

Floating and sinking

There are lots of enquiries we can do with floating and sinking that develop working scientifically skills and understanding of one property of materials: density.

Encourage children to talk about what they notice, ask questions and try things out.

A few simple enquiries and challenges that children can try:

1. Does a Lego brick float?
2. Do several Lego bricks stuck together float?
3. Challenge- can you make a Lego boat float?
4. What else can you make a boat from?
5. How many coins can you fit in a tin foil boat?

Floating and sinking fruit and vegetables

1. Will an orange (satsuma or clementine) float?

Try encouraging children to use the following format to record their thoughts:

Predict (What you think will happen?)	
Observe (What did happen?)	
Explore (What questions does this make you think of?)	
Explain (What have you found out?)	

After finding out whether an orange will float try peeling it and test it again.

Taking it further:

Do grapes float?

Do grapes float in salty water?

What other fruits and vegetables float and sink?

The science of floating and sinking

Floating and sinking is all about density. Density is how tightly packed the material inside an object is and, therefore, how heavy it is for its size. Objects that are denser than water will sink. Objects that are less dense than water will float. Ships can be made from dense materials, such as metal, but because the shape of the ship traps a large amount of air inside the boat (which is less dense) the overall density of the ship means it will float.

The orange presents a challenge to our thinking as it floats with the peel on but sinks when we remove the peel. This is counterintuitive as we have taken mass off it when we have peeled it. To find out why this happens, look closely at the peel and test whether the peel alone floats.

The peel of the orange is porous and filled with tiny air pockets and this means that there is air trapped inside the peel and around the orange. This makes the total orange less dense than water allowing it to float. When you peel the orange, the trapped air around the orange is no longer there so it will sink.