



# Science Challenges

## Storm Cloud in a Glass

Fill the glass 1/2 full with water  
 Spray some shaving cream on top of the water to fill the glass to 3/4 full.  
 Use your finger or a spoon to spread the shaving cream evenly over the top of the water. The top of the shaving cream should be flat.  
 Mix 1/2-cup water with 10 drops of food coloring in a separate container. Gently add the colored water, spoonful by spoonful, to the top of the shaving cream. When it gets too heavy, watch it storm!



**Water Fireworks** Fill a tall glass almost to the top with room-temperature water.  
 Pour 2 tablespoons of oil into the other glass.  
 Add 2 drops of food coloring to the glass with the oil.  
 Stir the oil into the food coloring using a fork. Stop once you break the food coloring into smaller drops.  
 Pour the oil and coloring mixture into the tall glass.  
 Now watch! The food coloring will slowly sink in the glass, with each droplet expanding outwards as it falls.



Does it look like fireworks?

**Marble Paper** Using a spoon, spread a thin layer of shaving cream in the bottom of the pan. All you need is a shallow coating.  
 Dot the surface of the shaving cream with food coloring.  
 Run the tines of a fork through the colors in a wavy fashion. Try not swirling your colors or else they will run together.  
 Lay your paper on top of the colored layer in the pan. Smooth the paper out over the shaving cream. Wait thirty seconds.  
 Remove the paper and wipe the shaving cream off with a dry paper towel. If you do this carefully, none of your colors will run or be distorted.  
 Allow your paper to dry. If it curls, you can have an adult iron it flat using low heat.



## Milk Art

1. Pour the milk into the bowl. Be careful not to move the bowl, you want the milk as still as possible.
2. Put one drop of each color in different places in the milk.
3. Put just a tiny amount of soap on the end of the cotton bud, then touch it to one of the colors. WOW!
4. Let the experimenting begin!
5. To clean up, just pour the milk down the drain. (Do not drink it)



## Rain Gauge

Empty and wash out the 2 litre bottle so it's nice and clean.  
 Take the scissors and cut off the spout top right where the taper or curve begins.  
 Fill bottom of the bottle with 1/2 inch of sand. This will keep the bottle from falling over on those windy days.  
 Pour in just enough water so you can see the water level above the sand. Yes, your sand will be wet! This is called your saturation point.  
 Use the Sharpie Marker to draw a line at the saturation point above the sand. Next to the line write "starting point".  
 Line the ruler up (from the starting/saturation point) and draw a line for every cm up to the top of the bottle.  
 Take the top "cut off" spout portion of the bottle and flip it upside down. Insert it into the bottle and use some duct tape to secure it. This part will help catch and collect the rainfall by funneling into your bottle.  
 Now it's time to find a good place for your rain gauge outside and record your rain data.

## Ice Cube Fishing

Put the ice cubes in a bowl of water. The cube will bob up and down in the water and then float on the top.

Place one end of some string /yarn on top of the ice cube and sprinkle salt on the ice where the string is touching. Watch as the water melts slightly and refreezes.

After about 10 seconds, carefully lift the ice cube out of the water with the fishing pole. You've caught a fish (ice)!

Try sugar, pepper, sand, flour, you name it. See what works, and what doesn't, and try to



work out why!