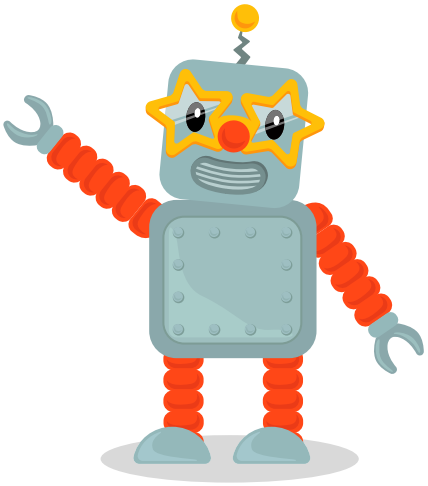
Full STEM Ahead!

Young children have an innate ability to ask questions. In fact, researchers estimate that preschoolers ask an amazing 76 information-seeking questions per hour! Research also shows that young children are especially receptive to STEM (Science, Technology, Engineering, and Mathematics) education. According to the Center for Childhood Creativity, "Even before a child's first birthday, she is capable of making inferences, drawing conclusions about cause and effect, and reasoning about the probability of events." If developed and encouraged, these skills can act as the foundation for abstract reasoning essential to excelling in any STEM-related field. That's why this week's Family Connection focuses on super fun and easy STEM-related experiences!



Ready, Set, Rain!

1. **Make a rain gauge with a Mason jar.**
Using a ruler, mark inches vertically on the outside of the jar.

2. **Use a plastic 2-liter bottle.**
Cut the top off of the bottle about a fourth of the way from the top; turn it upside down and tape it to the inside of the bottom of the bottle; add stones to keep the bottle from being blown over; then use a ruler to add the measurement marks on the outside.

3. **Place the rain gauge outside.**
Work with your child to place the rain gauge in a place where it will capture the rain.

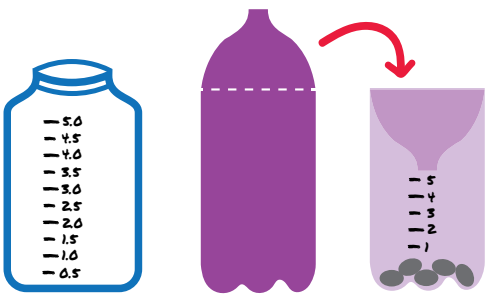
4. **Keep a log.**
Create a log that outlines the measurements (e.g., Monday: 1 inch; Tuesday: 1/3 inch). Talk with your child about the differences in the rainstorms, using language such as "this is a lot of rain", "there is less rain today than yesterday", "there is more rain today", etc.

5. **Make two!**
Make two rain gauges so you can measure ongoing rainfall. One gauge to collect continuous rainfall, and the second to collect daily (or hourly) rainfall to compare against each other.

What you will need:

- ☐ A Mason jar or plastic 2-liter bottle
- ☐ Ruler
- ☐ Permanent marker
- ☐ Tape*
- ☐ Small rocks*

*if using the 2-liter bottle



Sink or Float?

1. **Fill a small tub with water.**

2. **Explore and gather.**
Invite your child to gather objects from around your house or yard.

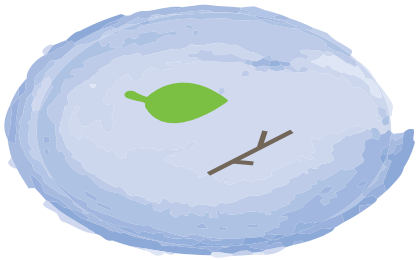
3. **Does it float?**
Encourage your child to experiment with the objects to determine what sinks and what floats.

4. **Make a prediction.**
Increase the difficulty by asking your child to predict what will happen before each object enters the water.

What you will need:

- [ ] A small tub filled with water
- [ ] Small, water-safe objects, or an area where your child can find water-safe objects

Float Your Boat



1. **Set up a workspace.**
Find a puddle or bring a shallow container filled with water outside.

2. **Explore and gather.**
Encourage your child to explore the area nearby and bring back a variety of small objects like leaves, twigs, and acorns.

3. **Does it float?**
Have your child select one of the items he found and ask him if he thinks it will float or sink; then have him place it on top of the water.

4. **Sort it out.**
Have your child group the items that do float into one pile and those that do not float into another pile. Ask him how the items are similar and how they are different.

What you will need:

- [ ] A shallow water source such as: puddle, rimmed cookie sheet, plastic tub, or a large bowl
- [ ] Outdoor natural area

Magic Ice Melt

Demonstrate "change of state" to your child by using salt to melt ice in this ***cool*** experiment!

What you will need:

- ☐ A freezer with an open flat space for your bowl
- ☐ A freezer-safe bowl
- ☐ Water
- ☐ Salt
- ☐ Baking tray or plate
- ☐ Optional: Food Coloring

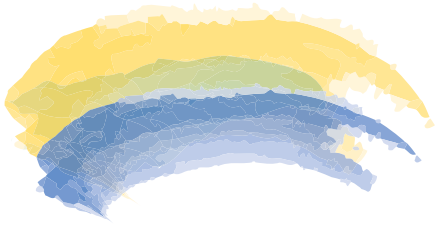
1. **Set it up.**
Have your child help you fill a freezer-safe bowl with water and explain that it will go in the freezer. Ask your child, "What will happen if we leave the water in the freezer overnight?"

2. **Let it freeze.**
Let the bowl of water sit in the freezer overnight or long enough for the water to freeze solid. This may only take a few hours depending on the size of your bowl.

3. **Get ready!**
Remove the ice from the bowl and place it on a tray or plate. If you have food-coloring handy, encourage your child to add a few drops to the ice.

4. **Watch it melt.**
Give your child salt and have her shake or sprinkle it over the ice. Sit back to watch the magic happen! As you two high-five over this cool scientific experiment, talk with her about the properties of the water and ice, and how the salt helped make the changes happen.

Homemade Rainbows



What you will need:

- ☐ Sidewalk chalk
- ☐ Paved driveway, sidewalk, bricks, or stepping stones
- ☐ Paper plate
- ☐ Food coloring
- ☐ Sheet of paper

1. **Rainbows with chalk.**
After a rainstorm have your child use sidewalk chalk on wet pavement. Point out how moisture intensifies and blurs the colors. The effect is very different from coloring with chalk on dry land!

   As the colors blur, ask your child to describe what they see as the colors mix ("What happens when yellow and blue blend?").

2. **Rainbows with food coloring.**
While it's raining, sprinkle a few drops of food coloring onto a paper plate. Have your child take it outside and watch the rain make watercolors!

   Encourage your child to swirl the liquid around to make designs. Bring the plate inside to dry, or press another piece of paper on top and peel it off to make a print.