



Y3 Science – Forces and Magnets (Summer 2)

Forces and Magnets

I can compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials

I can describe how objects move on different surfaces

I can investigate that some forces need contact between two objects e.g. push and pull

I can describe how pushes and pulls can alter the movement and speed of an object over a distance

I can observe how magnets attract and repel each other's

I can investigate how magnets attract some materials and not others

I can describe how magnets have two poles

I can predict whether two magnets will repel or attract one another depending on their poles

Working scientifically

I can talk about criteria for grouping, sorting and classifying, and use a simple key.

I can identify differences, similarities or changes to simple scientific ideas and processes.

I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.

I can gather, record, classify and present data in a variety of ways to help answer questions.

Lessons	Order of Study
	Topic Page KWL Pre-assessment KO
1	BQ: What is gravity? <u>LI: I can describe how objects move on different surfaces</u> <u>W/S: I can talk about criteria for grouping, sorting and classifying, and use a simple key.</u> <u>W/S: I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.</u> Resources needed: Toy vehicles, wind-up toys, balloons, old CDs, protractors, ice cubes, various sized balls (inc cotton wool balls, pom poms) and any other objects you want to include. We are going to investigate how we make these items move. Children investigate – how did they make them move? Can they make them move in another way? Explain that there are forces all around us, two of the most common being push and pull. Do they know of anymore? Activity: Collaborate sorting. Working two's, children sort the pictures. What force do they think is being used? Sort into push or pull. Based on the objects that they started out with, can they now sort them into groups? Challenge activity available.
2	BQ: How do objects move on different surfaces? <u>LI: I can describe how objects move on different surfaces</u> <u>LI: I can investigate that some forces need contact between two objects e.g. push and pull</u>

	<u>LI: I can describe how pushes and pulls can alter the movement and speed of an object over a distance</u> <u>W/S: I can gather, record, classify and present data in a variety of ways to help answer questions.</u> <u>Resources needed:</u> Enough protractors for one between two. Variety of surfaces (rough, smooth, bumpy, hard, tin foil, grass, concrete etc) Recap: Can the children remember what a force is? Can they give any examples? Discuss the forces from last lesson (push and pull). Children will be investigating which surface is best to move objects on. 1. Protractor. What adjectives would they use to describe a protractor? Decide together, what surface a protractor would move best on. Children need to understand what is meant by 'fair test' – we can only change one thing (the variable), in this case it will be the surface. What surface do they think is going to be the best? Why? Open up for discussion. Given that this needs to be a fair test, how are they going to make sure that they push the protractor with the same force each time? Activity: Complete the fair test-planning sheet. Then carry out the investigation. At the end, we need to write our conclusion – use the questions on the PPT to get the children to think about the results that they have and what they have found out. Challenge included.
3	<u>BQ: How do magnetic forces work?</u> <u>LI: I can compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials</u> <u>LI: I can observe how magnets attract and repel each other's</u> <u>LI: I can investigate how magnets attract some materials and not others</u> <u>LI: I can describe how magnets have two poles</u> <u>LI: I can predict whether two magnets will repel or attract one another depending on their poles</u> <u>W/S: I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.</u> <u>Resources needed:</u> paper clip, coins, foil (metal objects), thick and thin card, cotton or string and a small variety of non-magnetic things. Recap previous lessons. Today recap is more about forces and where we see them. The lesson will be about forces that are from a distance – gravity. Introduce new vocabulary of 'repel' and; 'attract' Look at a magnet under the visualiser to show North and South and what happens when two of the same or opposite ends do – can they explain this? All children to have their own magnet and spend some time exploring what happens when the magnet is placed by the items. Do they move? How?
4	<u>BQ: Which materials are magnetic?</u> <u>LI: I can compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials</u> <u>LI: I can observe how magnets attract and repel each other's</u> <u>LI: I can investigate how magnets attract some materials and not others</u> <u>LI: I can describe how magnets have two poles</u> <u>LI: I can predict whether two magnets will repel or attract one another depending on their poles</u>

	<u>W/S: I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.</u> <u>Resources needed:</u> Variety of resources – felt, cotton wool, fabrics, wood, plastic etc. Magnets for each child. Lots of the knowledge needed for today was discussed last lesson. They understand the use of magnets and the idea of the magnetic field. Recap new vocabulary to ensure they have retained learning. Ask: What materials do they think a magnet will attract? Why do they think this? Activity: Record results Challenge question available.
5	<u>BQ: Do magnets attract each other?</u> <u>LI: I can predict whether two magnets will repel or attract one another depending on their poles</u> All children will need two magnets – or shared partner set. Before they are given out, ask them to predict what they think will happen if two of the same poles are placed together etc. This lesson should consolidate what they have been learning. Ask: What would happen if EVERYTHING was magnetic? Challenge if needed.
	Post Assessment and complete the KWL sheet.