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Home Scientist Badge for Brownies

You can be a chemist in your own kitchen with items found around your home. Complete all 5 activities to earn a Home Scientist Badge.

Activity 1 - Make Salad Dressing

Ingredients:
1 Teaspoon Mustard
½ Cup Olive Oil
1 Tablespoon Vinegar

Materials:
Bowl
Whisk

1. In a bowl add vinegar and mustard. Whisk them together.

2. Keep whisking the mustard and vinegar mixture and slowly add the olive oil. What happens when you add the olive oil? Did the mix of mustard and vinegar mixture stay separated?

3. When you have added all the oil keep whisking and watch want happens to the oil. Does it become smooth? Add salt and pepper for taste.

Congratulations you just made an emulsion!

Emulsion is when two substances become one, oil and vinegar are two separate substance and they keep separate no matter how much you mix them but when you add mustard the two ingredients will become oil. Mustard acts as an emulsifier.

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Activity 2 - Create Static Electricity

Have you ever had your clothes cling to you, or have your hair stand up, or touch a door knob and feel shock? That is static electricity.

Materials:
White Sheet of Paper
Salt and Pepper
Balloon

1. Lay the white sheet of paper on a flat surface.

2. Sprinkle some salt and pepper on the sheet of paper.

3. Take the balloon and blow it up with air. Tie a knot the end.

4. Rub the balloon on your clothes or in your hair. If you use a conditioner or fabric softener you may not create static electricity. This should only take several seconds.

5. Once you think you have created enough static electricity, place your balloon over the salt and pepper. Observe what happens? Which was attracted to the static electric?

Activity 3 - Dive into Density

Density is how close together particles are to each other. We are going to figure out which items float or sink around the kitchen by comparing their density.

Ingredients:
4 Tablespoons Salt
2 Cups Water
Food Coloring
1 Egg

Materials:
Tall Glass

1. Mix the salt and 1 cup of water together in your glass. Add few drops of food coloring

2. Slowly pour the remaining cup of water down the side of the glass. You want the water to be separate.

3. Carefully lower your egg into the glass. Observe what happens. Does it float?

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Activity 4 - Make Something Bubble

Inflate a balloon using your breath. Gases like carbon dioxide will try to find a place to go when in a confined space.

Ingredients:
1 Teaspoon Baking Soda
2 Spoons
2 Tablespoons Vinegar

Materials:
A Balloon
Clear Empty Plastic Bottle

1. In your clear bottle, using one of the spoons, add the vinegar.

2. Ask a grown up for help. Stretch the mouth of the balloon open and using the other spoon pour the baking soda into the balloon.

3. Stretch the mouth of the balloon open again to cover the mouth of the bottle. Make sure the baking soda inside the balloon falls into the vinegar. What happen when the vinegar and baking soda mix? What happens to the balloon?

Activity 5 - Playing with Science

Science is useful but it can be a lot of fun too. You can use science to try and amaze your friends.

Ingredients:
1 ½ Cups Cornstarch
1 Cup Water
Food Coloring

Materials:
A Mixing Bowl

1. In the bowl, mix cornstarch and water.

2. Add a few drops of food coloring.

3. Give it a good mix with your hand.

4. Play and have fun! Is it stretchy? Make some observations.