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Viking Science
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Why do longships float?



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Viking Longships

The Vikings were skilled shipbuilders and navigators. Their most famous ships were the longships, specially designed to travel across the open ocean as well as along coastlines.



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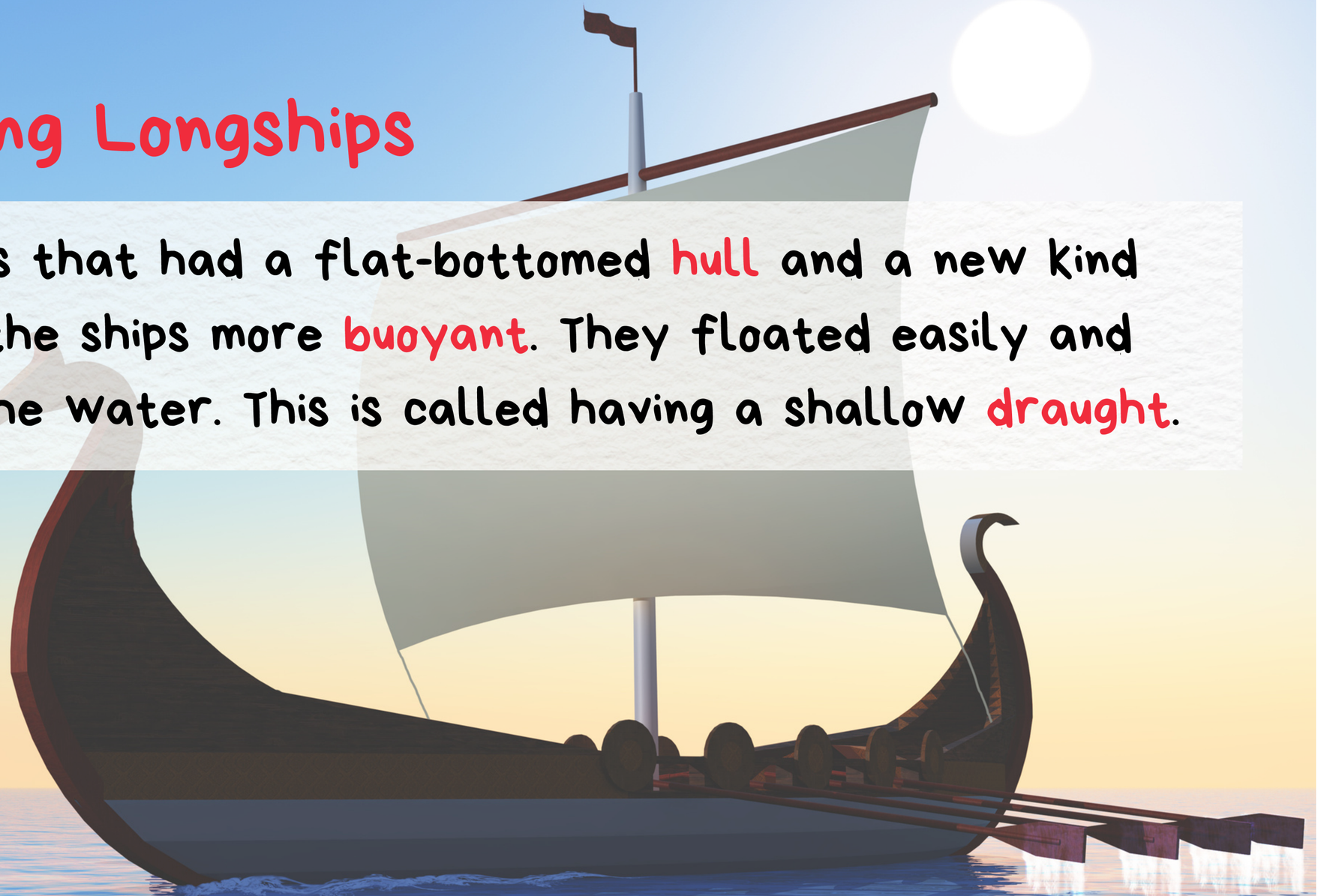
The Oseberg ship on display at the Viking ship museum, Oslo.

Viking Longships

The Vikings built ships that had a flat-bottomed hull and a new kind of keel which made the ships more buoyant. They floated easily and didn't sink far into the water. This is called having a shallow draught.



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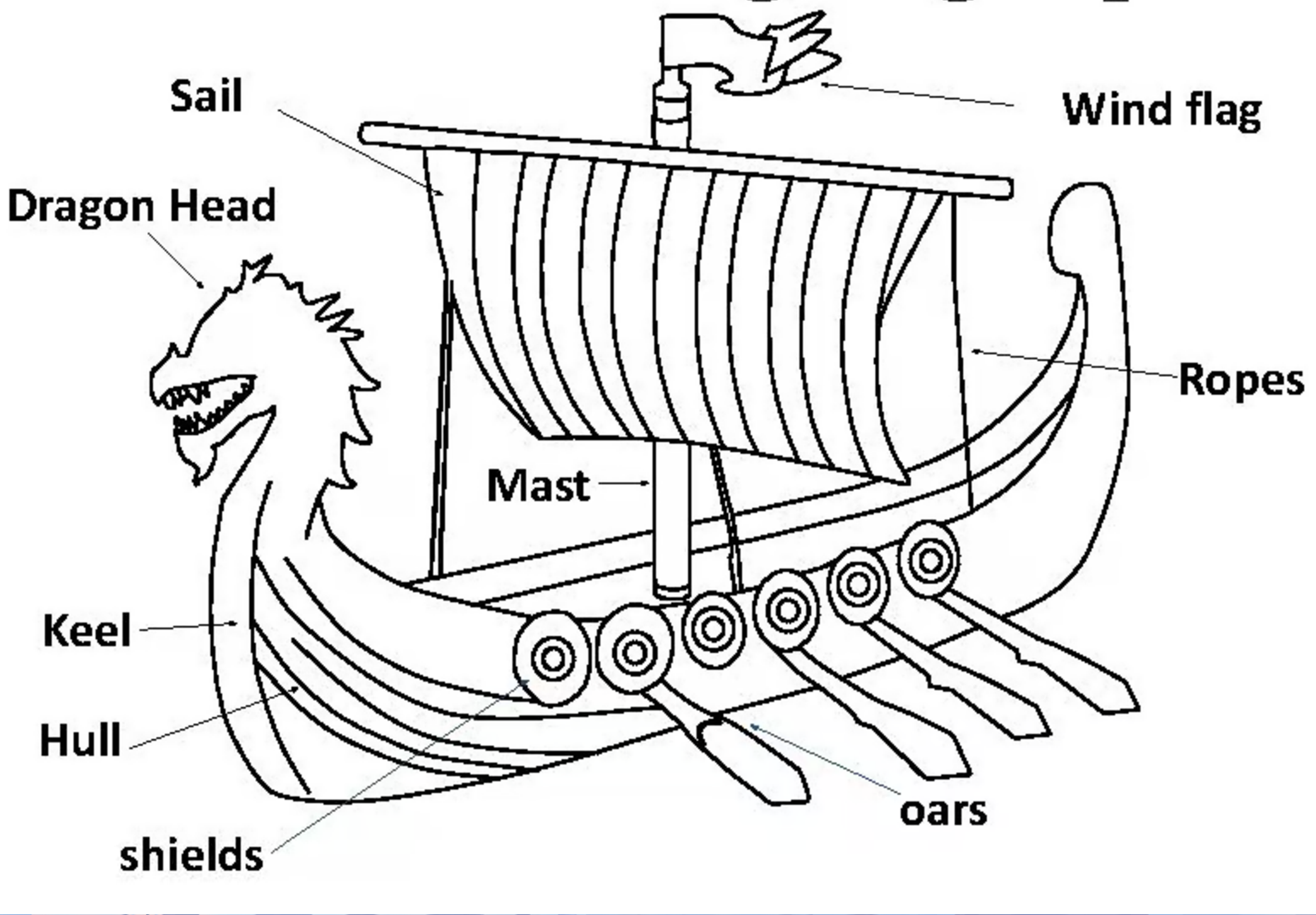
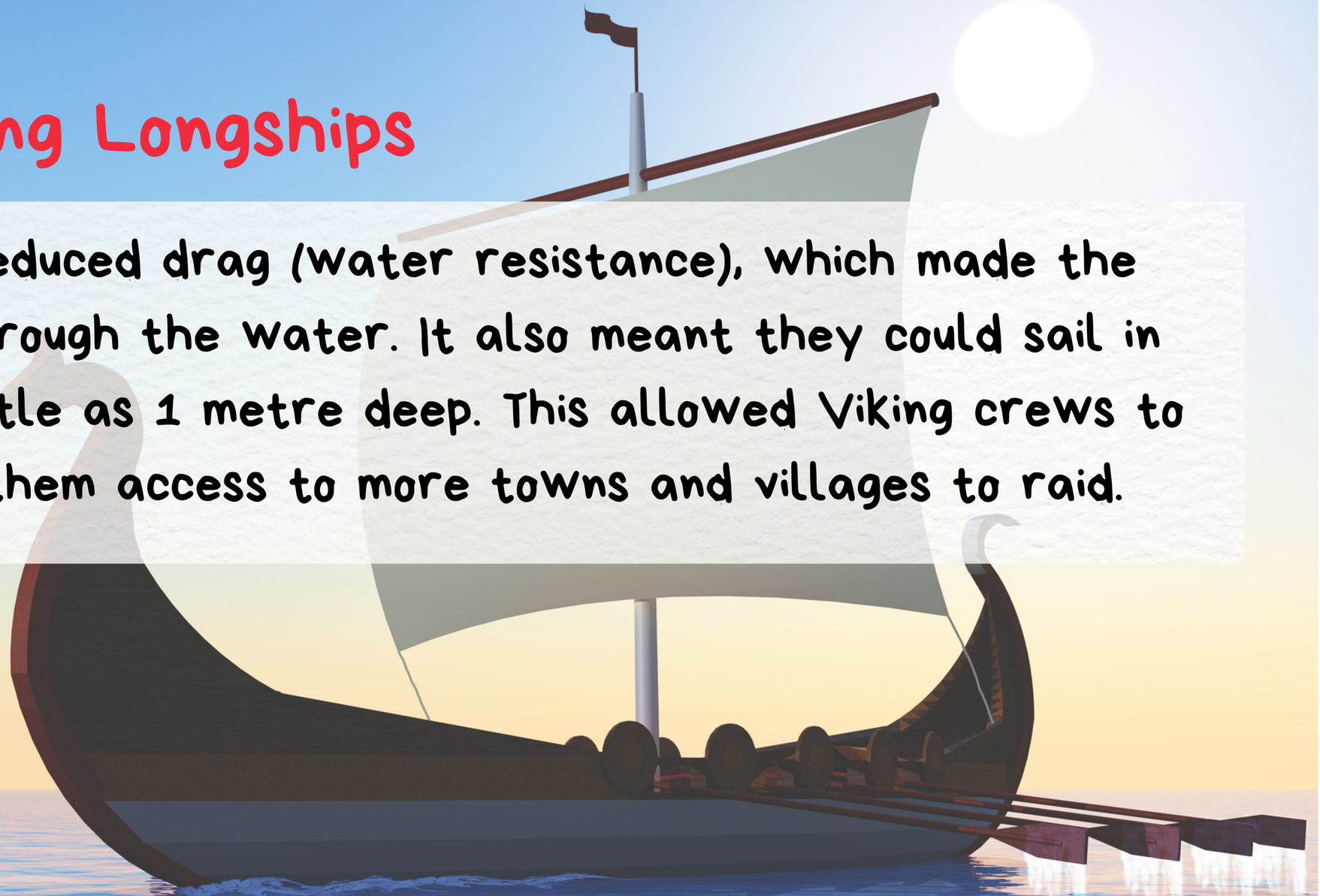

Sail
Wind flag
Dragon Head
Ropes
Mast
Keel
Hull
oars
shields

Viking Longships

A shallow draught reduced drag (water resistance), which made the ships move quickly through the water. It also meant they could sail in shallow rivers, as little as 1 metre deep. This allowed Viking crews to travel inland, giving them access to more towns and villages to raid.



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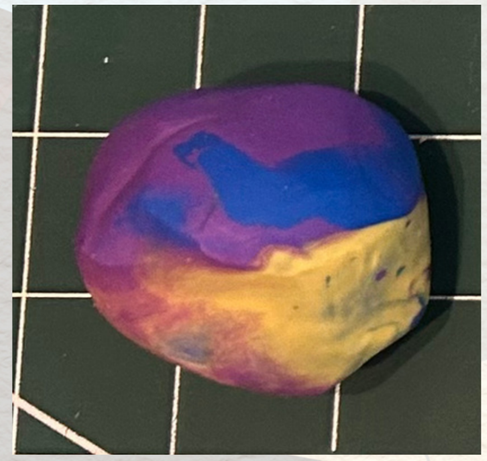
Why do Longships Float?

Take a lump of plasticine and roll it into a ball.



Drop the ball into the water.

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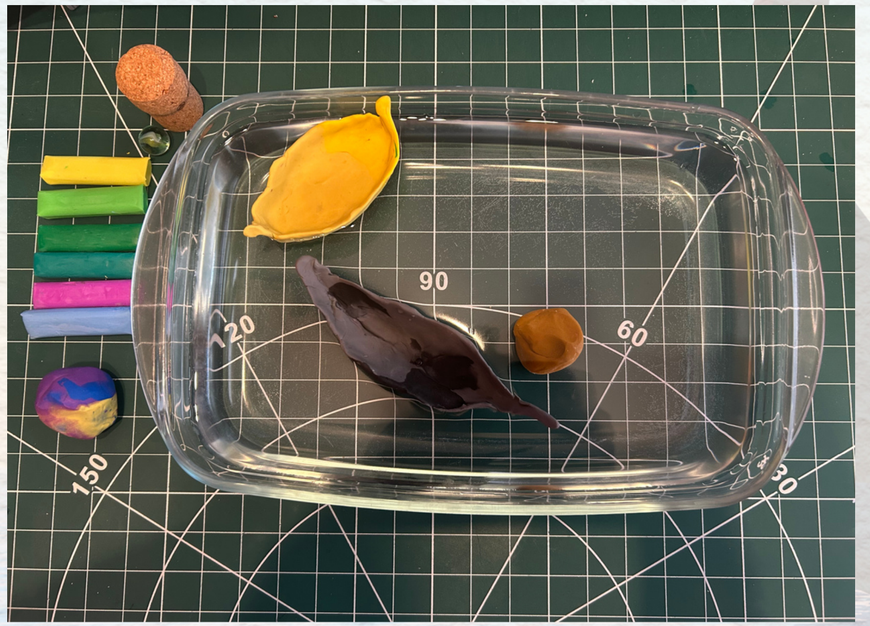
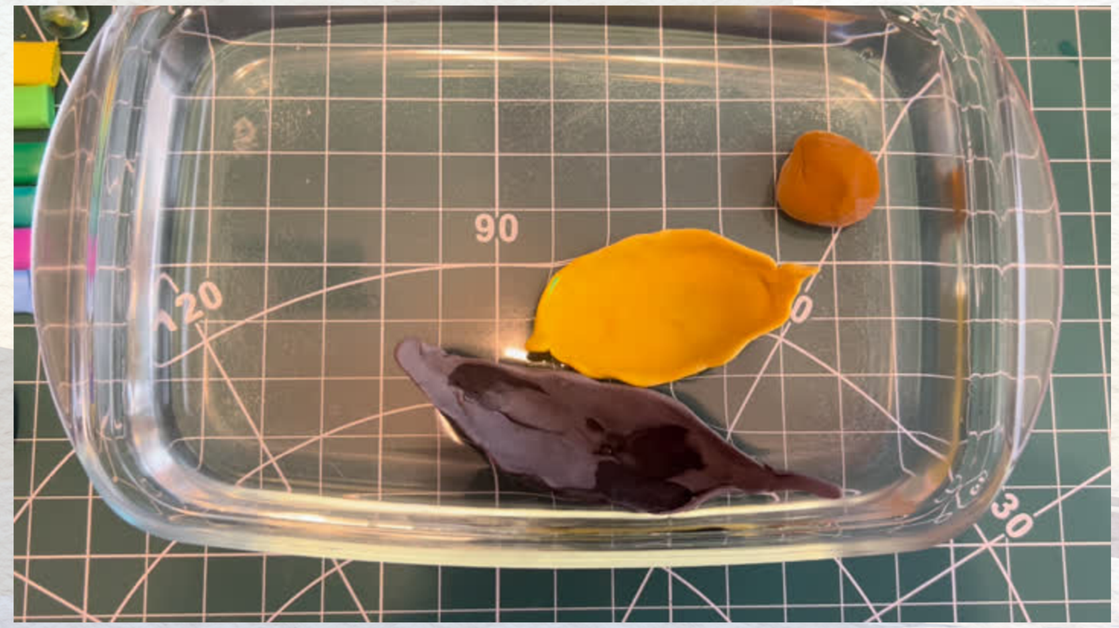
Why do Longships Float?

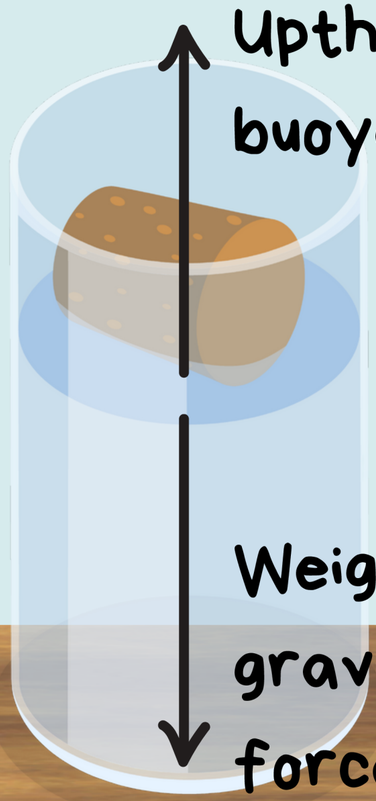
Now hollow it into a boat shape. Can you make it float? (Think about the shape of a Viking longship).



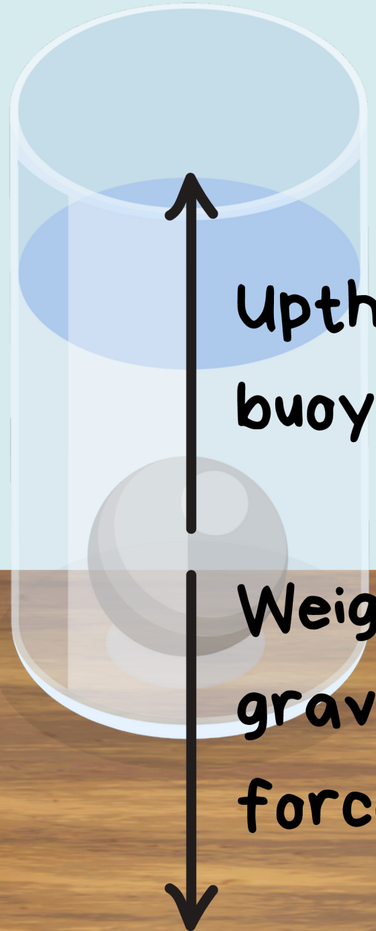


Buoyancy and Archimedes Principle

Floating



Sinking





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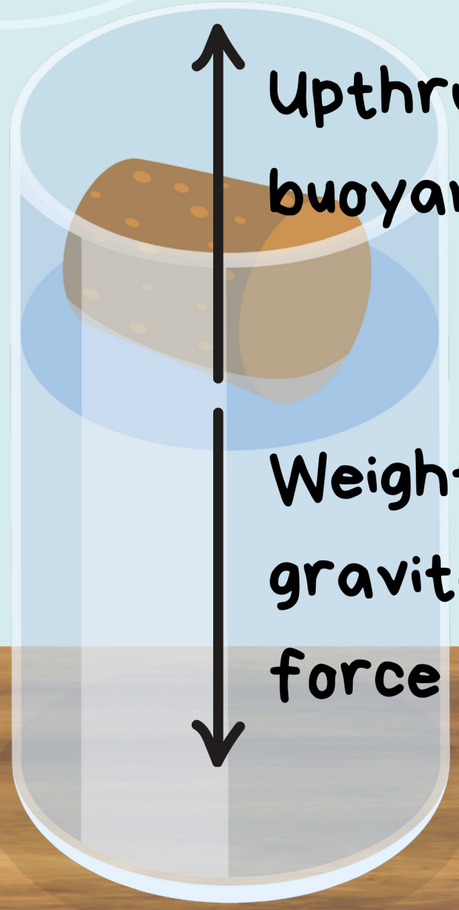
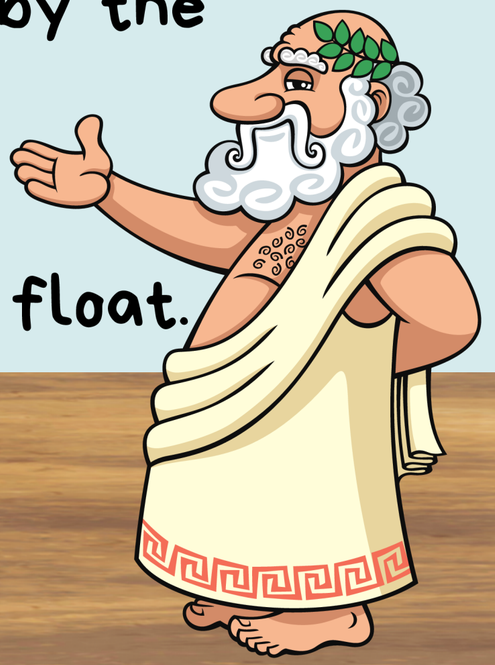
Buoyancy and Archimedes Principle

Floating



Gravity pulls things down towards the water. The more the object weights, the more force pulling it down.

The object is also pushed up by the upthrust or buoyant force.
If the force is equal to the weight of the object, it will float.



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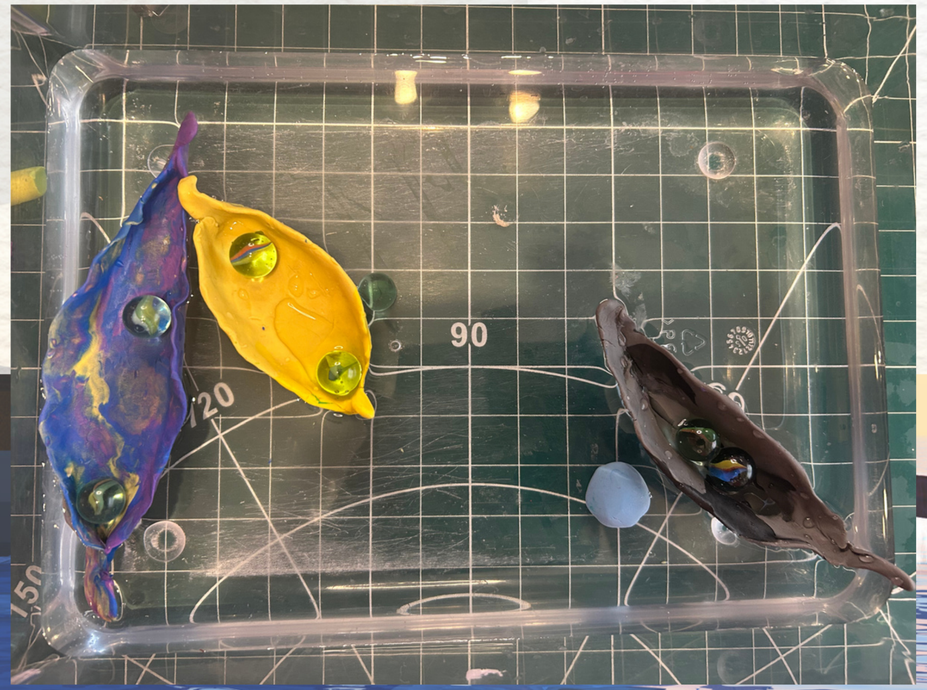
Why do Longships Float?

Try making different boat shapes to see which floats best. Flat bottomed or v-shaped hulls.

Now add stones, marbles or weights to see how much it can carry before it sinks!



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Why do Longships Float?

An object will float if the amount of water it displaces weighs more than it does. A lump of plasticine displaces a relatively small volume of water, so it sinks.

A hollow boat shape displaces a much larger volume of water, so it floats. When we add marbles, the boat gets heavier and eventually, it sinks.

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Viking Longships

Viking warships were long and narrow, helping them skim across the surface of the sea. Their shape made them fast and flexible, earning them the nickname ‘sea serpents.’ The longest Viking warship ever discovered is the Roskilde 6, which was 36 metres long but only 3.7 metres wide. In contrast, Viking trading and fishing ships were shorter and wider, giving them more stability when carrying heavy loads like cargo or fish.



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Vocabulary

Longship	A fast, narrow Viking ship used for raiding and exploring, designed to travel across the sea and up rivers.
Keel	The long, central structure along the bottom of a ship that helps it stay stable and travel in a straight line.
Hull	The main body of a ship that sits in the water.
Draught	How deep a ship sits in the water. A shallow draught means the ship doesn't sink very far below the surface.

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Vocabulary

Buoyant	Able to float easily on water.
Drag	The resistance or slowing force caused by water (or air) pushing against something moving through it.
Stability	How steady something is. A stable ship doesn't tip or wobble easily.
Navigate	To plan and follow a path through water (or air or land).

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The Science Viking

Thanks to Terry Harvey-Chadwick 'The Science Viking' for sharing his 'Experiment with the Vikings' activity booklet with me, which inspired today's session.

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