

## Your guide to this lesson

Year 5 Summer Term Week 4 Science – Forces – Opposing Motion

Follow the slides in order, reading each one carefully. Try to answer the questions before reading the answers below each one.

Copy and paste the video links in your browser when you see them:

Wind resistance in cycling: <https://www.bbc.co.uk/bitesize/clips/ztqw2hv>

Streamlining in nature and industry: <https://www.bbc.co.uk/bitesize/clips/zxspyrd>

Task: You will need access to the internet for your research.

Refer to Education city Science w/c 11.5.20 for more activities on Forces.  EducationCity



LO: To know that air produces a force that opposes motion.



Look at these key words:

What do they mean?



drag

motion

friction

air resistance

streamline

opposes

force

We've learnt what some of them mean over the past few weeks, but some words are new. Put your thinking cap on first, then on the next slide we'll recap and learn.

**force** = push or pull. Makes something (or someone) move, stay in place, or change shape.

**motion** = something (or someone) being pushed or pulled.

**air resistance** = caused by air (also known as drag).



**drag** = opposite to motion (increases and decreases with speed).

**friction** = resistance of motion (when one object rub together it works against the motion and acts in the opposite direction).

**opposes** = provides resistance.

**streamline** = move easily through air and water.



What is it like in windy weather?

Wind pushes you around because it puts a force on your body and face from different directions. The air opposes your motion.

Does that change when you walk faster or slower?



The faster you go, the more air is pushed causing drag or air resistance.

When cycling do you ever change your position to move through the air easier?

Cyclists often duck down to reduce their body area that is going directly into the air/wind. This is streamlining.



Wind resistance in cycling: <https://www.bbc.co.uk/bitesize/clips/ztqw2hv>

Can you think of anything that is streamlining in the natural world or something that is un-natural (man-made)?

Watch the clip to see streamlining in nature and industry:

<https://www.bbc.co.uk/bitesize/clips/zxspyrd>

# What are the advantages of streamlining?

The advantages of streamlining are:

- To gain speed
- To maintain speed
- To reduce the fuel or energy used



When something is streamlined it means it is more **aerodynamic**.

**Aerodynamic** = a shape which reduces the drag from air moving past it.

Task: Research something that is naturally streamlined (e.g. bird) and one that is un-naturally streamlined (e.g. fast car). Make notes on what makes them streamlined when travelling through the air.

Extension: Explain to someone at home why it is important for some animals to be streamlined and give examples.

Challenge: Think about whether all things are designed to be streamlined, explain your answer to someone at home and justify your reasons.

# Plenary

Now it's time to reflect on your learning:

What will I  
remember most  
from today's  
lesson?



What I will remember most from  
today's lesson is ...