

Your guide to this lesson

Year 5 Summer Term Week 1 Science - new topic - Forces.

Follow the slides in order, reading each one them 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.

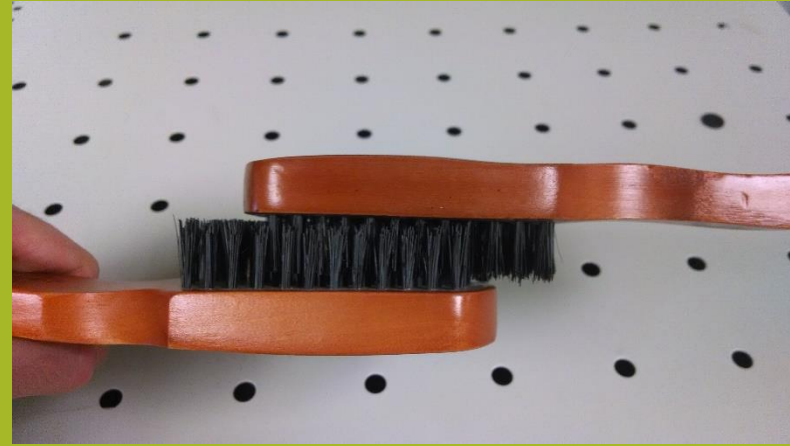
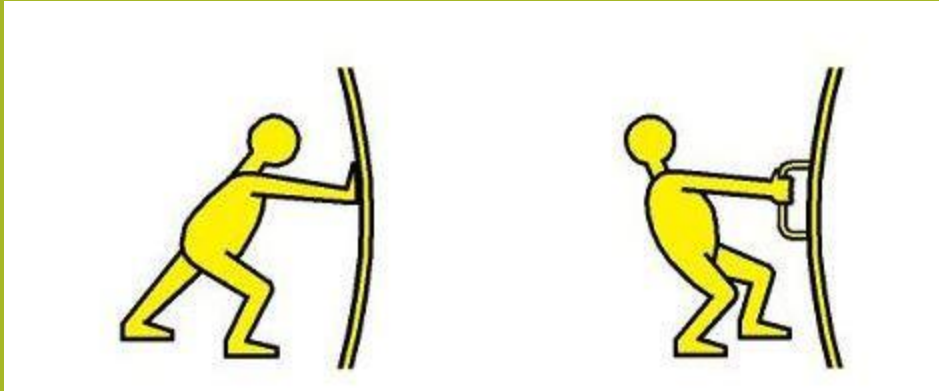
What is a force? Pushes and pulls: <https://www.bbc.co.uk/bitesize/topics/zvpp34j/articles/zywcrdm>

Friction and resistance: <https://www.bbc.co.uk/bitesize/topics/zsxxsbk>

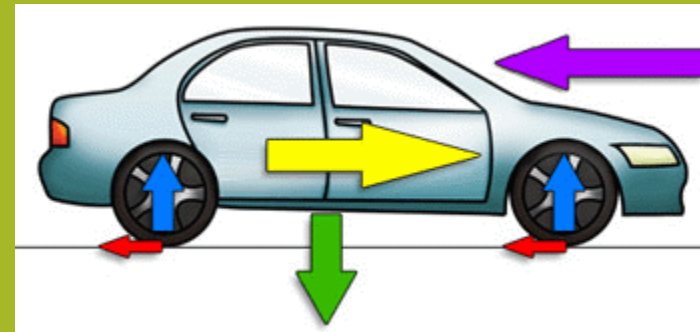
What is gravity?: <https://www.bbc.co.uk/bitesize/topics/zf66fg8/articles/zqbm3k7>

If you have a printer then you can print off slide 9 with the pictures and label the forces in action on each one. Draw arrows on them to indicate the direction of each force and then write your own observation statements.

Finally, when you have completed the task scroll down on first video link for pushes and pulls, click on the orange hand and play the activity on unbalanced forces.



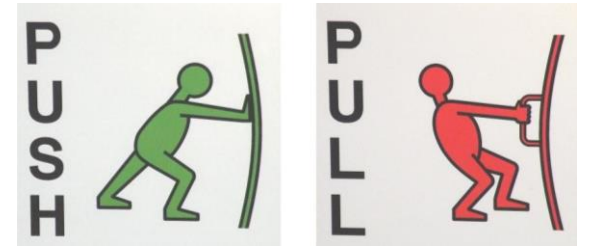
LO: To identify forces and know what gravity and resistance are.



What is a force?

A force is a **push** or a **pull** exerted on something (or someone).

<https://www.bbc.co.uk/bitesize/topics/zvpp34j/articles/zywcrdm>



What is gravity?

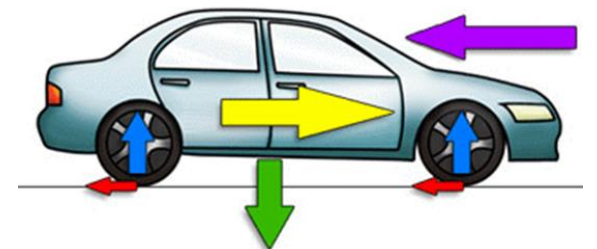
Gravity is a force which **pulls** something (or someone) to the ground on Earth.

<https://www.bbc.co.uk/bitesize/topics/zf66fg8/articles/zqbm3k7>



What is resistance?

Resistance is a force which **pushes** in the opposite direction to something (or someone) moving toward it.

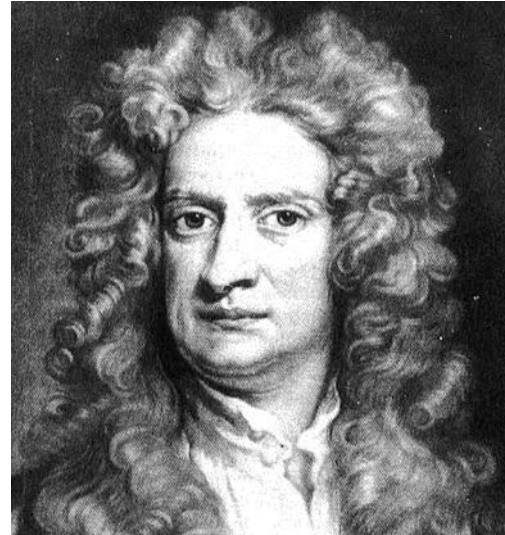


<https://www.bbc.co.uk/bitesize/topics/zsxxsbk>

The weight of something (or someone) is the force caused by the **pull** of gravity on the mass of something (or someone).

How is weight measured?

Weight is measured in Newtons (N) and is named after Sir Isaac Newton, who discovered gravity.



A force meter (or Newton meter) is used to measure weight.

The mass of something (or someone) is how much 'stuff', or matter it/they are made of. It is not a force.



How is mass measured?

Mass is measured in grams (g) or kilograms (kg).



Scales are used to measure mass. We often use weight to mean mass.

Why does gravity not pull things through the ground?

Gravity is not strong enough to **pull** things any further. The ground provides a stronger resistance force **pushing** on the weight of something (or someone).

Weight + strong resistance force (on the ground) = balanced forces.

Weight + weak resistance force (on thin ice) = unbalanced forces.



Look around the house for objects on top of a table.

What is keeping them on the table?

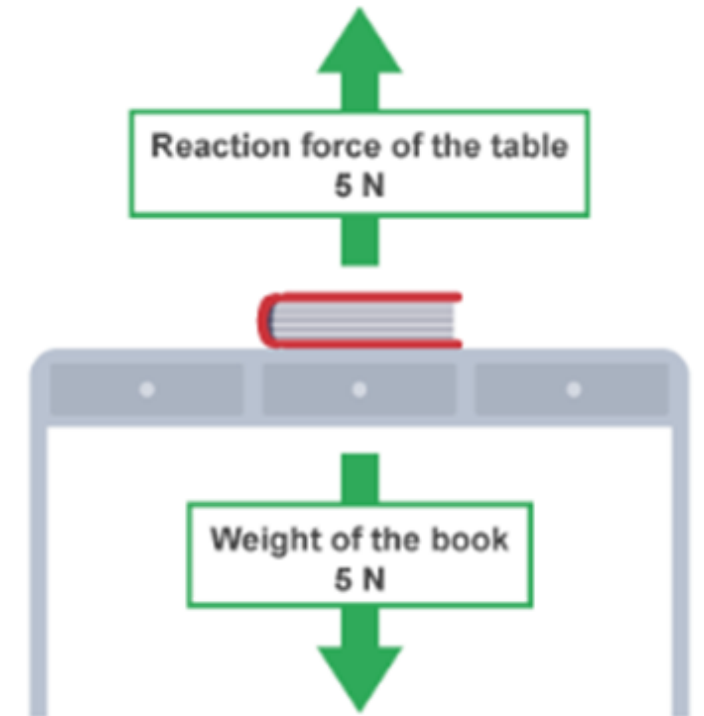
Can you explain what is happening?

Look at the diagram of a book on a table:

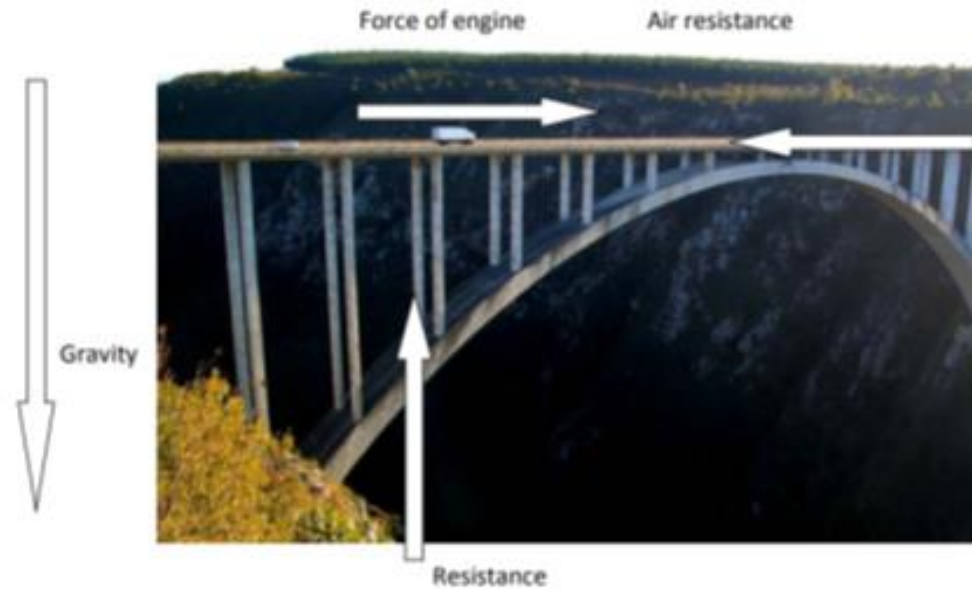
The book is being **pulled** down by gravity.

The table is providing resistance and **pushing** back.

As the forces (**pull** and **push**) are balanced, the book and the table do not move.



What forces are in action in this picture and what direction are they working in?



These are observation statements about the active forces in the picture:
The resistance (**push**) force of the bridge + the gravitational pull on the car = balanced forces.

The moving car is creating friction on the bridge and experiencing air resistance (friction holds back the movement of a moving object).

Friction + air resistance = unbalanced forces.



What forces are in action in these pictures?



Task: Now write observation statements of your own about the active forces in each one.



Extension

Can you identify other examples of forces around you?

Now chat to someone at home about what you have discovered and explain to them the forces in action.

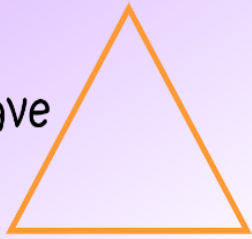
Challenge

Now develop some of your own enquiry questions about forces:
Why don't clouds get pulled to the ground by gravity?
Use the internet to try to get an answer for your questions.

Plenary

Reflect on any new knowledge that you have gained today about forces.

What new
knowledge have
I gained?



Mrs Bax, I now know that ...