**ACTIVITY: Floating eggs**

**Activity idea**

In this activity, students investigate water density by floating eggs in freshwater and saltwater.

By the end of this activity, students should be able to:

* discuss the concept of density
* discuss how salt increases the density of water
* explain why an egg sinks in freshwater but floats when salt is added.

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**Introduction/background**

Density is a measure of how tightly a certain amount of matter is packed into a given volume. The more the ‘stuff’ is packed in, the higher the density. Water density changes with salinity. Freshwater is made up of hydrogen and oxygen. When salt is dissolved in water, sodium and chlorine atoms link to the hydrogen and oxygen molecules. More ‘stuff’ is packed in, so the saltwater is denser. The greater the density of water, the easier it is for something to float in it.

In this activity, students experiment with salinity and density by seeing how much salt it will take to float a fresh egg. (Note that eggs contain air sacs. As an egg ages, its air sac gets larger. Old eggs can have very large air sacs and tend to float more easily, so the freshness of the eggs can affect the outcome of the activity.)

**What you need**

* 3 raw eggs (fresher is best)
* Salt
* Hot water
* 3 ice cream containers
* 3 tablespoons

**What to do**

1. Explain the experiment to the students and assist them to carry it out:

* Mark the ice cream containers ‘no salt’, ‘3 tablespoons salt’ and ‘6 tablespoons salt’.
* Fill the ice cream containers with hot water.
* Add the appropriate amount of salt to each container.
* Stir to dissolve.
* Allow the water to cool.
* Place one egg into each container.

1. Have students observe what happens. (If the egg does not float, try adding more salt to the water.)

**Extension idea**

* Read the articles [Ocean salinity](https://www.sciencelearn.org.nz/resources/686-ocean-salinity) and [Ocean density](https://www.sciencelearn.org.nz/resources/687-ocean-density) to learn about the vital role salinity and density play in ocean currents and heat circulation. Then watch the videos [Big ocean currents](https://www.sciencelearn.org.nz/videos/347-big-ocean-currents) and [The ocean conveyor belt](https://www.sciencelearn.org.nz/videos/147-the-ocean-conveyor-belt) to learn how these currents carry heat and materials around the world.