

*DebraBell*  
AIM ACADEMY



# More Fun With Candy Experiments



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# More Fun With Candy Experiments

## EXPERIMENT 1

# Dissolving Action: M&M's vs. Skittles

In this experiment, we will test three different liquids to see which does the best job of dissolving the candy coating off an M&M.

### SUPPLIES NEEDED:

- Skittles
- M&M's
- 2 clear cups or bowls, room temperature or cool (not cold) water

### TO DO:

1. Start by forming a hypothesis. Which do you think will dissolve first? Or do you think they will dissolve at the same rate?
2. Place 4 Skittles in one clear cup
3. Place 4 M&M's in the other clear cup
4. Pouring into both cups at the same time, add about  $\frac{1}{4}$  cup water
5. Observe the candies, watching to see which dissolves first.
6. Leave the cups undisturbed and check back in about 15 or 20 minutes and observe the colors again.

### EXPLANATION:

You probably noticed that the M&M's and the Skittles began to at about the same time. Both M&M's and Skittles have a candy coating that is sprayed on in thin layers. We can reasonably assume the candy coating on both kinds of candy is very similar, at least in the ability to dissolve.

When you checked back after 15 or 20 minutes had gone by, you will have noticed that after the color dissolved off the M&M's, you were left with a small chocolate disc that did not dissolve. But the Skittles kept dissolving. After the colored coating was dissolved away, the white candy underneath continued to dissolve. Chocolate does not dissolve in cool water, but the candy that Skittles are made of does.

But what do we mean when we say that something "dissolves?" To understand "dissolving action" we have to know that water is made up of three molecules. Two of the molecules are hydrogen and one is oxygen. The oxygen end of the water molecule has a small negative electrical charge and the hydrogen end has a small positive electrical charge. These charges give water some very unique properties, and one of those

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## EXPERIMENT 1 CONTINUED

# M&M's vs. Skittles

### EXTEND THIS ACTIVITY:

You can test different colors of M&M's and Skittles. Which color dissolves first? Does the temperature of the water make a difference? Would stirring make a difference?

### EXPLANATION:

properties is the ability to dissolve a lot of substances. In fact, so many things can dissolve in water that we call water the "Universal Solvent."

The candy coating on the candy contains molecules that also have one positively charged end and one negatively charged end. When the positive end of a water molecule comes into contact with a negatively charged end of a candy molecule, they attract. And when the negative end of a water molecule comes into contact with a positively charged end of a candy molecule, they attract. Water pulls on the candy molecules, literally pulling them apart. That's what we mean when we say that things dissolve. The water molecules pull the candy apart into little tiny pieces that become dispersed throughout the water.

## EXPERIMENT 2

# Vanishing Cotton Candy

What do you think will happen when cotton candy comes into contact with water?

### SUPPLIES NEEDED:

- Cotton candy
- a clear cup or bowl
- a paper plate
- room temperature water
- a dropper

### TO DO:

1. Form your hypothesis. Think about what you know about cotton candy. And think about what you know about water. What do you think will happen when cotton candy comes into contact with water?
2. Now, test your hypothesis. Put about  $\frac{1}{4}$  cup of water into the clear cup or bowl.
3. Pinch off a small piece of cotton candy and, watching very closely, drop it into the water.
4. Repeat this several times, because it's a lot of fun!
5. Put a small pinch of cotton candy onto the paper plate.
6. Using the dropper, place a couple drops of water onto the cotton candy on the plate.



### EXPLANATION:

Sugar dissolves in water. The positive ends of the water molecules attract the negative ends of the sugar molecules and pull the molecule apart. And the negative ends of the water molecule attract the positive ends of the sugar molecule and pull on them. Cotton candy is made from melted sugar that has been spun into very thin strands. When sugar is melted and spun to make cotton candy, the surface area of the candy increases. That means that more of the sugar is in contact with the water, so it dissolves much faster than plain sugar. That's why cotton candy dissolves in your mouth so quickly. It's also the reason that cotton candy begins to dissolve as soon as you open the package. Moisture from the air comes into contact with the candy and begins to dissolve it.

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## EXPERIMENT 3

# Dissolving Pop Rocks

What do you think will happen when Pop Rocks come into contact with water?

### SUPPLIES NEEDED:

- Pop Rocks
- clear cup or bowl
- room temperature water
- mortar and pestle
- safety goggles

### TO DO:

1. Put some Pop Rocks into a clear cup or bowl
2. Pour about 2 tablespoons of water onto the Pop Rocks and listen carefully.
3. Look for the tiny bubbles rising to the surface of the water.
4. If you have a mortar and pestle, put on your safety goggles, then pour some Pop Rocks into the mortar (the bowl part) and crush it with the pestle, listening carefully.



### EXPLANATION:

To make Pop Rocks, they melt sugar and flavoring and coloring and then while it is boiling, they pump carbon dioxide gas into the mixture. As the mixture cools, it shatters into the little broken pieces you know as Pop Rocks. When you chew Pop Rocks, or when they begin to dissolve in water, or when you break them with a mortar and pestle, you release the carbon dioxide gas. As the gas escapes, you hear the familiar crackling sound and you can see the bubbles rise to the surface of the water.