

Water Resistance

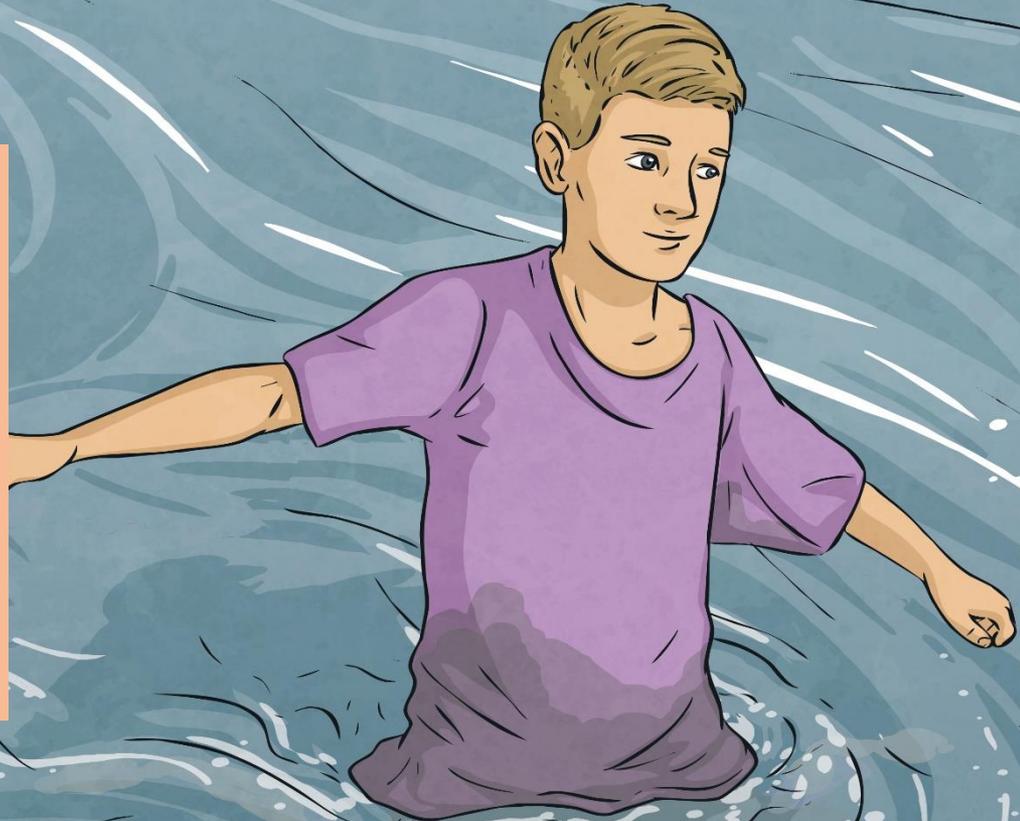


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Water Resistance

How does it feel to walk through deep water?

Think of some words and phrases to describe the feeling.



Please watch the clip below to learn a bit more about water resistance:

<https://www.bbc.co.uk/bitesize/topics/zsxxsbk/articles/zxw6gdm>

Water resistance is a type of force that uses friction to slow things down that are moving through water. It is often called drag.

Different shaped objects have different levels of water resistance, streamlined shapes have less and can therefore move through water much more easily. If an object is turned sideways, it will likely be easier to push it through the water. This is why fish are shaped the way they are. The area is one of the biggest factors affecting water resistance. If an object has a larger area, it will collide more with water particles and therefore have a bigger drag force. If you spread out your body jumping into water you will encounter more water resistance meaning it will slow you down.

Velocity (speed) can affect this force too.

If an object has a bigger velocity (speed), it will have a stronger drag force. This is how fast the object initially travels through the water. The faster it is going, the stronger the drag force.

The texture of the object is another common factor affecting the force.

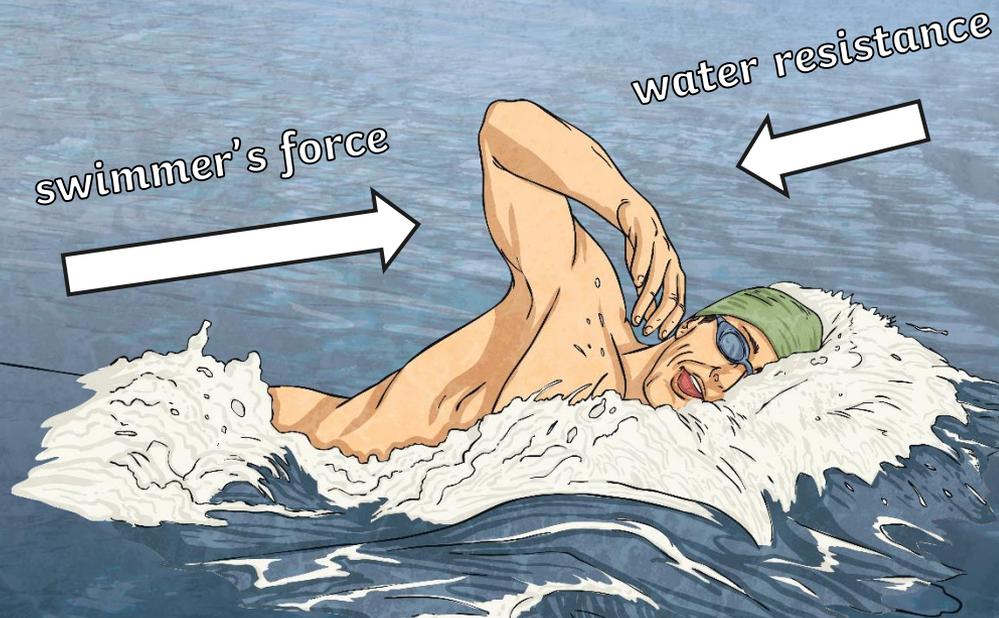
This is why swimmers think carefully about what they wear in races as they want to choose the clothing which will allow them to be most streamlined and therefore create the least water resistance to allow them to move faster through the water.



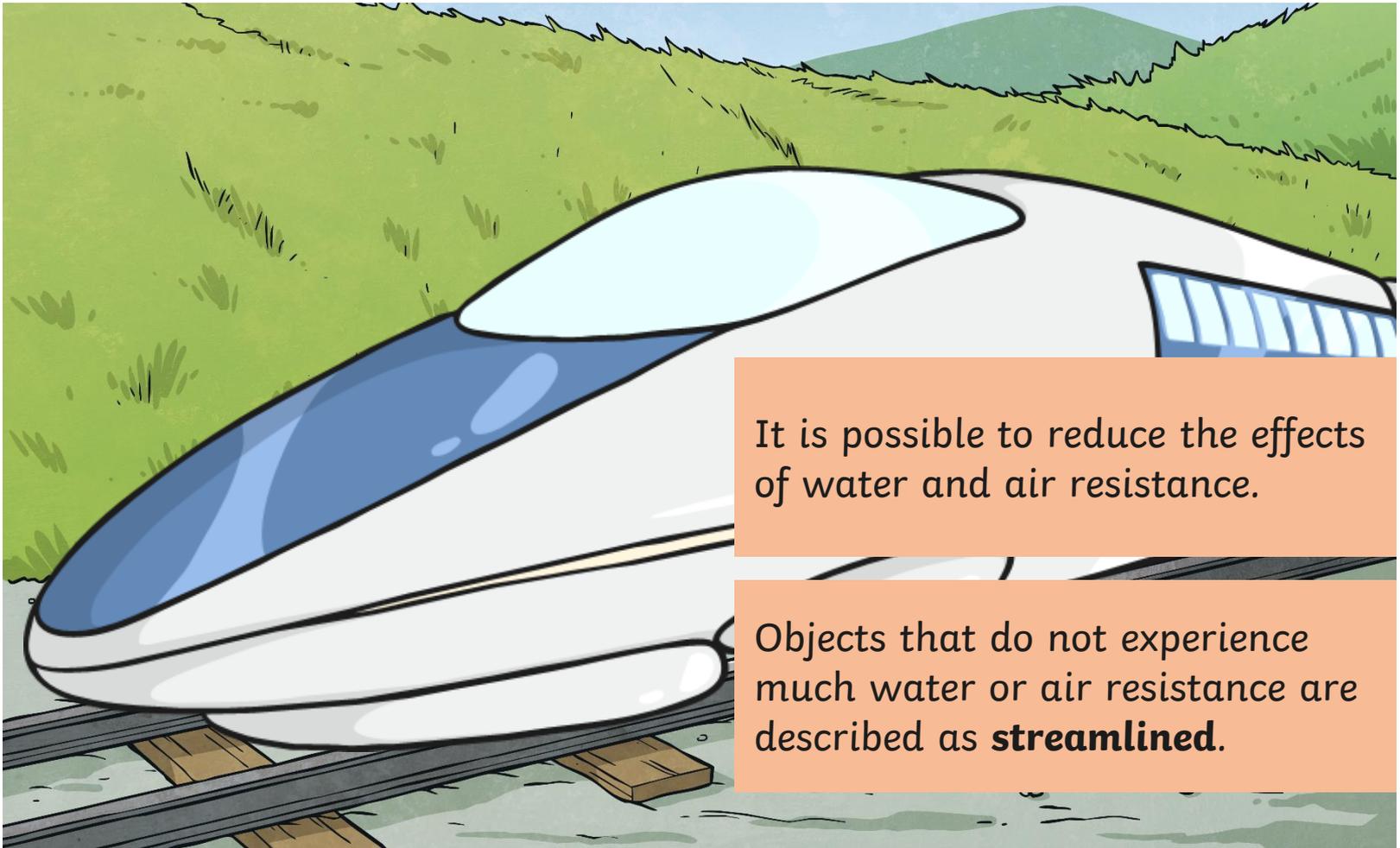
If you have ever walked through water either in a swimming pool or in the sea, you will have felt the effects of **water resistance** pushing against you.

Water Resistance

However, this also helps you to swim, as when you push against the water with your hands, the water resistance pushes back and helps you to move forward, like using oars to push against the water to row a boat.



Streamlined Shapes



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

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

Streamlined Shapes

This aeroplane is **streamlined**.



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

Streamlined Shapes

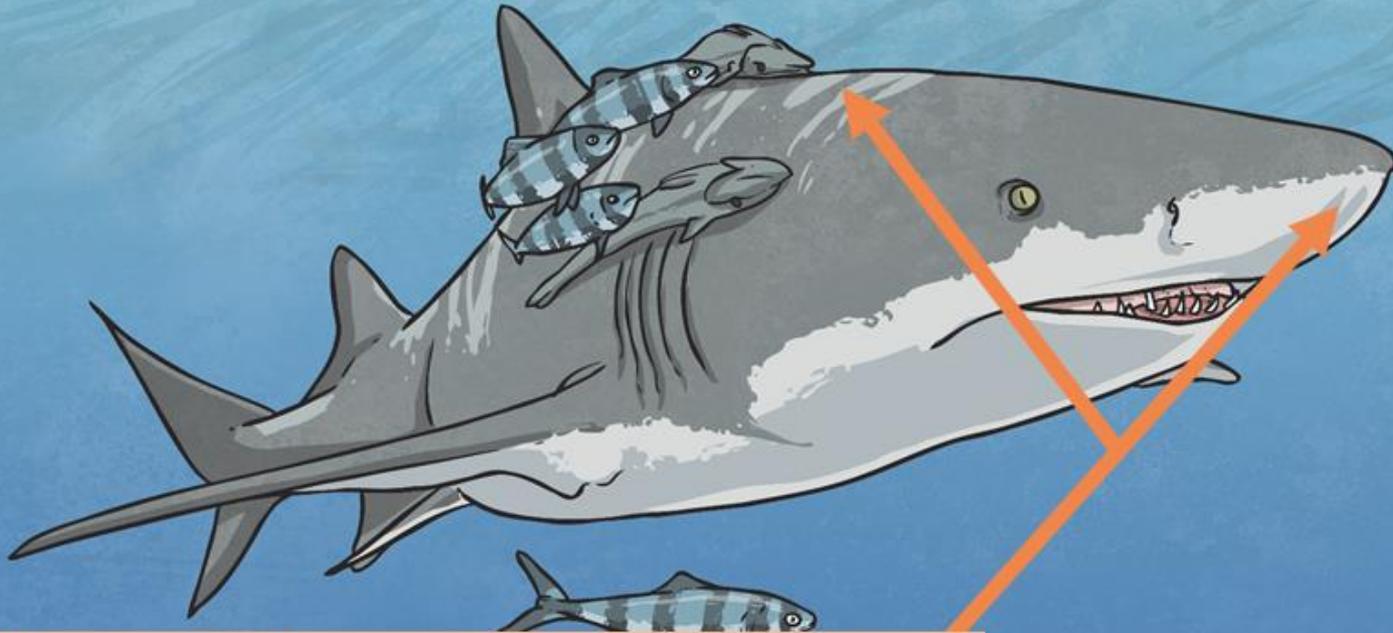
This aeroplane is **streamlined**.



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

Streamlined Shapes

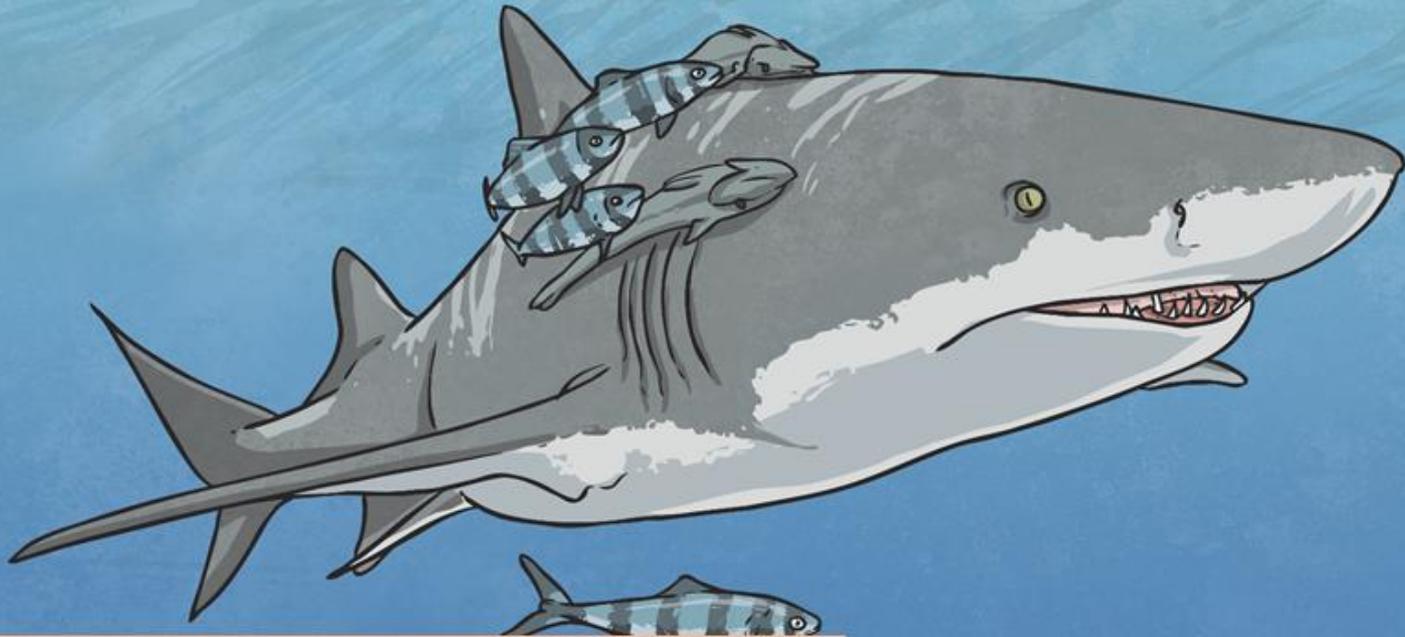
This shark is **streamlined**.



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

Streamlined Shapes

This shark is **streamlined**.



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

Please complete the activity on the sheet attached named '**Friday 12th February – Science worksheet**'.

Think about what water resistance is and what effect this has upon objects. Use the information from this PowerPoint and the on the video to help you too.