

## **Sea and Learn – Lesson Plan: Floating and Sinking**

**Key Stage:** One

**National Curriculum Links:** Sc1 1, 2a, 2b, 2c, 2f, 2g, 2i, 2j; Sc3 1a, 1b, 1c

**Main Subject Focus:** Science

### **Learning Outcomes:**

Children will:

- Know that some materials are able to float whilst others will sink
- Know why some float and others sink
- Be able to carry out a scientific investigation, predict and test their predictions
- Be able to record their results accurately

### **Resources Required:**

- Washing-up bowls/Perspex tanks or similar
- Water
- Large selection of materials for children to test (paper clip, lemon, nail, ball of plasticine, apple, plastic brick, small stone, a cork, plastic duck etc)
- Hand towels

### **Lesson Structure:**

1. Introduce the lesson by asking the children to try and explain how boats and ships manage to float. Ask them what materials they think boats past and present, have been made from. Make a list if you wish (See Teacher's Notes)
2. Now split the class into groups of 4 (maximum) and give them the water – filled bowls and a selection of objects to investigate. Discuss with the children what they think the object is made from.
3. Then ask them to predict which objects they think will float and which objects will sink. Children should record this on Worksheet 1.
4. Now ask the children to test their predictions by placing the objects one-by-one into the water. They should record the results on their worksheet.
5. Once all the objects have been tested, discuss as a class their results and ask if there were any surprising results e.g. nail = metal, ships are made of metal therefore, how do they float?
6. Once the children have shared their observations, carry out some of the extra demonstration activities to reinforce the ideas you have already discussed.

**Extension/Homework Ideas:**

- Ask the children to experiment with the ball of plasticine – can they make it float? If they can make it float, ask them why they think it floats.

## **Sea and Learn – Teacher’s Notes (1)**

Water pushes up against objects and therefore holds them up – they float. This is why we can swim in the water and why boats are able to float.

If an object is too dense it sinks to the bottom of the water. Density refers to how much weight there is within a small volume. Small, heavy objects (dense) e.g. nail, key, and stone will sink. Large, light (less dense) objects such as apples, balloons will float.

Some objects will float at first, but then sink later, e.g. a paper towel will float to begin with but as it soaks up the water, it will begin to sink.

### **Demonstration Ideas:**

#### How to show water pushing up:

You will need: a tennis ball and a bowl/Perspex tank of water.

1. Place the tennis ball into the water and tell the children that as they push the ball under the water, they will feel it pushing back. Let the children experience this.
2. Show what happens to the ball when you let go (it comes back to the surface)
3. Tell the children that an upward push of water is called ‘upthrust’ and that an object will float if this upthrust of water is strong enough to bear its weight.

#### How to make a floating object sink

You will need: a lemon, a sponge and a bowl/Perspex tank of water.

1. Firstly place the sponge in the water – it floats high out of the water. Ask the children why they think it floats (the air holes in the sponge make it float)
2. Now, hold the sponge under water and squeeze it. Show the children how the bubbles of air come out of the sponge. Ask them what they think will happen when you let go (the sponge will not float as high because the air holes are now filled with water)
3. Now you need to place a lemon in your tank of water. It will float. Ask the children if they can explain why it floats (there are tiny holes in the peel of a lemon which contain air bubbles – this makes it float)
4. Finally, show the children how you can make the lemon sink by peeling it and putting back into the water. Without the air holes in the peel, the lemon will sink.

## Sea and Learn – Worksheet (1)

1. Look at your objects and decide which objects will float and which objects will sink. Draw or write them in this table:

Will float	Will sink

2. Now test your ideas by putting your objects into the bowl of water, one at a time. Record what happen in this table:

Floats	Sinks