

## Currents in the classroom experiment instructions

Anne-Elise studies ocean currents, for her PhD project with the Quantitative Marine Studies (QMS) program with UTAS and CSIRO in Hobart. Her research is helping to understand how temperature, density and wind strength impact upon currents in the ocean.

You too can conduct an experiment like Anne-Elise and determine how thermal currents work in the sea by conducting a small experiment enabling you to view coldwater downwelling and ocean stratification (on a much smaller scale!) in your classroom.

### Materials

Ice tray  
Medium-sized clear glass bowl  
Warm tap water  
Sea water (or salty tap water or just plain tap water will be fine)  
Food dye  
Stop watch or equivalent timing device

### Directions

#### Step 1

Collect sea water – if you don't live near the sea you can make your own salt water by adding salt to plain old tap water if you like – or just use tap water.

#### Step 2

Colour the sea water with food colouring – use a few drops to make the colour nice and strong.

#### Step 3

Add your sea water or salty water to an icecube tray and freeze – sea water may take a little longer than tap water to reach freezing point.



## When the water is frozen

### Step 4

Prepare a clear glass bowl – fill it with warm water from the tap.

Please get an adult to help you and make sure it is not hot. (If the bowl is too big, the cool water will warm on its way down and you won't get clear stratification.)

### Step 5

Add ice cubes to the top of the warm water and observe.

The water should sink to the bottom of the bowl and appear as a coloured layer sitting under the clear layer, that is it should look 'stratified'.

### Step 6

Record your observations at timed intervals; for example, 10 seconds and 1 minute. Leave the bowl for some time – return and note what the water looks like now it is all the same temperature.

Some thing to consider: What may happen if you added coloured warm water to very cold water? Maybe your class could try this.



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Name of scientist
Grade of scientist
Date of experiment

Aim or hypothesis

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Method

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Materials

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Results

Draw your observations	Written observations
Time 1:	

Draw your observations	Written observations
Time 2:	



Draw your observations	Written observations
Time 3:	

Conclusions

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