Try This at Home Science:

Candy Chemistry

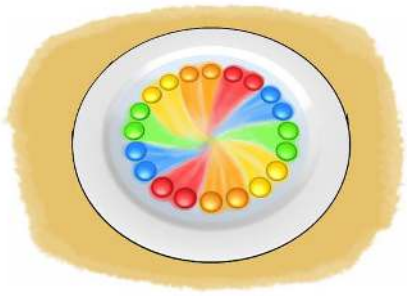
Activity Overview:
Discover the different layers of colorful candy with diffusion and density!

Materials:
- Colored candy, such as M&M's or Skittles
- Plate
- Cup of warm water

Try this!
1. Separate your candy pieces into different color groups.
2. Choose 3 colors to start- add the candy around the inner rim of the plate, alternating between the colors.
3. Slowly pour the warm water into the middle of plate until all the candies are covered.
4. Watch the plate and observe what changes!

What's happening?
Most candies are made of several coats of sugar, and colored using artificial dyes. When you add water to candy, the sugar coating on the outside of the candy starts to dissolve and spread out. That sugar wants to travel to an area from where there is a lot of sugar (a high concentration) to where there is very little sugar (a low concentration). Since there is very little sugar in the middle of the plate, the sugar diffuses towards the center of the plate, carrying the artificial dye with it.

But why don't the colors mix?



In the beginning, we don't see the colors mix. That's because the lowest concentration of sugar is in the center of the plate. Since the candies are right next to each other, the colorful sugar doesn't want to spread out to the sides, it wants to travel towards the middle. Over time, the process of diffusion will continue, just much slower. After a few minutes, the colors will start to combine as the sugar molecules continue to move randomly.

Now Try…

Wait a few minutes and keep an eye on the white S's on the Skittles candies. What do you notice? The S's should float away from the candies completely intact!

The letters on the candies are printed in an edible non-water soluble ink, meaning they do not dissolve in the water with the artificial dye. Since this ink is less dense than the water and dye, the letters float to the top and swirl around in the liquid.