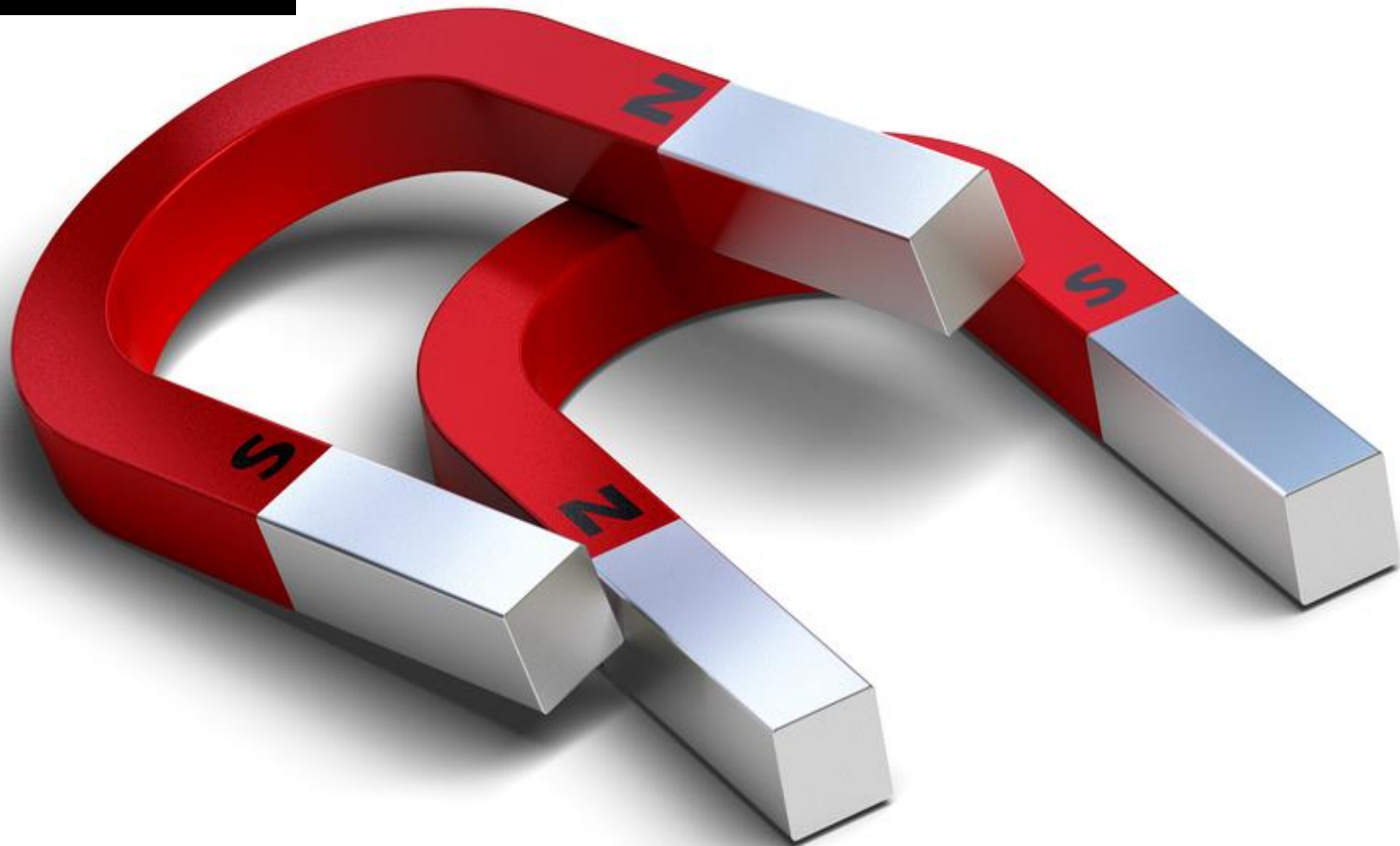


Magnetism

YEAR 5

Spring 1



LESSON 1

What are non-contact forces?



Do Now – Retrieval practice

1) What does it mean if something is a pure substance?

2) What does it mean if something is a mixture?

3) Match the terms below with the correct definitions:

Solute	When a solid cannot dissolve in a liquid
Solvent	A mixture of a solid that is dissolved in a liquid
Solution	A solid that has been dissolved into a liquid
Soluble	A liquid in which a solid has been dissolved
Insoluble	When a solid can dissolve in a liquid

4) What are products and reactants?

_____ are the substances you have before a chemical reaction

_____ are the substances you have after a chemical reaction

5) What do 'melting point' and 'boiling point' mean?

Melting point is the _____.

Boiling point is the _____.





Read the following passage about contact forces.

For some forces, they will only act if two objects are in touching each other. These forces are known as 'contact' forces. For example, **friction** only acts when two surfaces are touching each other. Friction acts when you rub your hands together but it will not act if your hands are not touching each other.



When do contact forces act?

Contact forces only act when two objects are touching each other.

Upthrust will only act if an object is pushing down on water (like a boat). If the object is not touching the water,

We have learned that 'contact forces' only act if two objects are in touching each other. For other forces, they will act even if the two objects are not touching each other. These forces are known as 'non-contact forces'. This means that each object is creating an invisible force on the other object in a way that can't see but that we can feel and measure.

then upthrust will not act. **Air resistance** will always act if an object like a car is moving in air but it would not act if you were in space as there is no air in space so the car would not be touching air. **Water resistance** will always act against something that tries to move through water.



Write down the names of the examples of 4 contact forces:

1) _____

2) _____

3) _____

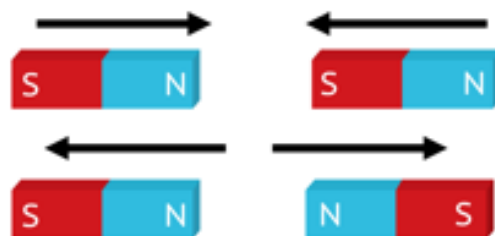
4) _____

🔍 Fill in the gaps below to describe what 'non-contact' forces are: Non- contact forces can act even if the two objects are not .

For example, the **gravitational force** (also called **weight**) pulls everything downwards towards the ground on every planet (and on the earth).



Another example of a non-contact force is the magnetic force. Objects called magnets attract magnetic materials like Iron and Steel but two magnets can either attract each other or push each other away.



🔍 Write down the names of the examples of 2 non-contact forces:

- 1) _____
- 2) _____

When two objects pull each other together we say they **attract** each other. When two objects push each other away, we say that they **repel** each other.

🔍 What words do you use for each of the following:

A _____ = pull together

R _____ = push away from each other

There is one other force we need to consider – **thrust**. This is a force created by a person or machine that pushes an object forward. For example the engine on a car pushes a car forward. A person pushing a toy train uses thrust. Usually there must be contact for this force to act but it is not always easy to see where the contact takes place.

🔍 How is a thrust force created?



Watch a demonstration of contact and non-contact forces by your teacher. Make a note to show each force is demonstrated below and add a sketch.

Force	Is it contact or non-contact?	Sketch of demonstration
Weight		
Air resistance		
Friction		

Magnetic		
Upthrust		
Water resistance		
Thrust		



Write down the names of each of the forces into the 'contact' or 'non-contact' force column

Gravitational force | Friction | Magnetic force | Upthrust | Air resistance

Contact forces	Non-contact forces
- _____	- _____
- _____	- _____
- _____	



**Which forces act on a person if they are swimming in a swimming pool?
Which forces will be contact forces and which forces will be non-contact?**