

## **Grape Races**

1. Start with a 250 mL graduated cylinder filled with freshwater.
2. Drop a grape and time how long it takes to sink to the bottom.
3. Remove the grape (to get the grape out, pour the entire cylinder into a tank, pick out the grape, then carefully put the water back into the cylinder).
4. Place a small square of aluminum foil on the scale and push the tare to bring it back to zero. Measure out 2.5 g of salt and add the salt to the cylinder stirring until salt is dissolved.  $2.5 \text{ grams} = 10 \text{ ppt}$  ( $2.5 \text{ g}/250 \text{ ml} = 10\text{g}/1000 \text{ ml} = 10 \text{ ppt}$  of salt)
5. Race the same grape again, recording the time (the same grape should be used every time or else variable race times will result). Remove the grape again when finished and put the same water back into the cylinder.
6. Continue by adding 2.5 g of salt to your water sample and recording the time it takes the grape to hit the bottom
7. When you have the grape floating after the lab ends, graph your results as salinity versus the time it took the grape to drop.

## **Egg Suspension**

1. Set up two large beakers, one with fresh water and one with seawater. To prepare the seawater fill a beaker with about 1 L of freshwater and 20 grams of salt.
2. Gently place hardboiled egg in the freshwater beaker. The egg should sink.
3. Gently place egg in seawater. The egg should float. If the egg does not float add more salt until it does.
4. Add a few drops of food colouring to the saltwater to make the seawater and freshwater look different from each other.
5. Try to float the egg in the middle of the third beaker. The trick is to gently pour the freshwater on top of the seawater so the egg will sink to the bottom of the freshwater but float on the seawater.
6. Now mix the freshwater and the seawater by swirling the beaker so that the layers mix. What happens to the overall salinity of the water? How is this like ocean currents?

## **Grapefruit Station**

1. Fill one 10 L tank with freshwater.
2. Fill the other 10 L tank with seawater. Do this by filling the tank with water about  $\frac{3}{4}$  full and adding approximately 200 grams of salt.
3. Try to float the grapefruit in each of the tanks. In what tank does the grapefruit float? What can you say about the density of grapefruits with respect to the freshwater and the saltwater? How does the density of water affect ocean circulation?