

13-18 May 2020

This week we have decided to do things differently. We thought a week filled with fun science experiments would be a nice change.

Below is a list of some science experiment ideas and instructions. This is by no means an exhaustive list. Those listed below are set out like a recipe with the supplies/ingredients you will need at the top followed by instructions on how to carry out the experiment. We have tried to ensure that they all use supplies that you are likely to have at home or are easily available at shops (that are currently open) and don't cost very much. None of these experiments should be done without adult supervision

Be sure to talk to your daughter all the way through the experiment. Help her to learn lots of new vocabulary. If possible once you are finished give her the opportunity to explain to someone else what she did. Let her do as much of the experiment herself as possible. Things may get messy so be prepared and be patient. Encourage her to draw a picture showing herself doing the experiment. Encourage lots of detail in the picture, not just a drawing of herself. It doesn't matter how good the drawing is, it's the detail that's important. Drawing is how little people begin to write.

Please feel free to share photos, videos and messages with us about how it is going. We miss you all.

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Rainbow Science Experiment

SUPPLIES NEEDED:

- Small plastic cups or glasses
- Paper towels
- Food coloring in primary colors
- Water

METHOD:

- Place 7 cups in a row and pour water in the 1st, 3rd, 5th, and 7th cup. (about 3/4 full.)
- Add 5 drops of red food coloring to the 1st cup and the 7th cup.
- Add 5 drops of yellow food coloring to the 3rd cup.
- Add 5 drops of blue food coloring to the 5th cup.
- You want to try to use the same amount of food coloring in each cup.
- Take a half sheet of paper towel and fold it in half lengthwise and in half again lengthwise.



- Trim off some of the length so that there isn't too much excess paper towel that will stick up in the air between each cup. This will make the water walk more quickly.
- Place one half of a folded paper towel in the 1st cup and place the other half in the cup next to it. Then another paper towel from 2nd cup and into the 3rd cup. This continues until you have placed the last paper towel that drapes over from the 6th cup to the 7th cup.
- Stare at the cups and watch what starts happening. You should quickly be able to see the colored water begin to crawl up the paper towel.

Dancing Rice Science Experiment

SUPPLIES NEEDED

- Clear container
- Water
- Bicarbonate of soda
- Vinegar
- Rice
- Spoon
- Optional: Food coloring



METHOD

- Note: I encourage you to let children add the ingredients all on their own. It could get messy (so do this in an area you can easily wipe up), but allowing the children to do this activity independently will allow for all kinds of exploration and observations.
- Pour one cup of water into your clear container.
- Add 1 teaspoon of Bicarbonate of soda to the water and stir.
- Sprinkle some rice into the mixture. What happens to the rice? Why do you think this happens? The rice sinks to the bottom because it is denser than the water. (If your rice doesn't sink, it might be less dense than the water. Try a different kind of rice, broken pieces of vermicelli, or raisins.)
- Add 1 tablespoon of vinegar to the water. What happens? Why? The vinegar reacts with the bicarb in the water creating bubbles of carbon dioxide.
- Observe what happens over the next few minutes. Eventually the rice will begin to "dance". As bubbles of carbon dioxide adhere to the rice, the rice is brought up to the surface. Once it reaches the surface, the gas is released, and the rice falls back down again.
- Optional: Add a couple drops of food coloring and watch it slowly begin to mix into the solution.

Notes

- As the chemical reaction slows down, add a little more bicarb and watch what happens. Then try adding more vinegar. Can you make the rice continue to dance?
- If you are using a larger container, be sure to use larger amounts of bicarb and vinegar.

Magic Milk Science Experiment

SUPPLIES NEEDED

- Milk
- Liquid food coloring – gel doesn't work well
- Dish soap
- Cotton swabs (earbuds)

METHOD:

- Pour a thin layer of milk in a shallow pan.
- Add drops of food coloring all around in the milk.
- Pick up a cotton swab and dip it in the dish soap.
- Then put the cotton swab in the milk – pressing it down in one spot and holding it there for about 15 seconds.
- Watch what happens! There will be lots of ooohs and ahhhs. And maybe even some questions about what it is happening.



That's where you can come in and ask a few questions.

- What did you notice?
- What happened when you put the cotton swab in the milk?
- Why do you think that happened?
- Why do you think it stopped moving around after a period of time?
- What else did you observe?



Make it rain inside your house.

SUPPLIES NEEDED:

- A plate
- A glass mason jar
- Ice cubes (about one or two cups)
- Very hot water

METHOD

Place the hot water into the glass jar, about a third of the way up. Put plate on top of the jar. Place all the ice cubes carefully on the plate. Watch the inside of the jar start to exhibit rain!



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SUPPLIES NEEDED:

- 1 cup of cornstarch (Maizena)
- 3/4 cup water
- Food coloring (optional)
- Plastic bowl or bin



METHOD:

- Help your child measure 3/4 cup of water in a plastic measuring cup.
- If you have food coloring, have your child add a couple of drops to the water.
- Help your child measure 1 cup of cornstarch. Pour into a plastic bowl or bin. Ask your child, "What do you think will happen when the liquids are added to the corn starch?"
- Slowly add the water and food coloring.
- Let your child mix the mixture. It will take about 10 minutes to be evenly mixed, so you may need to help out. Ask your child to describe the mixture. Ask, "What color is it now?" You may need to add more water and/or cornstarch to get the consistency just right.
- Once the mixture is ready, have your child gently feel the top of the mixture. Ask your child how the oobleck feels. Then let your child sink his hands into the oobleck. Ask, "What does the oobleck feel like now?" "Is it bumpy or smooth? Hard or soft?" You can also ask if the oobleck feels warm or cold. Try shaping the oobleck into a ball. Can you do that with other liquids?

Elephant Toothpaste

SUPPLIES NEEDED:

- 1 empty soda plastic bottle
- Dry yeast (1 packet)
- Water (neither too cold nor hot)
- Dishwashing soap
- Hydrogen peroxide in a concentration of 3%
- Plastic glasses
- 1 large tray
- Liquid food coloring
- 1 measuring cup



METHOD:

(To prevent hydrogen peroxide from coming into contact with children's eyes, it is better if you wear plastic glasses. In addition, it will give them a very scientific look.)

- Place the bottle inside the tray to avoid spillage.
- Put half a cup of hydrogen peroxide inside the bottle.
- Add a good stream of dishwashing soap and turn the bottle gently until it mixes.
- Put some liquid food coloring. Slowly stir again.
- If you prefer to see stripes like the toothpaste, drop a few drops of dye from the neck of the bottle. They will go down the sides and, as the elephant toothpaste grows, they will drag it.
- In a bowl put a tablespoon of dry yeast (1 pkt) and three tablespoons of very warm water. Mix well.
- Pour the yeast into the bottle and withdraw to observe the chemical reaction that occurs. The reaction produces a thick, foamy snake of "toothpaste" that comes oozing out of the bottle.



How does it work?

The dish soap becomes thick and foamy because each bubble is filled with oxygen. Where did the oxygen come from? The yeast-and-water mixture extracted it from the hydrogen peroxide.

Did you notice how fast the reaction was? Touch the bottle. It's warm! The heat created is called an exothermic reaction. Yes, it's ok for your child to play in the oozing toothpaste once the experiment is done. The foam created is just water, soap and oxygen. **It looks a lot like toothpaste, but don't put it in your mouth!**

GERMINATING SEEDS

SUPPLIES NEEDED

Seeds - any, but from your store cupboards you may find red speckled beans or large white beans or popcorn kernels or sunflower seeds. Bean seeds work best.

Water

Paper towel or cotton wool

Saucer or a glass jar or a clear plastic packet (eg bank bag or a ziploc bag) and some cellotape in order to stick the bag to a window



METHOD

Wet the paper towel or cotton wool - it must be soaked but not dripping.

If using a saucer: place a layer of wet paper towel/cotton wool on the saucer. Put a few seeds on top. I would say not more than 4. Cover with another layer of wet paper towel or cotton wool.

If using a glass jar: Place the wet paper towel cotton wool inside the jar around the edges. Put the seeds in between the glass and the paper towel/cotton wool towards the bottom of the jar. You want to see the seeds and be able to watch them sprout.

Place the saucer/glass jar on a window sill which received some sunlight during the day but not direct sun all day. If you don't have a sunny spot don't worry your seeds will just take a little longer to grow. Make sure you keep the paper towel/cotton wool damp by adding a bit of water to the saucer every few days. Too much water and your seed will rot rather than grow. Too little and it will not grow at all.



If you are using a clear bag: Place the wet paper towel/cotton wool into the bag. Put in your seed/s. Ensure that if they slip down to the bottom they are not lying in a pool of water. Seal the bag. If you don't have a ziploc bag just fold it over a few times to seal it. Tape the bag to the window with the seeds facing inwards so you can watch them grow. Find a place that does not get many hours of direct sunlight. You should not have to replace the water while the seeds grow because the growing environment is sealed. However keep an eye on it if the paper towel/cotton wool dries out add a little water to the bag to keep it moist. Too much water and your seed will rot rather than grow. Too little and it will not grow at all.

Encourage your daughter to keep a germination diary. Watch how the seeds change each day and draw a picture showing the changes.



Rising Water

What you need for the experiment:

- A Glass cup
- A Lighter / matches
- A match
- A plate
- Coloured water
- A coin



METHOD

When working with a lighter, make sure you have an adult around while doing this experiment. Simply take your match, bend it in half and weigh down the wooden end with your coin. Pour your coloured water onto your plate so that you cover the surface of the coin. Make sure the other end of the match is not covered.

Light the match with the lighter or remaining matches and quickly place your glass over the coin and match. You will instantly see the water rise up in the glass.

Travelling Water

SUPPLIES NEEDED

- Two cups
- Scissors
- Coloured water
- String
- Tape

METHOD

Take one of the cups and fill it up with coloured water. Use any colour you would like. Cut a piece of string and dip it into the water. Just enough to get it wet and squeeze out any excess water.

Take the other cup and stick one end of the string onto the bottom of the inside of the cup using some tape. Make sure it reaches all the way down to the bottom of the cup. Also, make



sure you get it in there nice and firmly to ensure it stays attached. Take the other end of the string and hold it inside the lip of the cup with your finger.

Hold the cup with water in it above the empty cup at a slight angle. Make sure that the lower end of the string doesn't touch the rim of the bottom cup. Very slowly start tipping the cup of water over and you will see it travels down the string.

This happens because of the process called cohesion. Because the string is already wet, it has lots of water molecules stuck to it. As you tip the water, it finds the other water molecules and sticks to them. Water molecules like to stick together.

Pink Rain

What you would need for the experiment:

- Bowl of oil
- Jar of water
- A fork
- Food colouring of your choice

METHOD

Add a few drops of food colouring to your bowl of oil. Take your fork and mix it very well because the food colouring sinks to the bottom of the oil. When that is done, you simply pour your mixture into your jar of water.

You will see the oil floats on the water but if you give it a few seconds, you will see something very interesting start to happen. Small droplets start to fall to the bottom of the jar.

