April 5 – Sunsets

Have you ever looked at the sky and wondered why it is blue and not purple, and why it looks red during sunset? It all has to do with light and particles. To see this in your own house try out this experiment that will show you why the sky is the color that it is and why it changes color throughout the day.

***Always remember to ask an adult before doing any Science experiment.**

Materials:

- Tall clear glass or plastic container
- Water
- Milk
- Flashlight
- A dark room

Procedure:

1. Fill your container 2/3 full of water
2. Add about a tablespoon of milk to the water and stir
3. Take the container and your flashlight into a dark room and put the container on the floor or on a counter, somewhere where you won't spill it.
4. Let your eyes adjust to the dark for a few seconds and then turn on your flashlight
5. Shine your flashlight straight down into your container and look at it. What color do you see in the water?
6. Hold the flashlight at the side of the bottle and shine it towards the bottom of the container. What color does the water look now?
7. Hold your flashlight at the bottom of the container and shine it into the water. Look straight down into the container. What color do you see in the water now?

Explanation:

When you first looked at the water with the flashlight at the top of the container you should have seen a blue color to the water. When you next looked with the flashlight at the side you should have seen a red color in the water, and lastly you should have seen a deeper red color when the flashlight was at the bottom of the container. Why did the water look so different when you moved the flashlight around?
Light as we see it is made up of many different colors (when you see a rainbow in the sky you see this). When the light hits things in the air (like dust) we see the different colors of the light. The milk in the water in this experiment worked just like dust in the air. When the light beams from your flashlight hit the milk they were scattered all about and we saw the different colors. The different angle of the light is what made us see the different colors of light. This explains what happens every day on Earth and why the sky looks blue during the day and then red when

the sun is setting. There is lots of dust and little particles floating around in the air that scatter the light from the sun and as the Earth rotates the angle of the sun changes and as the angle of the sun changes the color that the sky looks changes too.
So the next time you are sitting and enjoying the pretty colors of a sunset you will know why it looks the way it does.

Erin Dunham
Associate Executive Director
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April 12 – Fizzy Pop

As it gets warmer out we will all want to be drinking drinks with ice in them to try and cool us off. Have you ever poured a glass of pop and had it foam up so much that you have to top it off once all the foam dies down, sometimes you even have to do it a couple of times? Have you ever wondered why this is or what you can do to prevent it? If so read on to find out.

***Always remember to ask an adult before doing any Science experiment.**

Materials:

Ice cubes
Pop
Water
2 Glasses

Procedure:

1. Fill both glasses with ice cubes
2. Pour the pop into one glass. Watch what happens.
3. Pour some water over the ice in the second glass and then carefully pour the water out, leaving the ice cubes in the glass. Now pour some pop into the second glass and watch what happens.
4. Enjoy your glasses of pop.

Explanation:

When you poured the pop into the first glass it should have foamed up. When you poured the pop into the glass that had water in it first the pop shouldn't have foamed up as much. The difference is because of the difference in the ice. When you put the water on the ice first you smoothed the ice out, and got rid of a lot of the rough spots on the ice cubes. This makes a difference when you pour in the pop. Pop is carbonated, which means that it has carbon dioxide dissolved in it. The carbon dioxide comes out of the solution very easily, to form the bubbles in

your pop. The rough spots on the ice give the bubbles a much better place to form, thus you get more foam. So when you take away the rough spots, you decrease the ability for the gas to form bubbles and you get less foam.
Try putting a little bit of sugar into one of the glasses and watch what happens. You get lots of foam forming because of the rough surface. If you dissolve some sugar in water and then add a little bit of that to the pop you won't get as much foam forming, there are no rough surfaces on the sugar being added this time.

Have fun and enjoy your drink.

Erin Dunham
Associate Executive Director
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April 19 – Water Balloons

I cannot believe how nice it was out last weekend. Hopefully this weekend is just a nice; you need to be outside for this experiment. I don't think anyone wants to have water balloons breaking in their house. When I was a kid we liked to go outside and play with water balloons when it was hot out, sometimes when I would throw a balloon it wouldn't break, back then I didn't understand why, but now I do, it has to do with how you fill the balloon. To see what I am talking about try this experiment.

***Always remember to ask an adult before doing any Science experiment.**

**** You will be outside for this experiment so make sure you are in a safe area**

Materials:

Balloons
Water faucet
Big outdoor area with a hard surface, a driveway or sidewalk will work well.

Procedure:

1. Fill a balloon full of water and tie it off, try to have as little air in the balloon as possible.
2. Go outside and hold the balloon up at about shoulder height and drop it. It will most likely break.
3. Fill another balloon about half way with water, then carefully fill the balloon the rest of the way with air. If you aren't careful you may get a face full of water doing this, so you may want to make sure you are outside. Once the balloon is blown up tie it off.
4. Hold the balloon up at shoulder height and drop it on the ground. This time the balloon shouldn't have broke.

Explanation:
Why did the full balloon break and the half full one didn't? It has to do with the air in the balloon. Air is compressible, and water isn't. When you dropped the balloon with the air in it, the air compressed as it hit the ground and absorbing some of the shock and making the stress on the balloon less, so it doesn't pop. The balloon that is full of water doesn't have that air pocket to cushion the fall and absorb some of the shock so it breaks when you drop it.
If you want you can play with the amount of air and water that you have in the balloons to see how much air you have to have in the balloon to cushion the fall enough to stop the balloon from breaking.

Have fun playing with water balloons this week.

Erin Dunham
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April 26 - Disappearing Rainbows

Being that now is normally the time of year that we see rainbows outside I have an experiment that uses rainbows of sorts to explore science. How many of use have mixed colors together over the years, we know that blue and yellow make green and red and yellow make orange. But what happens if you mix more colors? Try this experiment to find out.

***Always remember to ask an adult before doing any Science experiment.**

Materials

Crayons or markers (red, orange, yellow, green, blue and purple)
Scissors
Cardboard
Ruler
Compass or round lid
Large eyed needle
String or yarn

Procedure

1. Draw a circle on the cardboard (you can use the compass or the lid to do this) make it as close to a prefect circle as you can, and cut it out
2. Use the ruler to divide the circle into 6 equal parts
3. Color each part of the circle a different color (of the colors listed above)

4. Make two small holes close together on opposite sides of the circle using the needle.
5. String the string through the holes making a loop.
6. Twist the string and make the disc spin. Watch what happens.

Explanation

When you spin the disc fast enough it will look like all the colors disappear, and all that you see is white. You are seeing all of the colors at the same time, and they appear white. Colors combine to make new colors, and when you combine the three primary colors (red, yellow and blue) and the secondary colors (orange, green and purple) the result is white. The colors haven't magically disappeared off the page; they are still there if you stop spinning the disc.

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