

Walking through water

Watch this clip:

<https://www.youtube.com/watch?v=rO106buJdJc>

Can you work out why he is running so slowly?

How does it feel
to walk through
deep water?

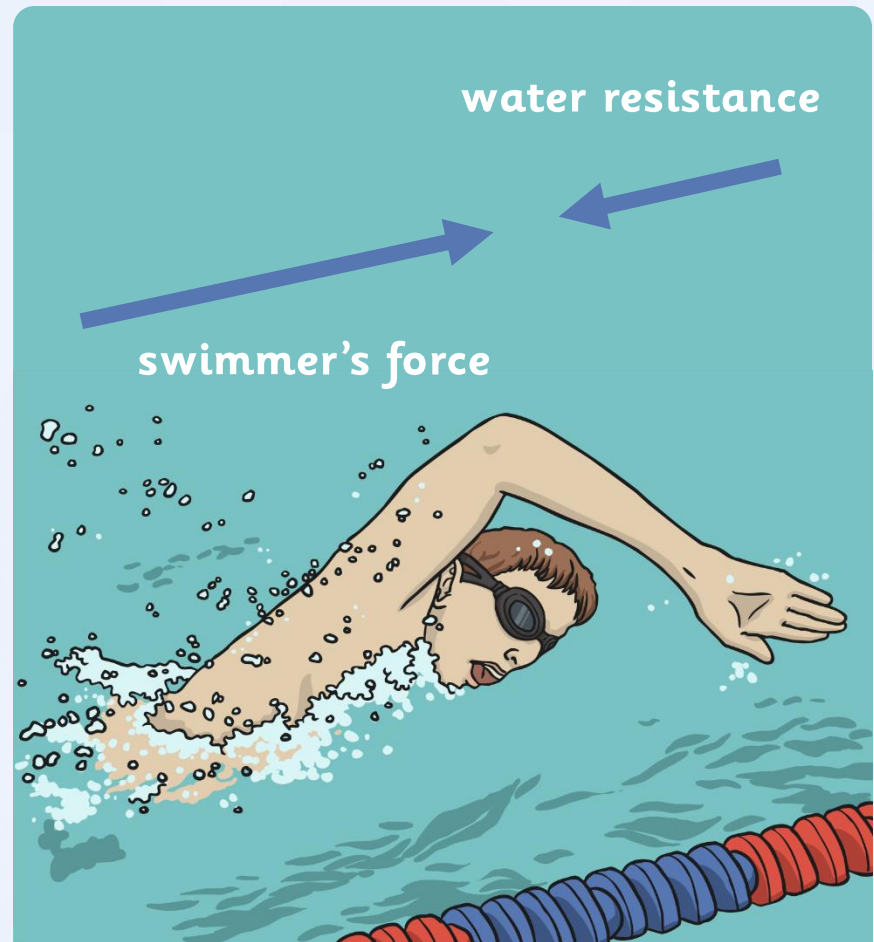


Water Resistance

If you have ever walked through water, you will have felt the effects of **water resistance** pushing against you.

Whenever an object moves through water, it experiences the force of water resistance.

Water resistance is a type of friction that **pushes** objects back, making it hard for them to move through water.



Water Resistance

Water resistance can be a useful force:

When we jump into a swimming pool, it is water resistance that prevents us from hitting the bottom.

The greater the surface area of the object, the more resistance it encounters from the water, i.e. if we spread our body out as we jump into the water it will hit more water than if we dive in neatly.



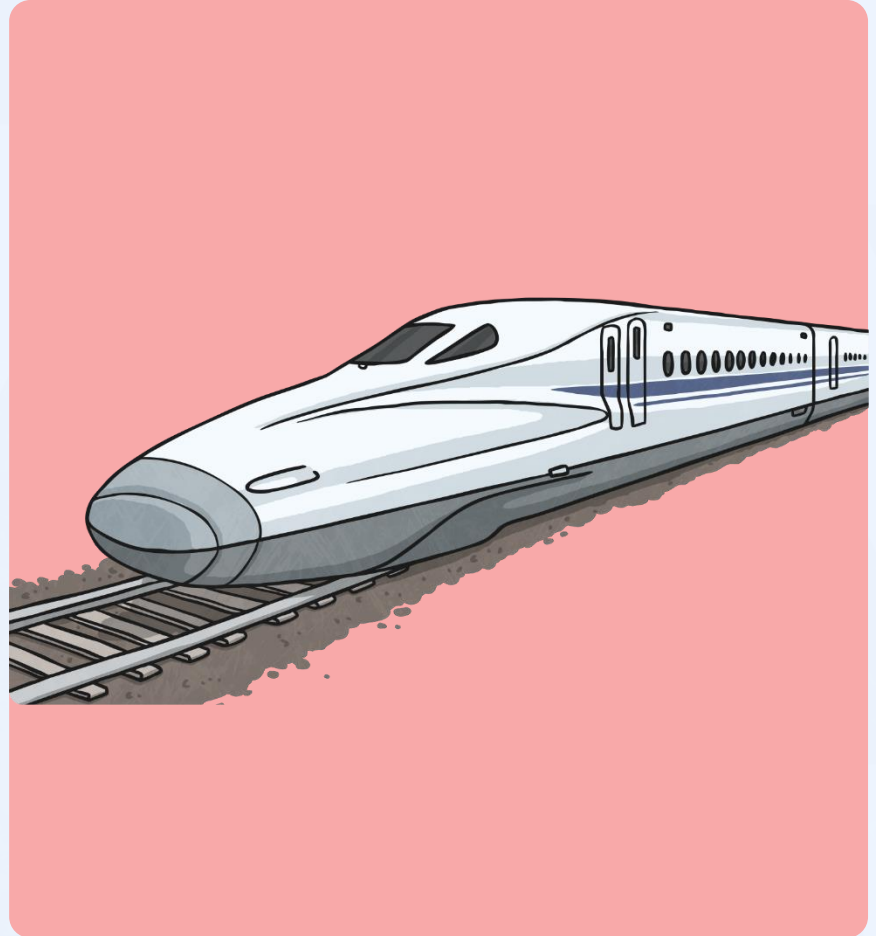
Streamlined Shapes

It is possible to reduce the effects of water and air resistance.

Objects that do not experience as much water or air resistance are called streamlined.

Watch [this clip](#) to see natural and man-made streamlined shapes.

What do they all have in common?



Streamlined Shapes

This aeroplane is **streamlined**.

Its nose is **pointed** so it can cut through the air, and it has a **low, smooth, curved back** to allow more of the air to **flow over and around it**.

It does not create as much **air resistance** so it can move through the air easier.

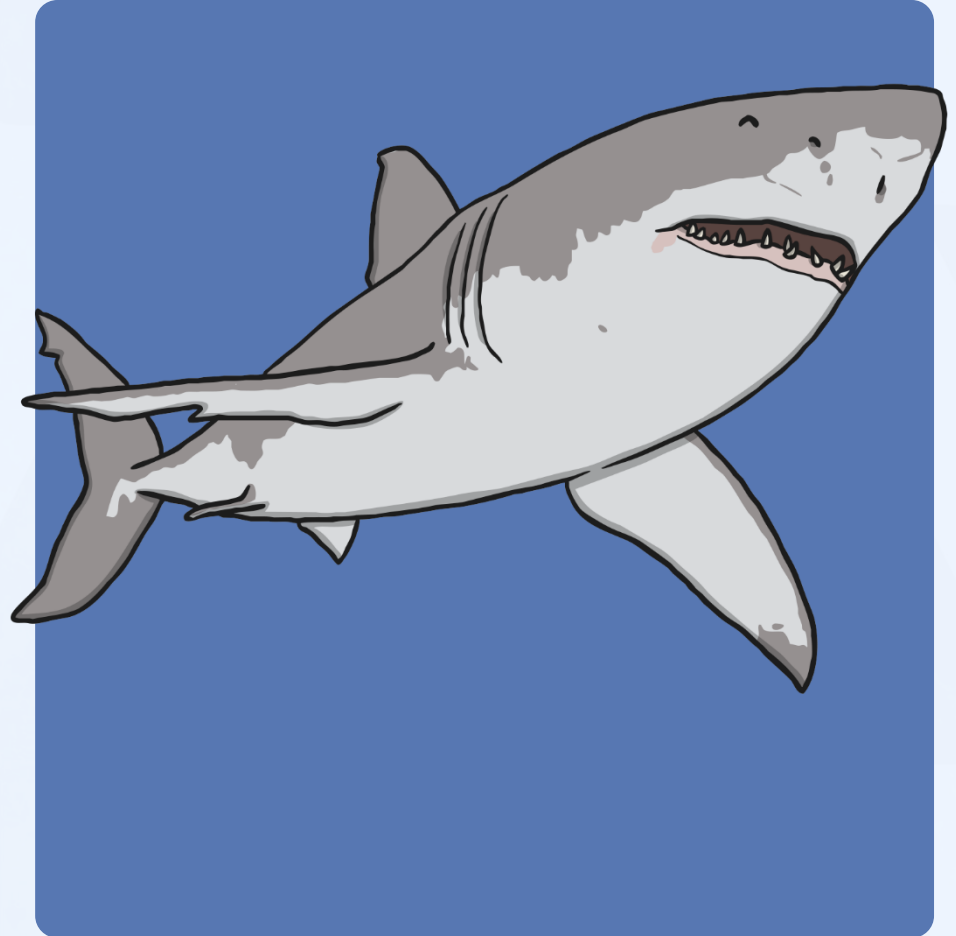


Streamlined Shapes

The shark is **streamlined**.

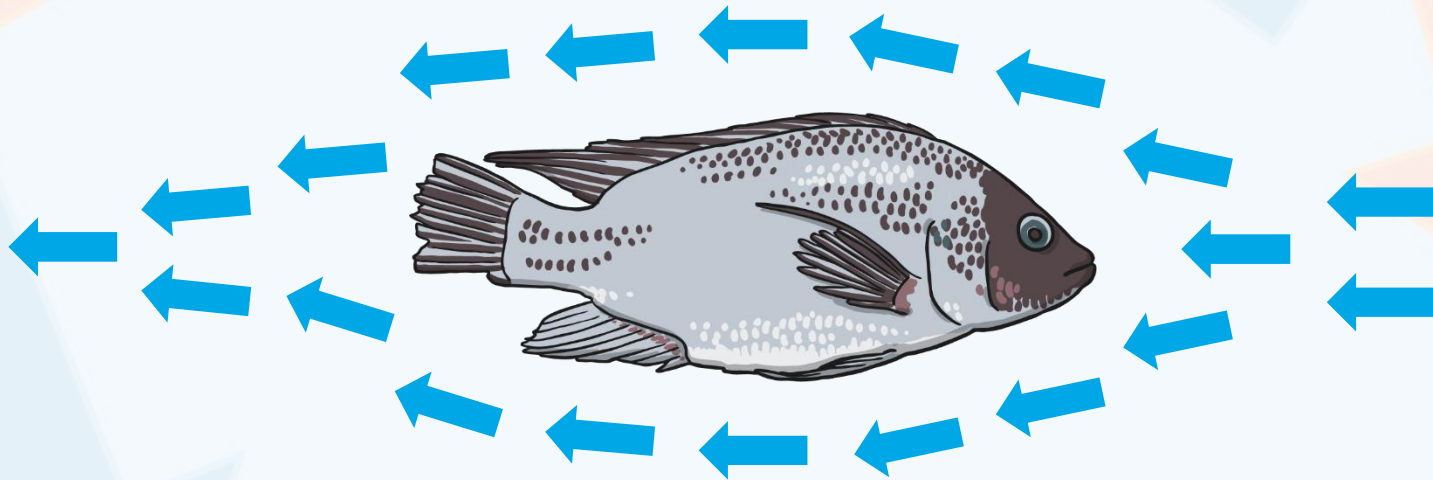
It has a **pointed** nose to cut through the water, and a **smooth, low, curved back** to allow more of the water to flow **over and around it**.

It does not create much **water resistance** so it can move through the water quickly.



Streamlined

The fish's shape is **streamlined** to help it move easily through the water.



Just like **air** creates **air resistance**, **water** creates **water resistance** which makes it more difficult for objects to move through the water.

<https://www.bbc.com/bitesize/article/s/zxw6gdm>

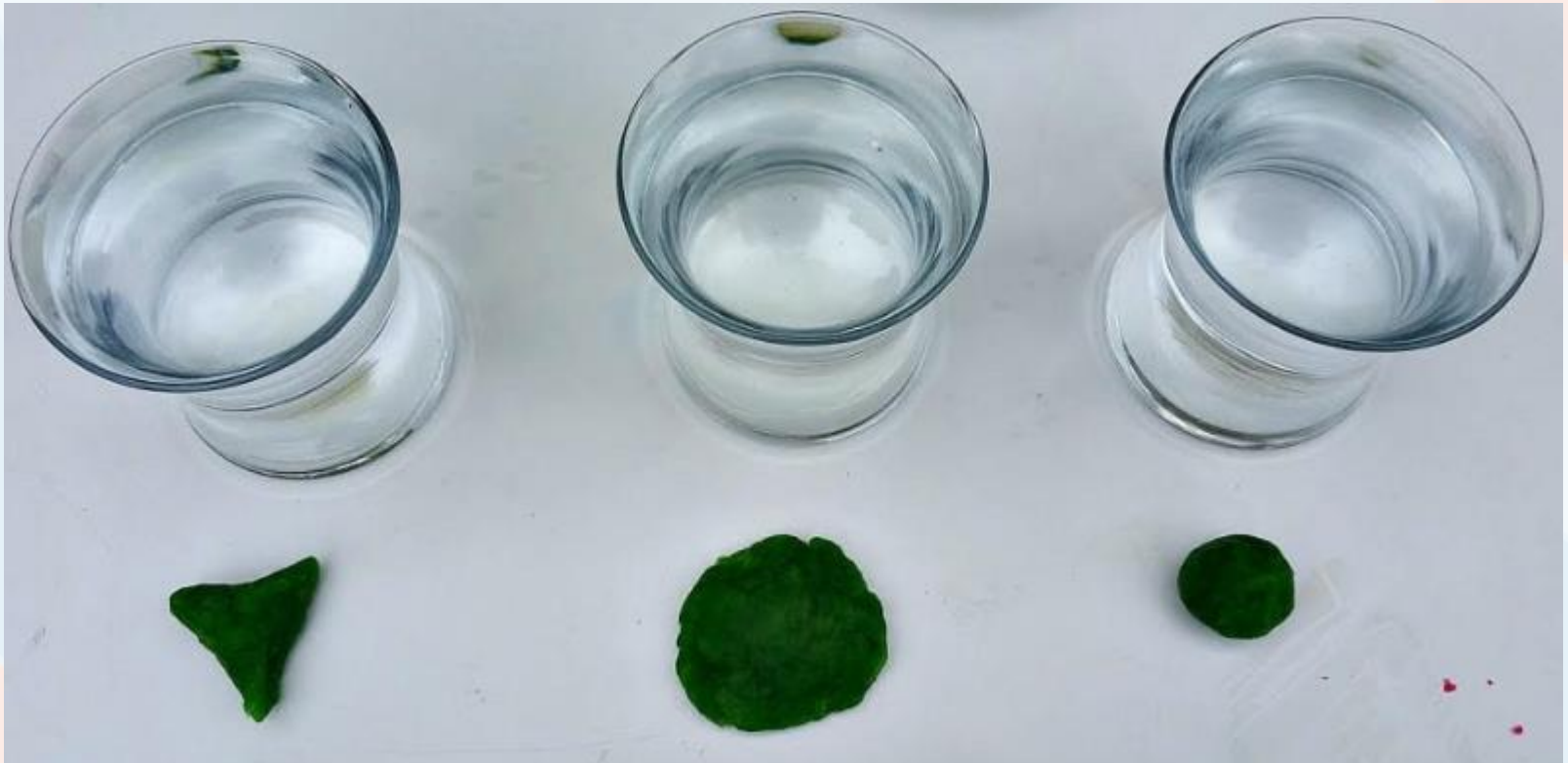


Air & Water Resistance: Streamlining

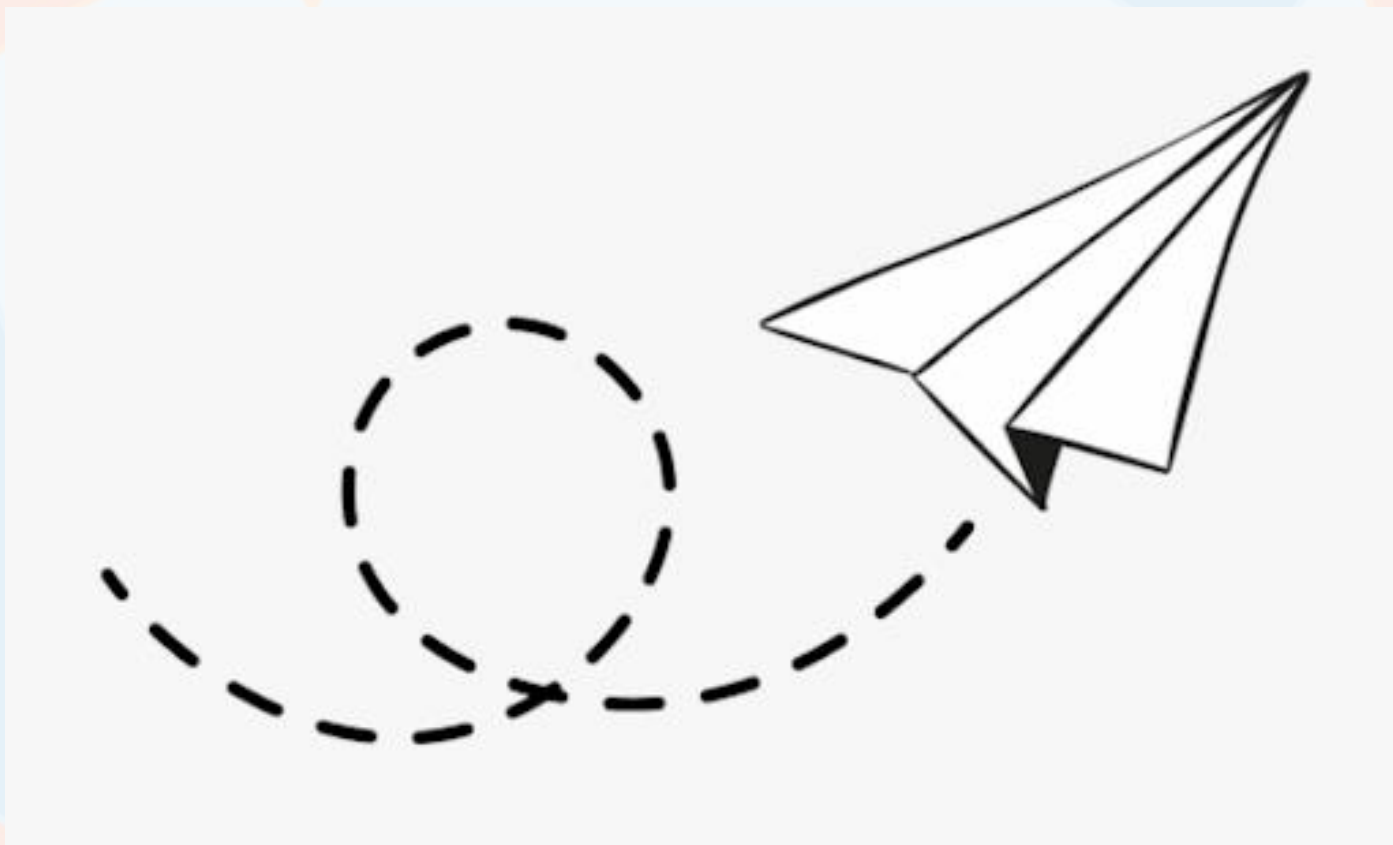
- Air & water resistance are **forces that push against objects** moving through them.
- The more air/water there is, **the stronger the resistance will be.**
- We can **reduce the effects** of air and water resistance by **streamlining.**

Mini Experiment 1

Get three pieces of plasticine (stones in foil works). Each of the pieces are **the same weight but they are different shapes**. Try and find out which shape falls **most quickly** through water.



Mini Experiment 2



Air & Water Resistance: Streamlining

- Drop different objects into water – can you predict which will travel faster through the water and why?
- Boat race activity – design and build a
- Paper aeroplanes