



The Ocean in a Bottle



In this lesson, students will see on a much smaller scale the chemistry between water and oil.

BACKGROUND:

More than 100,000 thousand chemicals are used commercially and many enter the marine environment via atmospheric transport, runoff into waterways, or direct disposal into the ocean. Oil is among a handful of chemicals that is a particular concern in the marine environment. The release of oil and chemicals into our coastal waterways can destroy wildlife, damage habitat, and contaminate critical resources. This activity is a demonstration that takes advantage of density as well as mixtures. Oil is less dense than water, which means that each drop of oil is lighter than a drop of water. This causes the oil to float above the water as it is more buoyant. Oil does not mix with water, this is because water molecules are far more attracted to other water molecules than they are to oil.

MATERIALS:

- Vegetable oil
- Water
- A clear bottle with a screw-top lid
- Blue food coloring
- A funnel
- Tape
- Paper towels for any spills

PROCEDURE:

- Fill the bottle halfway with water.
- Add some blue food coloring into the water.
- Insert a funnel into the bottle. Carefully add the vegetable oil into the bottle so that it fills the bottle up to the very top without spilling.
- Screw the lid tightly into the bottle.
- Seal the bottle with tape, you do not want any oil spills!
- Tip the bottle from side to side and you get simulated ocean waves.



CONCLUSION:

The National Oceanic and Atmospheric Administration (NOAA) is charged with responding to oil spills, hazardous material releases, and marine debris. The office's response team uses their expertise to predict where the spill is going and what impacts it might have, identifying resources at risk, and recommending clean-up methods.



The San Bernardino Valley Municipal Water Department has partnered with the Inland Empire Resource Conservation District to bring you a series of virtual lessons and activity write ups on water education and conservation.

