

STEM Glasgow

Science in a Context

Anchor Line



Welcome



What is 'Science in a Context?'

'Science in a Context' is a series of CLPL session that will explore the various ways in which the science experiences and outcomes can be incorporated within a variety of common primary contexts whilst further developing scientific enquiry skills through practical activities.



What is 'Science in a Context?'

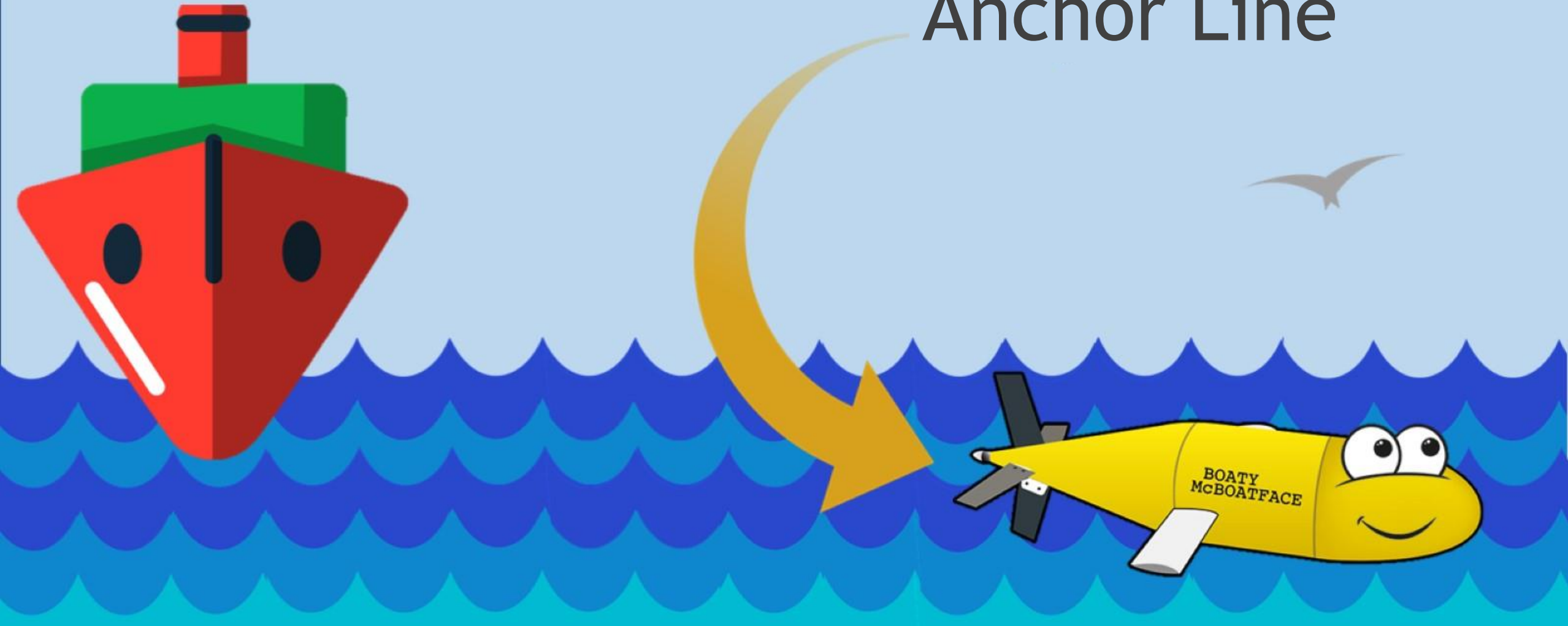
To give something context you take a scientific theory and link it to both the physical world and practical activities which in turn provides the rationale for learning. This also makes it easier to introduce a lesson or topic that makes sense to learners.



Tonight's Theme



Anchor Line

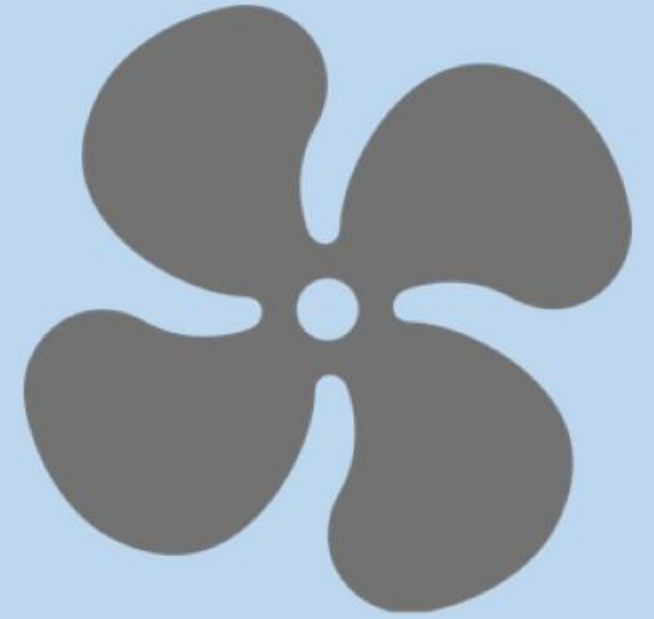




How do propellers work?

A propeller is a type of fan that rotates against air or water to transmit power. The rotation causes 'thrust' which propels the boat forward.

The speed of the propeller controls how fast/slow the boat will travel.



Experience and Outcomes

Science: SCN 1-07a/2-07a

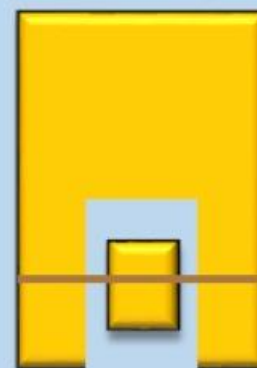
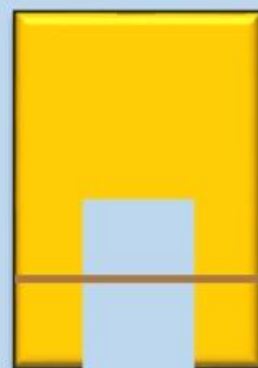
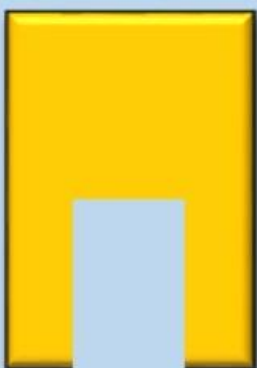
Technology: TCH 1-09a/2-09a & TCH 1-12a/2-12a



How do propellers work?



Create a simple 'boat' with a propeller which can propel itself through the water.



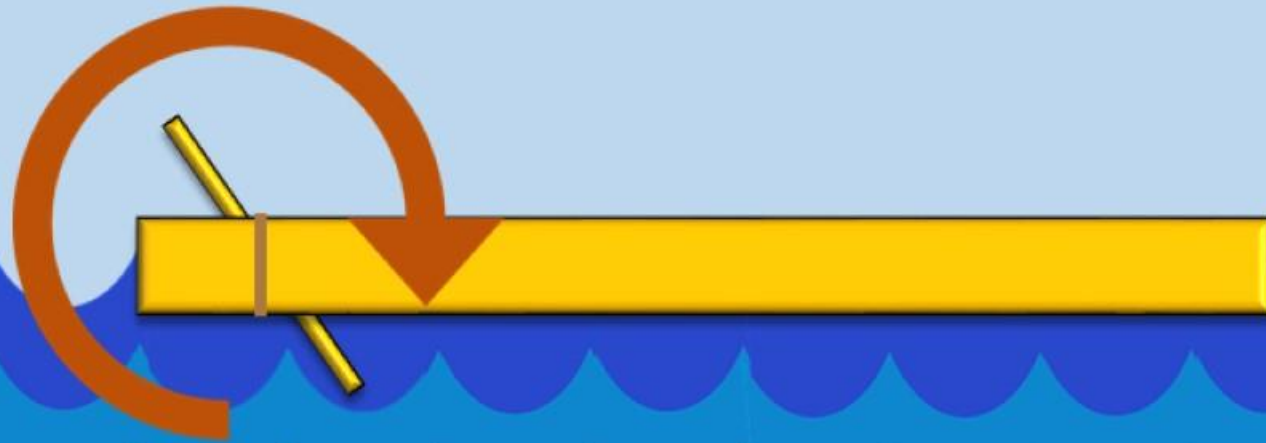
How do propellers work?



Once all boats have been built then we'll see who's can travel furthest.

Things to consider:

1. The more you twist the propeller around the elastic band the more potential energy is stored
2. The more aerodynamic your boat is the less drag will slow it down





I scream, you scream we all scream for ice cream

This experiment changes the state of ice from a solid to a liquid. When ice melts it absorbs energy.



Using the materials provided create an ice cream/sorbet.



Experience and Outcomes
Science: SCN 2-19a



Baltic Blubber

This activity is all about the body's reaction to cold temperatures.

Many people who find themselves in freezing water quickly experience reduced fine motor skills. This is because nerve conduction at low temperatures slows and prevents signals getting from the brain to the hands and fingers.



Experience and Outcomes
Science: SCN 1-05a/2-05a



Baltic Blubber

But why does this not effect animals like walruses?

You'll be investigating the body's reaction to cold temperatures and how simple measures can protect your fine motor skills.



Baltic Blubber

Firstly take a piece of paper and write your name.

Next place your writing hand in the ice filled tank and keep it in for as long as you can. Then time yourself to see who can keep it in the longest.

Now write your name again. Compare to the first attempt.





Baltic Blubber

Now we're going to try and recreate the blubber. Put on a glove and cover it in petroleum jelly (our version of blubber).

Place your hand back in the icy water and see if you can last longer than your first attempt, use the timer to check.





Odd one out

This activity focuses on topical science and asks you to look at a series of images and decided which you think is the odd one out.

There is not right answer so but you do have to justify your answer by explaining to others why you made that choice.





Sinking Ships

Liquids exert an upward force on a floating object. This upward thrust (force) is also known as buoyancy. An object will float so long as it's not heavier than the water that it displaces. Essentially denser objects are more likely to sink whereas less dense objects will float.

You make objects less dense by making them wider and hollow. This is how ships float.



Experience and Outcomes

Science: SCN 2-08b

Technology: TCH 2-09a & TCH 2-10a/2-12a

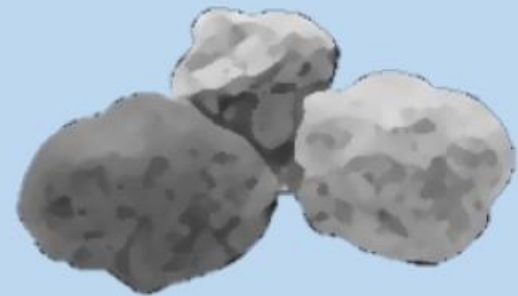
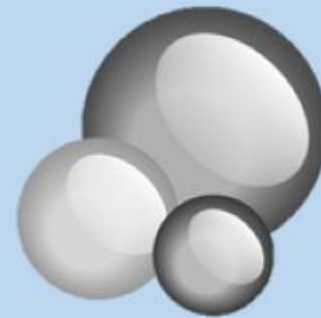
Sinking Ships



Take one of the pieces of plasticine and roll it into a ball. Put it into the water and watch what happens.

Now take the plasticine and mold it into to a shape that you think will float. Add the marbles until it sinks.

Who's boat can hold the most?





Waddle I do without you?

Heat energy moves from warm areas to cool areas. The colder the surroundings the faster the heat is lost.

When people huddle together the collective bodies become much warmer than the surrounding air therefore the heat escapes more slowly. Being surrounded by others also reduces the surface area that you lose heat.



Experience and Outcomes
SCN 1-12b/2-12b



Waddle I do without you?

Explore how living things rely on each other and conduct a fair test.



Summary

All of the activities used could be used individually or in a larger topic to deliver forces, energy or the properties of materials. Ideally they would be used to enhance the work that you are already doing and seamlessly fit in with existing curriculum.

Linked topics include:

- *Arctic*
- *Glasgow Shipbuilding*
- *Oceans*





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