



PPLD Homeschool: Creepy Science

I. Magic Pumpkin



Supplies:

- Large bag of Reese's Pieces
- Measuring cup with hot tap water (*works best with freshly boiled water due to Colorado's high altitude; an adult can place in a measuring cup and pour*)
- White plate or platter
- Toothpicks or small straws

Instructions:

1. Arrange your Reese's Pieces in the shape of a pumpkin. We placed the orange candies in a circle to form the sides and used four brown candies to make the stem at the top. You

can add a brown mouth and maybe even yellow for the eyes if you like. Do you like the way it looks?

2. What do you predict will happen once we add the water? In science, we call your guess a hypothesis. Tell each other your guesses or write them down. You can even draw what your pumpkin looks like now and what you think it will look like after we add the warm water. This is called the Scientific Method (*see below for more information on the Scientific Method*).
3. Very slowly add some hot water, pouring along the outside edge of the pumpkin. Add only enough water to cover the plate (*adult help may be required*).



4. The magic pumpkin will slowly appear! Enjoy a couple nibbles of candy and watch what the water does. You can use your toothpicks or straws to swirl the colors. It's magical!

The Science Behind It

The shells of Reese's Pieces are made with food coloring and sugar. When the candies come into contact with the hot water, that sugar dissolves into the water and the colors spread across the plate, filling the pumpkin. This activity is a simple way to introduce states of matter to kids.

The Scientific Method

Kids are great scientists at any age and can use the scientific method or science practices in context to what they are learning. This process can be adapted for any age! The scientific method is a useful tool for introducing kids to a logical way to solve scientific problems.

The Scientific Method includes:

1. Making initial observations
2. Coming up with a question of interest based on the observations
3. Developing a hypothesis or prediction to go along with the question
4. Experimenting and testing
5. Gathering and recording results of tests and experiments and drawing conclusions
6. Sharing and discussing results

Project adapted from: <https://www.playdoughtoplato.com/magic-pumpkin-science/>

II. Creepy Experiments with Dry Ice



**Dry ice can be purchased at the Customer Service counter in the grocery store. Keep it in the heavy plastic bag it comes in! The ice should be purchased the same day you plan to use it; it will gradually sublime, returning to its gaseous state, if it sits unused for too long.*

***Don't** plan to store the dry ice in your freezer! It is so cold that it will trick your freezer into thinking that it needs to shut off!*

***Do** plan to store it in a Styrofoam chest ... unless you are going to use it as soon as you get it home. An adult should oversee these projects for safety.*

SCREAMING DRY ICE

Supplies:

- Dry ice
- Heavy work gloves
- Stainless-steel tongs

Instructions:

1. Using a pair of heavy work gloves (leather is best), hold a piece of dry ice in one hand, and a pair of stainless-steel kitchen tongs in the other. Use the tongs to securely grab hold of the chunk of dry ice.

As the room temperature tongs bring heat to the surface of the extremely cold dry ice, the ice will begin to sublime (kind of like “melting” from a solid back to a gas). The process causes the tongs to slightly vibrate, producing a high-pitched scream! So be prepared!

Set your dry ice aside for another experiment.

SPOOKY BUBBLING TOWER

Supplies:

- Dry ice
- Heavy work gloves
- Hammer
- Tall glass container
- Tray or cookie sheet with low sides
- Very warm water
- Food coloring
- Dawn dish soap

Instructions:

1. With a gloved hand, place your plastic bag of dry ice on a surface that will allow you to hammer the ice into some smaller chunks (not too tiny) ... like a sidewalk or driveway. Leave all the pieces in the bag and return them to the Styrofoam chest until you need them.
2. Place the glass container on a tray or cookie sheet. Fill the container with 2-3" of very warm water.
3. With your gloved hand, pick up a couple of ice chunks and place them in the container. The water will bubble as the ice begins to sublime, and carbon dioxide gas will be released from the ice in the form of a misty "smoke," or "fog." Put your hands in the "fog" and blow it around a bit!
4. While the water is rapidly bubbling (you may need to add 2-3 more chunks of ice ... don't forget the leather glove), add a couple drops of food coloring for a spooky potion.
5. Next, drizzle in some Dawn dish soap. This will produce a bubbling tower! The movement of the water, caused by the sublimating ice, will cause soap bubbles to form, bubbles that are filled with carbon dioxide. Go ahead ... POP a handful of bubbles. Then watch to find out how long it takes for the ice to completely sublime and escape in the form of a gas in the soap bubbles.

CRYSTAL "BUBBLE" BALL

Supplies:

- Dry ice
- Heavy work gloves
- Glass mixing bowl with rounded rim (less than 12" in diameter)
- Tray or cookie sheet
- Very warm water
- Dawn dish soap
- Strip of cotton fabric (old t-shirt)
- Small plastic cup

Instructions:

1. Mix 2 tablespoons dish soap with 1 tablespoon warm water in the small cup. Submerge the cotton strip in the cup to soak.

2. Fill the glass bowl half full with very warm water. Place on tray or cookie sheet. Add a few chunks of dry ice to the water so that a lot of “fog” is produced.
3. Dip a finger in the soap/water solution and run your finger around the rim of the bowl, wetting the rim surface.
4. Remove the cotton strip from the cup, running your fingers down it to remove excess soap. Stretch the cloth between your hands and slowly pull the soapy cloth across the rim of the bowl. Your goal is to create a soap film that stretches across the entire bowl. **It might take a little practice to master the technique!* The thin layer of soap stretched across the rim of the bowl traps the expanding cloud of carbon dioxide gas to create a giant bubble ... a kind of crystal ball perfect for looking into the future!

III. Frog Eyes (Edible Water Beads) Instructions



Supplies:

- Tapioca pearls
- Food coloring (if desired)
- Pot for boiling water
- Colander
- Container for bead play

Instructions:

1. Follow instructions on package for boiling Tapioca.
2. Once boiled, rinse Tapioca under cool water.
3. If desired, divide pearls into separate containers, add food coloring, let sit for about 15 minutes, then rinse.
4. Place beads into container and have fun!