

# Water Density

## Lesson plan for junior classes

**WALT:** Different liquids have different density

**LO:** To enable the children to gain an understanding, through investigation and experimentation, that different liquids have different density. Students will also develop an understanding that there is both fresh water and salt water in the natural world.

### Resources:

Salt  
3 glasses  
Grapes  
Corn syrup  
Vegetable oil

### Introduction:

Children should already be familiar with floating and sinking. A very useful resource on this can be found at <https://greenschoolsireland.org/wp-content/uploads/2016/09/Floating-Sinking-Game.pdf>.

Discuss with children the floating and sinking experiment and recap that some things float and some things sink. Discuss different types of water we find in our environment- sea water, fresh water. Watch short video on as salt water vs freshwater. <https://www.youtube.com/watch?v=oaQCiwzjnCM>

Children are given sheet with different water in our environment. They must cut and stick pictures under the correct category. This sheet can be found in additional resources on Scoilnet.

### Main body:

Tell the children now that we know there are two types of water, we are going to learn about density. Water is a liquid. When we add salt to the water it becomes denser. That means the water becomes a bit heavier. When the water is heavier more things can float on it. Lets look at this experiment to illustrate how well things float in salt water vs fresh water.

1. Place 2 glasses on each child's table.
2. Mix 2 spoons of salt and water in one and leave just fresh water in the second.
3. Once the salt is dissolved place a grape in each cup.
4. Get children to record results if the grape floats or sinks.

Water that has salt in it becomes denser than water without. That means it becomes heavier than the fresh water. Can the children find anything else that floats in the salt water but not in the fresh water?

Questions to ask:

If we add more grapes to each glass will they also float/sink?

What will happen if we add more salt to their respective glasses?

What happens if we mix the two glasses together?

Have you ever floated in a pool or sea? What happened?

Next look at the density of other liquids we have at home. Keep out the saltwater and freshwater beakers, but now add a corn syrup beaker and vegetable oil beaker. Ask the children to predict if the items will float or sink in each of the beakers and record answers.

Finally, mix water, corn syrup and vegetable oil together in one large glass and stir. Predict, using previous experiment to guide answers, which liquids will be most dense (therefore on the bottom), and which will be less dense (and therefore float.) Wait a few minutes for liquids to separate and settle and discuss.

**Learning outcome:** Liquids that are less dense float and liquids that are more dense sink. If an object is denser than the liquid it will sink, if it is less dense it will float. Saltwater is denser than freshwater, which makes it easier for things to float in it.

**Conclusion:**

Discuss findings with the class. Get children to share results with each other and revise main points of learning outcome.

**Assessment:**

Self-assessment: Get children to use red/orange/green cards to reflect on how they feel about what they learned.

Teacher assessment: Teacher observation of experiment and recording

**Linkage:**

Maths- sorting and classifying, weight

English- write a story/draw a picture on a time you were swimming or floating in the sea.