PRIOR KNOWLEDGE: In Year 3 children learned how to

Compare how things move on different surfaces
Notice that some forces need contact between two objects, but magnetic forces can act at a distance
Observe how magnets attract or repel each other and attract some materials and not others
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
Describe magnets as having two poles
Predict whether two magnets will attract or repel each other, depending on which poles are facing.

NATIONAL CURRICULUM:

Pupils should be taught to:
Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
Identify the effects of air resistance, water resistance and friction, that act between moving surfaces
Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

KEY VOCABULARY:

Types of forces: gravity, friction, air resistance, upthrust, weight
Measuring forces: Newton meter, Newtons (N)
Particles
Surface area
Push, pull
Balance
Mass – grams and kilograms
Mechanical devices – gears, levers, pulleys, springs

SCIENCE: Forces (Y5) Autumn 2

Enquiry Questions:

1. How does air resistance affect a falling object?
2. How does friction affect two moving surfaces
3. How does the shape and weight of an object affect its flotation in water? (upthrust)
4. How do pulleys work?
5. How do gears work?
6. How do levers work?

CONTEXT:

Children study forces in Year 3 looking at friction between surfaces and the attraction and repulsion between magnets. Now in Year 5, they will continue this learning on friction to look at air resistance and water resistance and how these forces can help in everyday life (pneumatics). They will also study the force of gravity and the effect it has on a falling object between it and the Earth's gravitational pull. Children will understand the effect of forces on levers and gears.

STICKY KNOWLEDGE:

. Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
Identify the effects of air resistance, water resistance and friction, that act between moving surfaces
Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

SKILLS:

Fair testing
Investigation
Observation of the change of matter