DIY Ocean in a Bottle

Our oceans are made up of salt water, but there are fresh water streams, rivers, and melting glaciers that feed into our oceans. Both fresh water and salt water are types of water, but does that mean they will mix together? Explore this activity and find out what causes different liquids to mix together or not!

Materials:
- Clear Bottle with Lid
- Water
- Clear Oil
- Food Colorin

Optional Materials:
- Glitter
- Hot Glue or Tape
- Anything else you want to use!

Procedure:

1. Fill your bottle with water until it is half full.

2. Add food coloring to the water. This will be your ocean! *A mix of blue and green make a good ocean color, but you can use any color you want!*

3. Add the oil to your bottle until it is almost full. Leave a little bit of space (air) at the top of the bottle. This will help your ocean move. *Did the two liquids mix together?*

4. Optional: Add any other materials you want to use now.

5. Put the lid on the bottle and close it tight! *If you want to use hot glue or tape to make sure it stays closed, an adult should help.*

6. Now, you can turn your bottle sideways and watch the waves roll back and forth. The oil and water might mix together when you do this, but do they stay mixed together?
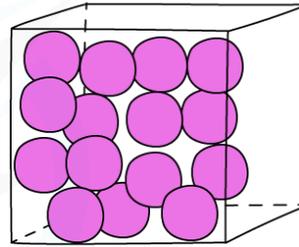
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WHAT'S HAPPENING?

Oil and water do not like to mix together. Why? Because of density. Density is how many molecules can fit in a space. The oil has larger molecules than water so it cannot fit as many molecules in the same size space as the colored water.
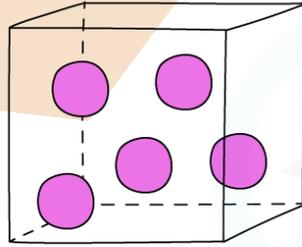
LESS DENSE

MORE DENSE

The density of water can also be changed based on what is dissolved in it, like salt! Because our oceans have salt dissolved in the water, it is heavier and denser than fresh water. Your colored water is just like the salt water of the ocean – it is heavier and denser than the oil.

DID YOU KNOW?

An **oceanographer** is someone who studies oceans. If you liked this activity, maybe oceanography is for you!

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