blast.
- PBS – http://www.pbs.org/parents/education/science/activities/preschooler-kindergarten/.
- Rain Cloud in A Jar, SciTech Discovery – http://www.youtube.com/watch?v=pglbX1xtofE.
- Experiments for Kids Learning about Weather – http://www.weatherwizkids.com/weather-forecasting.htm.

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