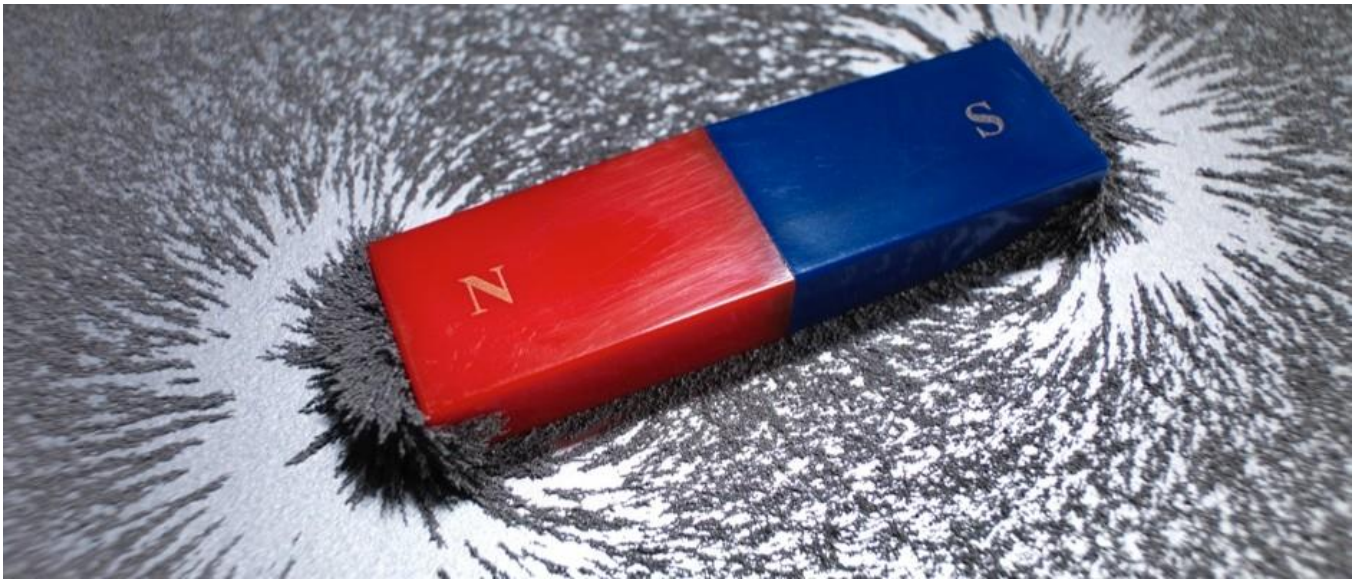
Forces



Name _____

Class _____

FORCES

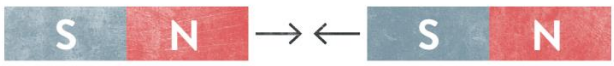
CHARLES DICKENS PRIMARY SCHOOL

Year Three | Spring 2

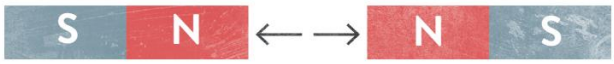
KEY FACTS

- ☑
- ☐ Magnetism is a **non-contact force**: it does not need to be physically touching another object to have an effect.
- ☐ A **magnet** is an object that produces a **force** that pulls on only a few other metals: iron, nickel and cobalt.
- ☐ The **magnetic field** is the area around the magnet in which magnetism is felt.
- ☐ The most common forms of magnet are bar magnets, horseshoe magnets.
- ☐ The magnetic force is strongest at the ends of a magnet, which are called **poles**.
- ☐ **Like poles repel: unlike poles attract.**
- ☐ Some uses of magnets in everyday life include: fridge doors, storing data on computers, Maglev trains, medical equipment (Magnetic Resonance Imaging)
- ☐ The Earth's magnetic field is caused by the molten metal in the Earth's core.

MAGNETIC FORCE



Unlike poles attract



Like poles attract

EVERYDAY USE OF MAGNETS

Magnets keep fridge doors closed.

Headphones contain magnets that turn electrical signals into sound.

Debit Cards have special magnetic patterns inside that contain coded information linked to your bank account.

WORKING SCIENTIFICALLY

- OBSERVING
- GROUPING
- COLLECTING AND RECORDING DATA
- PRESENTING FINDINGS
- TESTING/EXPERIMENTING
- MEASURING
- WRITING SCIENTIFICALLY

KEY VOCABULARY

- ☑
- ☐ **Force:** a push, pull, twist or turn caused when two objects interact with each other.
- ☐ **Magnet:** an object or device that attracts iron or another magnetic material.
- ☐ **Contact:** touching.
- ☐ **Non-contact:** not touching.
- ☐ **Attract:** pull towards.
- ☐ **Repel:** push away.
- ☐ **Magnetic:** attracted to a magnet.
- ☐ **Non-magnetic:** not attracted to a magnet.
- ☐ **Iron:** a metal that can be made into a magnet.
- ☐ **Pole:** the area of a magnet where the magnetic force is strongest.
- ☐ **Magnetic North:** the direction of the Earth's magnetic North pole.

SIGNIFICANT PEOPLE

Archimedes, the famous scientist from ancient Greece, is supposed to have pulled the nails out of enemy ships by using lodestone (magnetite). The ships then came apart, causing them to sink.

Lesson 1

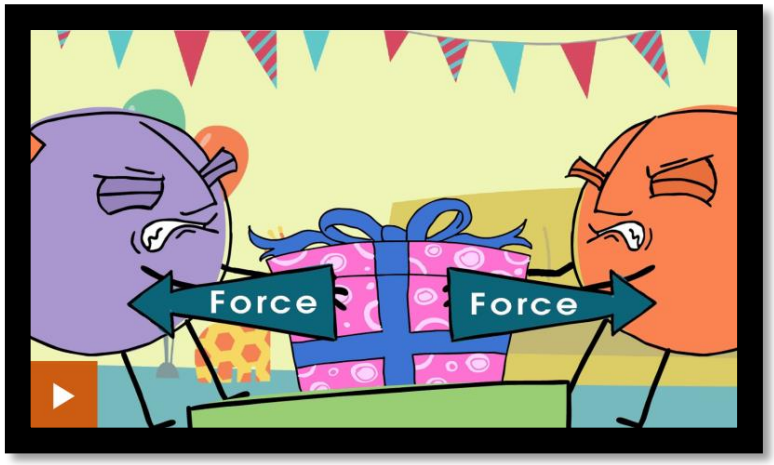
- I know that a force can be thought of as a push or a pull.

Glossary

Force – a push or a pull on an object.
Balanced – equal on both sides.

What is a force?

Watch the following video. What is a force? - BBC Bitesize

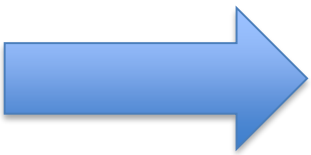


Pushes and Pulls

Forces are pushes and pulls in a particular direction.

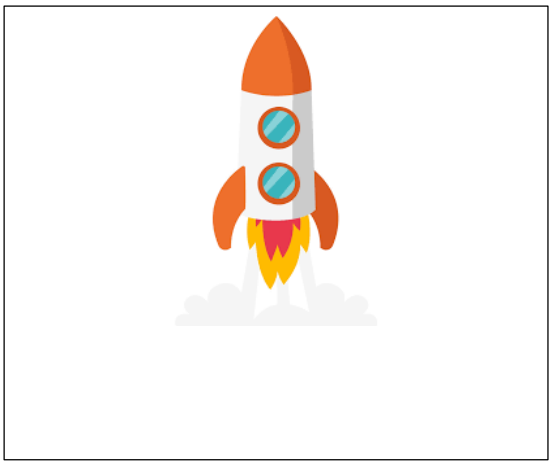
Forces are shown by arrows in diagrams. The direction of the arrow shows the direction in which the force is acting. The bigger the arrow, the bigger the force.

weak force



strong force

Draw an arrow to show the force in each of these pictures.
Will the arrow be big or small?



Pushes and Pulls
Watch the following video and note down 3 pushes and 3 pulls.
https://www.bbc.co.uk/bitesize/clips/zf84d2p

Push	Pull
1. ……..…….….	1. ……..…….….
2. ……...…….	2. ……...…….
3. ……...…….	3. ……...…….

Pushes and Pulls

Pushes and pulls are forces. You can make something start or stop moving when you push or pull it.

Below are some pictures of children using pushing and pulling forces. Write down *push* or *pull* in the force box. Does the force cause something to start or stop moving? In the second box write *start* or *stop*.

1.

force:

2.

force:

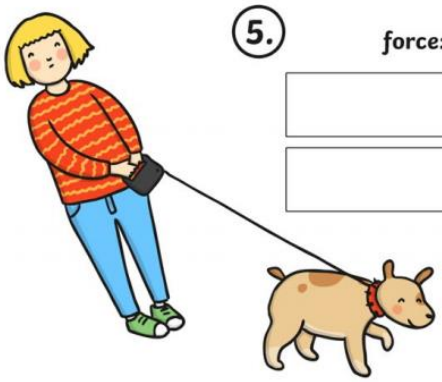
3.

force:

4.

force:

5.



force:

Draw your own!

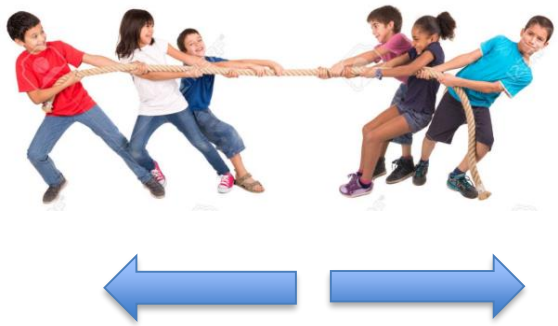
force:

Balanced forces and Unbalanced forces

Balanced forces

If two forces are *balanced*, it means they are equally strong but acting in opposite directions.

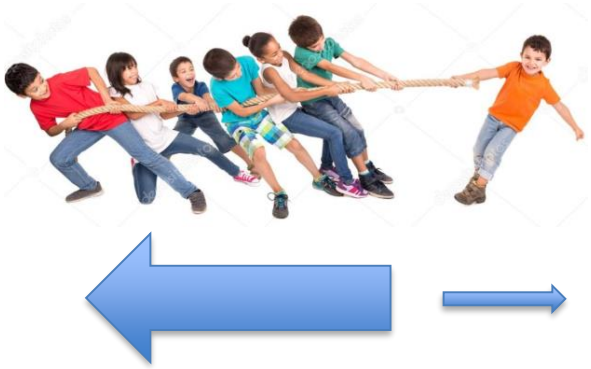
If two balanced forces are acting on an object, that object will not change its speed or direction. If it is still, the object will stay still. If it is moving, it will continue moving in the same direction and at the same speed.



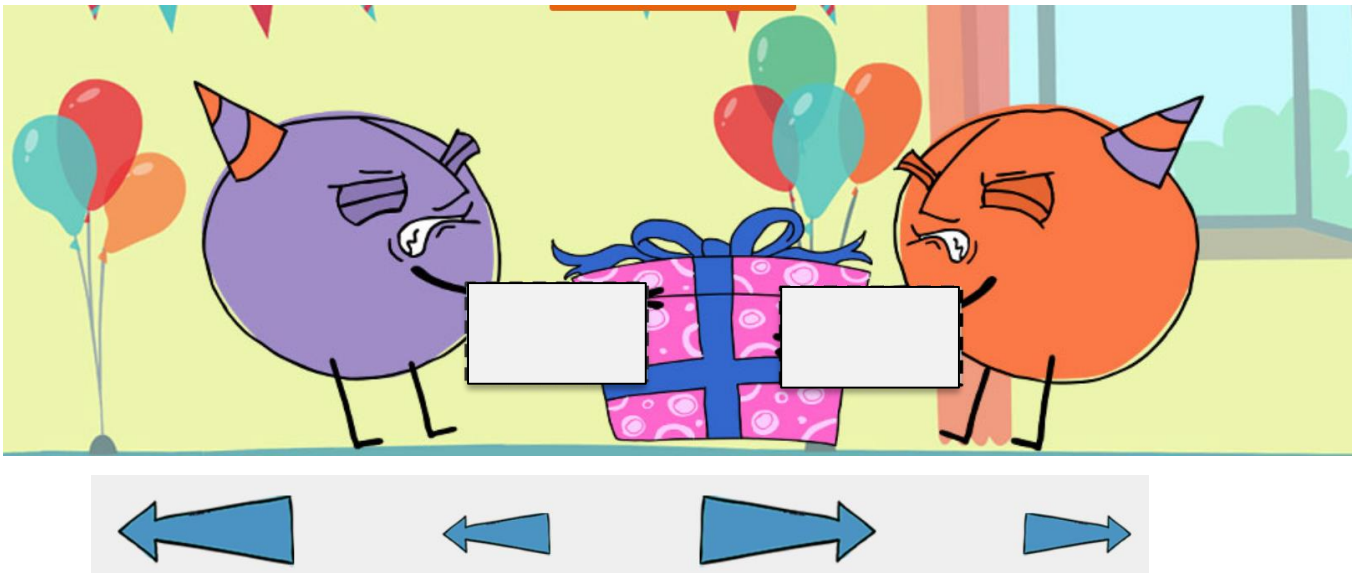
Unbalanced forces

When two forces acting on an object are not equal in strength, we say that they are *unbalanced* forces. Unbalanced forces change the way something is moving.

They can make objects start to move, speed up, slow down or change direction.



Draw the force arrows to show the orange twin is pulling harder than the purple twin.



Look at the sentences below. Circle the correct words and complete the sentences.

When I kick a football, I use a *pushing* / *pulling* force so that

_____.

The force I use is *balanced* / *unbalanced*, causing the ball to accelerate (to go faster).

Forces are used widely in sports. The following sports rely on pushing forces: _____

_____

Whereas these sports use pulling forces: _____

_____