Alexander Hosea Curriculum Map – Year 3 **Subject: Science Forces (Magnetism)**

Programme of Study Statements

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.

Key Vocabulary

Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole

Investigations and Skills for thinking like a Scientist





Comparative Tests	**Identify & Classify**	**Observation over time**	**Pattern seeking**	**Research**
How does the mass of an object affect how much force is needed to make it move? Which magnet is strongest? Which surface is best to stop you slipping?	Which materials are magnetic?	If we magnetise a pin, how long does it stay magnetised for?	Do magnetic materials always conduct electricity? Does the size and shape of a magnet affect how strong it is?	How have our ideas about forces changed over time? How does a compass work?

Sticky Knowledge:

Magnets exert attractive and repulsive forces on each other.
- Magnets exert non-contact forces, which work through some materia
- Magnets exert attractive forces on some materials.
- Magnet forces are affected by magnet strength

, object mass, distance from object and object material.

Prior Knowledge:

Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials

Potential Evidence to support our Scientists (I can..):

Can give examples of forces in everyday life

- Can give examples of objects moving differently on different surfaces
- Can name a range of types of magnets and show how the poles attract and repel
- Can draw diagrams using arrows to show the attraction and repulsion between the poles of magnets
- Can use their results to describe how objects move on different surfaces
- Can use their results to make predictions for further tests e.g. it will spin for longer on this surface than that, but not as long as it spun on that surface
- Can use classification evidence to identify that some metals, but not all, are magnetic
- Through their exploration, they can show how like poles repel and unlike poles attract, and name unmarked poles
  - Can use test data to rank magnets

Future Knowledge:

- Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. (Y5 - Forces)
- Identify the effects of air resistance, water resistance and friction that act between moving surfaces. (Y5 - Forces)
- Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. (Y5 - Forces)

Big Question:How can we move magnets?		
Cultural Capital		
Visits and visitors	**Experiences and events**	**Key texts** The Iron Man (Ted Hughes) Mrs Armitage: Queen of the Road (Quentin Blake) Mr Archimedes' Bath (Pamela Allen)
Community events and links	**Global issues**	**Famous people/ Key Scientists** William Gilbert (Theories on Magnetism) Andre Marie Ampere (Founder of Electro-Magnetism)
Life Skills **Curiosity** Team work Making Links	**Key places**	