BRINGTON CofE PRIMARY SCHOOL

Y3/4 Science Knowledge Organiser – Spring Term 1

Forces and Magnets

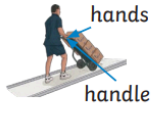
Key Vocabulary	
force	A **force** is a **push** or **pull**.
push	A **push** is a **force** that often moves an object further away.
pull	A **pull** is a force that often moves an object closer.
contact force	A **contact force** is a type of **force** that occurs between two or more objects that are touching.
non-contact force	A **non-contact force** is a type of **force** that occurs between objects that are not touching.
friction	**Friction** is a type of **contact force**. It occurs between two touching surfaces that are either trying to move or are already moving across each other.

Contact Forces: Examples of Pushes and Pulls

Pushes

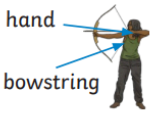


The foot **pushes** against the ground, causing the scooter to move forwards.

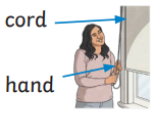


The hands **push** on the trolley handle, causing the trolley to move forwards.

Pulls



The hand **pulls** on the bowstring and arrow, causing the arrow to move closer to the person.



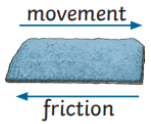
The hand **pulls** on the cord, causing the blind to lift up.

Forces can make objects start or stop moving, change speed, change direction or change shape.

Moving on Rough Surfaces

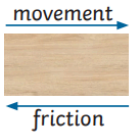
Objects move differently on different surfaces because of a force called **friction**.

Friction can be high on rough surfaces, causing objects to slow down more quickly.



Moving on Smooth Surfaces

An object will travel further on a smooth surface because there are fewer bumps; therefore, there is less **friction** to slow it down.



Helpful Friction

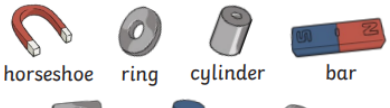
Bumpy surfaces, such as tyres or the soles of shoes, help to reduce the risk of sliding or skidding.



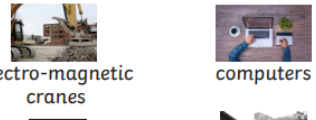
Key Vocabulary	
magnet	A **magnet** is a material that can sometimes **attract** (**pull**) and sometimes **repel** (**push**) other **magnetic** materials.
metal	**Metals** are materials that are usually hard and shiny, such as iron and aluminium.
magnetic	If a material is **magnetic**, it can be **attracted** or **repelled** by a **magnet**.
magnetic force	A **magnetic force** is a **non-contact force** produced by a **magnet**.
poles	The **poles** of a **magnet** are the two points where the **magnetic force** is strongest: the north pole and south pole.
attract	If a **magnet attracts** an object, it causes the object to move towards it.
repel	If a **magnet repels** an object, it causes the object to move away from it.

Smooth		Rough	
			
polished marble	laminate floor	artificial grass	sandpaper

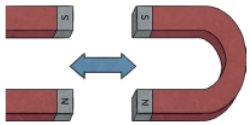
Names of Magnets



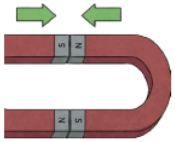
Uses of Magnets



Like Poles Repel



Opposite Poles Attract



A **magnetic force** is a **non-contact force** because the **magnet** and the object do not need to touch for the **force** to happen.

Magnetic Materials



Magnetic objects are most often made of **iron**, **steel** (which contains iron), **nickel** and **cobalt**.

Non-Magnetic Materials



Plastic, wood, rubber and wool are not **magnetic**.

Some **metals**, such as aluminium, are not **magnetic**.