Week commencing 23rd November 2020

Science

Overall Objective:

I can identify the effects of air resistance, water resistance and friction that act between moving surfaces.

What is Friction?

What do you know already?
Try the activity on the next slide to develop your understanding.

What Is Friction?

Look at the statements about friction. Can you decide which are true or false?

Friction is a force.

Friction is stronger than gravity.

Friction slows moving objects down.

All surfaces create friction on an object moving over them.

Friction produces heat.

Friction is always a useful force.

What Is Friction?

How did you do?

True
Friction is a force.

False
Friction is stronger than gravity.

True
Friction slows moving objects down.

True
All surfaces create friction on an object moving over them.

True
Friction produces heat.

False
Friction is always a useful force.

Friction

- Friction occurs between two surfaces that slide against each other.

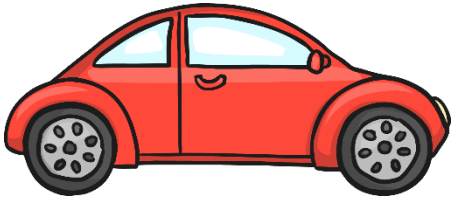
- Friction is the force that acts against you when you try to move something heavy.

- The rougher the surfaces, the stronger the friction.

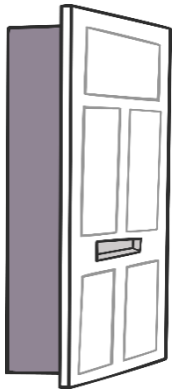
- Friction produces heat, like when you rub your hands together.

Using and Reducing Friction

- Friction is useful when it helps us grip the floor with our shoes and stop car tyres skidding.



- However, for people like ice skaters, it is a good thing that ice causes very little friction.



- Friction can be reduced by using methods like lubrication. Your door hinges will probably be lubricated by oil to reduce the wear and tear caused by friction.

What Is Friction?

Friction is a **force** that acts between two surfaces or objects that are moving, or trying to move across each other.

Friction always acts in the **opposite direction** to the moving object, and always **slows** a moving object down.

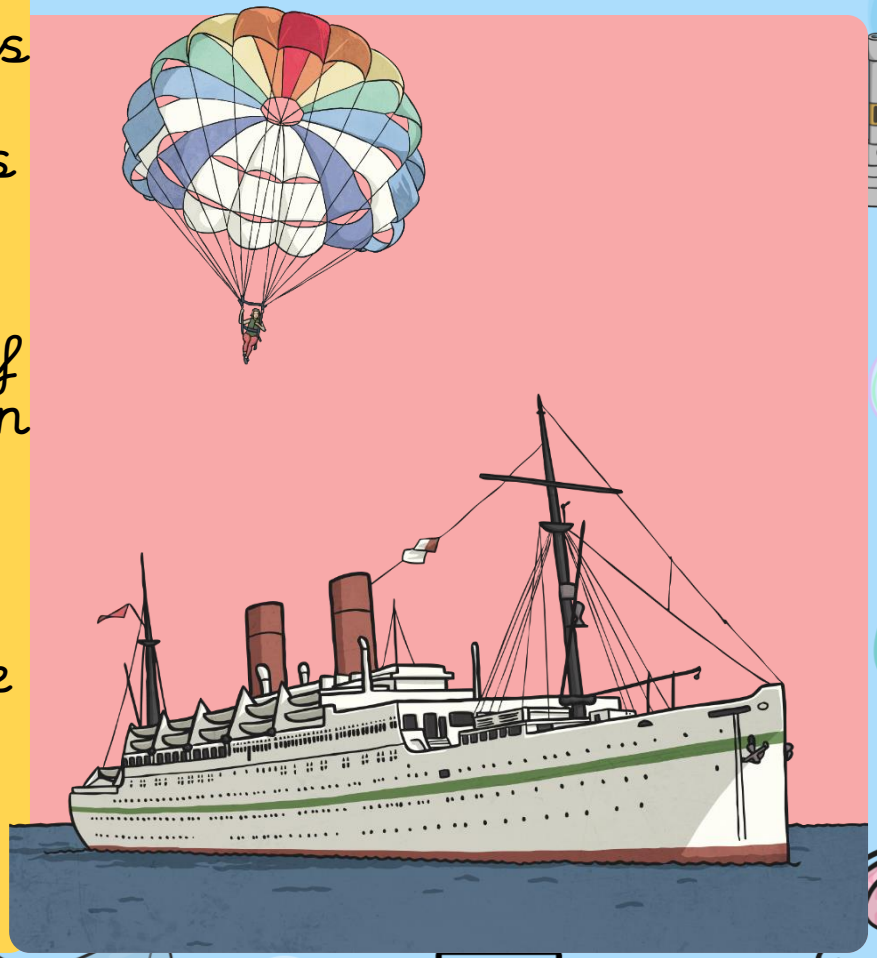
All surfaces create friction on an object moving across them. Even very smooth surfaces like ice create some friction.

What Is Friction?

Air resistance and **water resistance** are both forms of **friction**. Gases and liquids create friction as well as solids.

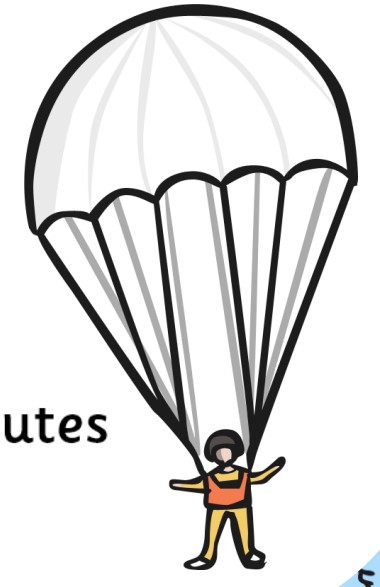
Friction can be **useful** – for example, the soles of your shoes create friction with the ground, preventing you from slipping over.

However, friction can be **unhelpful** too – friction on a bike chain can make the bike harder to pedal.



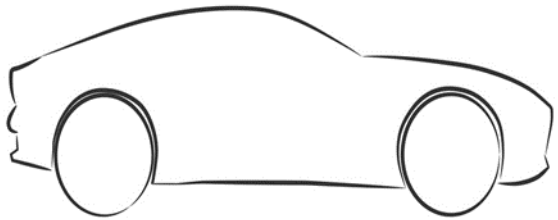
Air Resistance

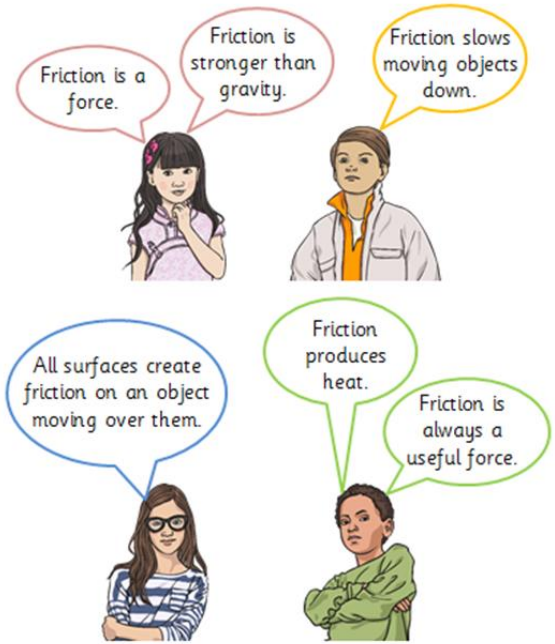
- Air resistance is a type of friction.
- Air resistance makes it more difficult for an aeroplane to travel through the air from the air particles hitting it.
- The streamlined shape of an aeroplane helps it against air resistance.
- Air resistance is also what makes parachutes work.



Task 1: What is Friction?

Explain in your own words what friction is and how it affects objects.





Watch the clips below.

https://www.bbc.com/bitesize/clips/z462tfr

Friction Enquiry

You are going to test how much friction is generated on a toy car as it drives over different surfaces.
(Carpet, lino flooring, wood, cardboard etc)
Check with your parents first and make sure you have their permission and that you perform your test sensibly.

First, you will need to find a toy car and make a ramp.
Next, collect some materials for different surfaces, which are placed at the end of the ramp as shown in the video.
Release the toy car down the ramp and measure and record the distance travelled over each surface.

Task 2: Plan your experiment

Friction Enquiry Plan:

What I will do: _____

_____

_____

What my enquiry will look like:

The independent variables in my enquiry are:

_____

The dependent variables in my enquiry are:

_____

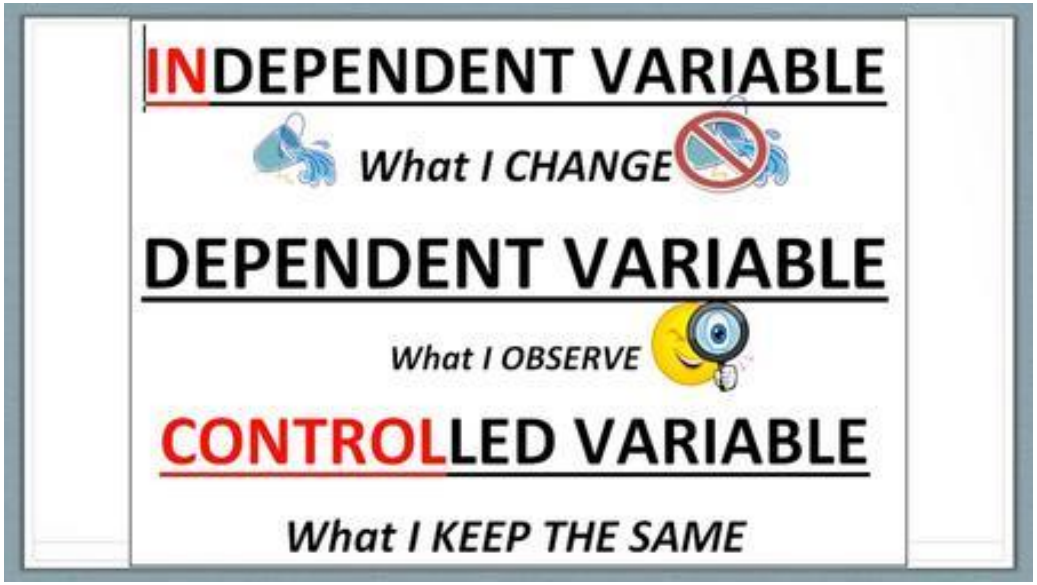
How I will measure and record my results:

_____

_____

Planning Tips: Variables

Variables are things that change and can effect the results of the test.



The surfaces change at the bottom of the ramp
You must measure and observe the distance that the car travels
The height of the ramp must be the same throughout the test.

Task 3: Experiment and concusion time!

My Findings:

Road Material	Distance travelled - cms			
	1st attempt	2nd attempt	3rd attempt	Mean distance

My Findings Explained:

Conclusion:

The surface with the least amount of friction was:

The surface with the most amount of friction was:

Task 4: Future enquiries

What different enquiry could you conduct in the future? What would you predict you would find?

Future Enquiries

My future enquiry would be

Due to my findings, I predict

Friday 27th November

Jigsaw - Celebrating Difference- Week 4

LO:
I can explain the difference between direct and indirect forms of bullying.

I know some ways to encourage children who use bullying behaviour to make other choices and know how to support children who are being bullied.

Jigsaw - Celebrating Difference- Week 4

Direct bullying is when the bullying is done directly to the person being bullied. He or she might be pushed, hit, tripped, texted or emailed. They might have rude signs made at them or be told that they can't join in a game.

Indirect bullying is when bullying happens behind someone's back (spreading rumours, whispering to each other, stealing or damaging things without the person knowing who is doing it or excluding someone from a game indirectly by making up an excuse.

Jigsaw - Celebrating Difference- Week 4

Consider these scenarios. Which ones are examples of direct bullying and which ones are examples of indirect bullying?

Jasmine hides Kevin's lunchbox everyday. He doesn't know she is doing this.

Olivia trips up John every time he passes her.

Marcus keeps persuading his friends to take away Connor's friends so that Connor has no-one to play with.

Ella ignores Sally and gives her nasty looks

Jigsaw - Celebrating Difference- Week 4

Jasmine hides Kevin's lunchbox everyday. He doesn't know she is doing this. (Indirect)

Olivia trips up John every time he passes her. (Direct)

Marcus keeps persuading his friends to take away Connor's friends so that Connor has no-one to play with. (indirect)

Ella ignores Sally and gives her nasty looks.

Jigsaw - Celebrating Difference- Week 4

Marcus keeps persuading his friends to take away Connor's friends so that Connor has no-one to play with.

How could you encourage Marcus to make a different choice?

How could you support Connor?

- Tackling bullying is everyone's duty.
- Don't be part of indirect bullying.
- Act responsibly towards all your friends and seek help if you need it.

Seek help from parents, teachers, friends and others...

Child-Line	Kidscape	Thinkuknow

Reflect

LO:
I can explain the difference between direct and indirect forms of bullying.

I know some ways to encourage children who use bullying behaviour to make other choices and know how to support children who are being bullied.

Do you understand the difference between direct and indirect bullying?

Are you aware of how you can help? Can you help bullies to make other choices? Do you know how to support children who are being bullied