SCIENCE

ACTIVITIES

Making Rock Candy

Supplies Needed: Sugar, clothespins, Water, pot and jar, wooden sticks, optional food dye, optional flavor enhancements (vanilla or peppermint)

Procedure:
1) Bring two cups of water to a boil in a large pot on the stove. Next, stir in four cups of sugar. Boil and continue stirring until sugar appears dissolved

2) This is the time to add any flavor enhancements whether that be vanilla or peppermint or anything you prefer

3) Allow the solution to cool for 15-20 minutes

4) While you wait for the solution to cool, wet the wooden sticks and roll them around in granulated sugar. Make sure you allow the sugared sticks to completely dry before continuing You'll need one stick per jar.

5)Once the sugar solution is cool, add in food coloring to the pot to create rock candy of your preferred color. Leave this step out for clear-colored crystals.

6)Pour the cooled solution into a glass jar (or jars) and insert the sugar-covered wooden stick into the center of the glass. You can divide the sugar solution across several smaller jars or use one large mason jar, depending on how many sticks of rock candy you'd like to make.

7)Once in place, secure the stick in place using a clothespin. Cover the top of the glass with a paper towel. You may have to poke a hole in the paper towel for the wooden stick to poke through.

8)Place the glass in a cool and quiet place. Loud noises and a lot of movement can disturb the crystal making process. Every day, the candy crystals will grow larger. It should take a week to grow the crystals but you can leave them in longer if you want! And Enjoy!

Hand washing experiment

Get your hands "dirty" with cinnamon and cooking spray. Then test and compare ways of washing your hands.

Materials

- **Oil; cooking oil, coconut oil, etc.**
- **Cinnamon**
- **Access to a sink**
- **Soap**
- **Towel**

Instructions:

Coat hands in oil and cinnamon, representing the germs on our hands.

Try to wash off the "germs" with cold water only. See how much, or how little washes away. Next, with fresh "germs" applied (sprinkling more cinnamon should suffice), try warm water only. Again, access germs left over.

Finally, with more germs applied, try washing with warm water and soap for twenty seconds or more. All germs should wash away, making clear that warm water and soap is the best way to clean our hands and keep us from getting sick.

2 Liter Tornado

Supplies Needed: Two 2-Liter bottles, Tape, Water, Glitter (optional), Food Coloring (optional)

Procedure:

1) Fill one of the 2 liters about halfway full of water.

2) Put food coloring and glitter in the 2-liter with water.

3) Tape the empty 2-liter on top of the 2-liter with the water using the openings. Make sure the openings are as close to tight as possible before taping.

4) Swirl the water inside to make a tornado.

Erupting Moon Rocks

Supplies Needed: Baking Soda, Water, glitter, liquid watercolor or food coloring, Squeeze bottles, Vinegar, Tupperware tubs

Procedure:

1)Mix roughly two cups dry to ¼ wet

2) Mold into moon rock shapes and play with dough

3)Spray moon rocks with vinegar while in storage tub to watch them erupt!

Homemade lava lamp

Supplies Needed: Any Sealable Container, Vegetable oil, Water, 1 Alka Seltzer Tablet, Glitter (optional), Food Coloring (optional)

Procedure:
1) Fill the container ¾ full of vegetable oil and then top off the rest with water.

2) Put food coloring and glitter in the container and mix.

3) Put in the alka seltzer tablet and put on the cap. Rotate the bottle a few times to spread the ablet around the bottle.

4) If you want it to glow, put it under a flashlight (smartphone flashlights work best).

Make your own Ecosphere

Supplies needed: Jar, outside material such as sticks and leafs, water, dirt

How to:

1. **Get your jar and fill the bottom quarter of it with dirt / mud.**
2. **Then, put in little things such as moss or sticks.**
3. **Fill the jar up with water and put a lid on.**
4. **Put somewhere that can give it plenty of light.**
5. **Watch as things grow and little creatures appear!**

Model Human Lungs

Model the Basics of Breathing!

Supplies Needed: Straw, Bag, Tape

1. **Grab a straw and any bag you have available (Ziploc or any self-sealing bag is preferable)**
2. **Check the bag for holes**
3. **Put the straw into the bag with enough sticking out to blow into it**
4. **Seal the bag with tape if it is not self-sealing**
5. **Explain how in this system the straw is like our trachea as it carries air into our lung sacs (the bag)**
6. **To carry the experiment further you can explain that squeezing the bag is like the pressure differences that make this process possible.**

Get the egg into the bottle

It may seem like an impossible feat to get an egg inside of a milk bottle, but with a little scientific understanding and some common household items, it is totally possible! This is a fun, well-known science experiment.

Supplies Needed: Hard Boiled Egg, Glass Jar (mouth should be half the diameter of the egg)

Procedure:
1) Place an egg in a pot full of water.

2) Boil the water at Medium-Hight for 20 minutes.

3) Empty the boiling water into the sink, using cold water to cool the egg, then peel the shell off.

4) Stand the glass bottle upright with the opening skywards. (Make sure you use a glass bottle as plastic could be dangerous. The mouth of the bottle should be small, but still at least half the diameter of the egg.

5) Carefully light three matches, drop them into the bottle and wait a second or two.

6) Quickly put the egg onto the bottle's opening. Don't wait too long to put the egg on the bottle or the matches will out.

7) After the matches go out, the egg will be pulled into the bottle.

OR you can use Candles to put the egg in the bottle

8) Use 2-3 small birthday candles and place them in the narrow end of your peeled hard-boiled egg. Make sure they are securely place, but do not push in deep enough to make the egg fall apart.

9) Carefully light the candles.

10) Take your bottle and place it upside down with the candle inside of it, being careful not to seal the opening with the body of the egg for a few seconds. You need to let the candles warm up the air inside the bottle first.

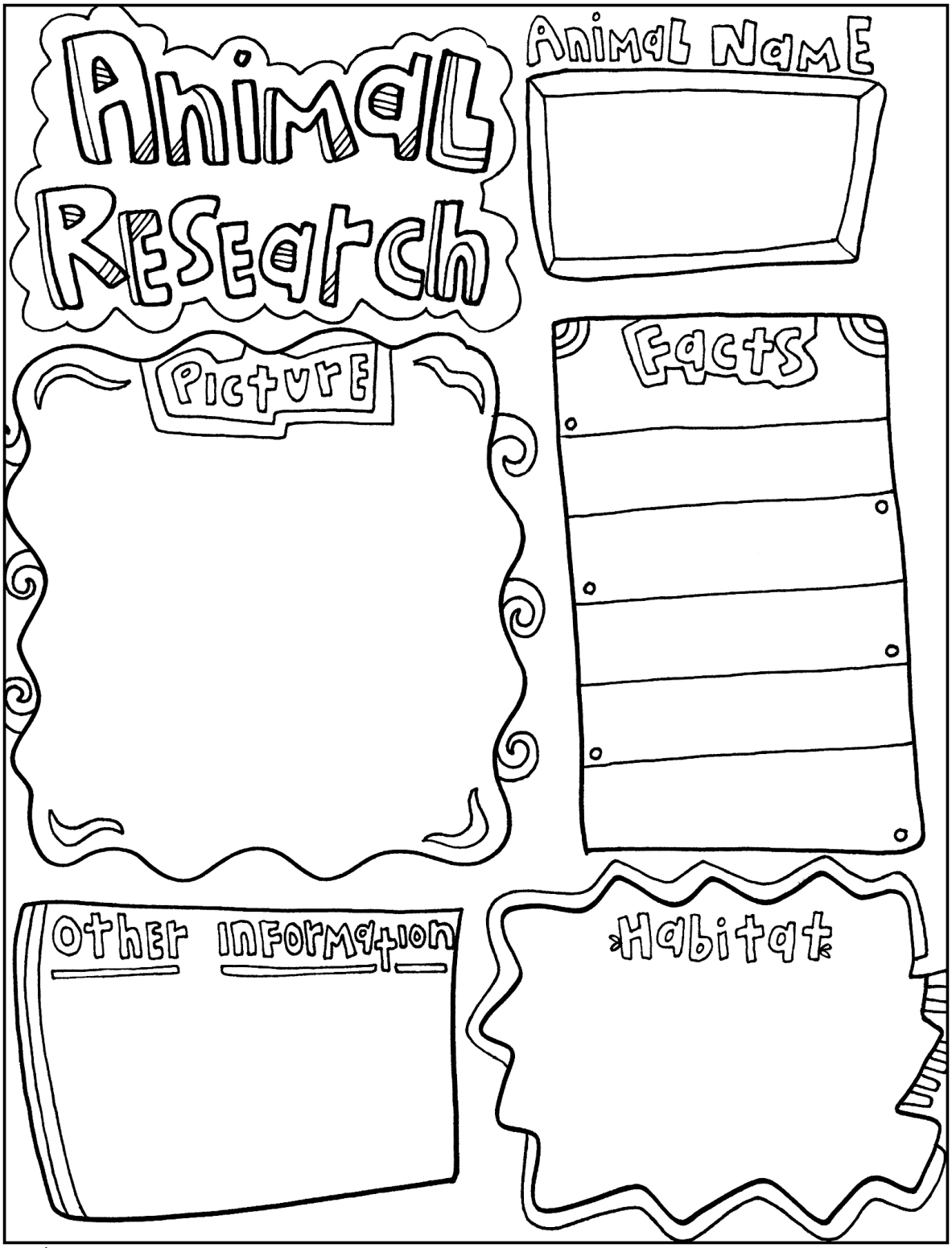
11) After a couple seconds, lower the bottle fully so that the outside opening is sealed by the egg. The candles may go out with a pop, but in moments the egg will slide into the bottle.

Animal Research

Objective: Children will pick an animal they wish to learn more about! They can use any resources available (internet, books, etc.) to fill out the different categories of the provided handout.

Supplies Needed: print out of animal research handout, pencil, access to the internet or books

(see following page)



How does soap work?

Supplies Needed: Soap, Pepper, Water, Bowl, Oil, Drinking Glass

Procedure:
1) Cover the bottom of your bowl with water, then add pepper. It should float on top.

2) Now pretend the pepper is germs. Have the child put their finger in and see what happens. The flakes should float around and mostly do nothing. Take a different finger and put soap on it. Note how the pepper flakes move away much more quickly. This isn't how it works, but provides a good visual.

3) Next, have the child fill the glass ⅓ of the way with water and ⅓ with oil (vegetable oil works fine. This is an opportunity to practice measuring but being exact doesn't matter for this). Now have them try to mix the oil and water. Note how no matter how hard they try, you can't get the oil and water to mix. For older kids this is a good opportunity to talk about polarization.

4) Now add some soap. Notice how now, the oil and water can mix. This is why soap works - germs (viruses) are surrounded by a fatty layer, similar to the oil, and when you use soap, it destroys this layer, killing the virus and allowing water to wash off the dead germs. Note - this is a simplified explanation, but there are numerous online resources for a more detailed explanation if kids are curious.

Leak Proof Bag

Supplies Needed: Zipper Storage bag (or just any plastic baggie), Water, Several sharpened pencils

Procedure:
1) Fill the bag 2/3rds of the way with water, then close shut.

2) Quickly stab the bag with a sharped pencil, making sure it'll go through to the other side. If this is done correctly, no water should have escaped.

3) Stab the bag with the amount of pencils present, and no water is lost!

**** If not done properly, this could cause a huge mess. Younger students will find it cool, but may not be able to stab the bag themselves****