

The Introduction – Week 1

Objectives:

- Identify the main steps in the process of science and put that knowledge to use through hands-on experiments.
- Understand the concept of density – that density gives rise to ocean currents and air patterns because denser objects sink.

Schedule:

- Introduce the concept of marine biology, what a marine biologist does, and the process of science. (10 mins)
- Show the perpetual ocean video and discuss briefly ocean currents and why they're important. (10 mins)
- Introduce physics and density. (25 mins)
 - Physics is extremely important in marine science and in science in general. Density is a huge part of the balloon experiment. It will determine how fast the balloon rises, how high it goes, and how fast it will fall.
- Construct a density tower by pouring 5mL of various liquids (dish soap, milk, vegetable oil, rubbing alcohol, etc.) into a 50mL graduated cylinder. The liquids will separate out in about 10 minutes. The more dense liquids will be on the bottom. (10 mins)
 - Use this activity to aid in defining and explaining density and its importance.
 - Set up ahead of time.
- Discuss what the global conveyor belt is, what it has to do with density, and how it affects the ocean's processes. (10 mins)
 - There will be an experiment later about the global conveyor belt.
- Conduct an experiment – making a dry ice bubble. (25 mins)
 - Dry ice is solid carbon dioxide. Carbon dioxide plays an important role in Earth's processes, which has a great effect on us. It is also denser than air, meaning that when the dry ice bubble pops, the carbon dioxide gas will sink.

Materials:

- Dry Ice
- Soapy water
- Old dish rag or paper towel
- Pyrex/glass mixing bowl
- Paper for paper planes
- Graduated cylinder
- Various liquids