



Science Medium Term Plan

| | | | | | |
|--|--|--|--|---|--|
| Year A | Cherry Blossom | Term: | Spring 2 | Unit: | The Iron Man - Forces |
| IW, SDB, KH, TM, XF, CT, EN, all | | | | | |
| Big Question: | What if everything was magnetic? | | | | |
| Prior Substantive Knowledge | Previous experience pushing and pulling objects to make them move Previous experience using magnets and investigating what they are attracted to. | | | Cross-curricular | |
| | | | | Vocab | Magnetic – the force exerted by magnets when they attract or repel each other Attract – exert a force on causing it to approach or prevent it from moving away Repel – to force (something) to move away or apart Poles - a pole is either of two opposite ends |
| Substantive Knowledge (Know what) | | | Disciplinary Knowledge (Think like) | | |
| <p>Understanding of the vocabulary: magnetic, push, pull, metal, stick, attracted, non-metal 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.</p> | | | <p>Begin to use simple scientific language to talk about or record what they have noticed. With help, carry out a simple test / comparative test. Talk about ways of setting up a test. Measure using non-standard units e.g. how many lolly sticks / cubes / handfuls, etc. Observe closely, using simple equipment (e.g. hand lenses, egg timers).</p> | | |
| Teacher knowledge | A magnet is material or object that produces a magnetic field. This magnetic field is invisible but is responsible for the most notable property of a magnet: a force that pulls on other ferromagnetic materials, such as iron, steel, nickel, cobalt, etc. and attracts or repels other magnets. | | | Fruits | Relationships – Work with other children to help conduct experiments Intellect – Explore the science behind how magnets work |
| Key concept | Learning objective | Key components | Main input | Activity | Adaptive strategies |
| Forces | <p>What are magnets? Understanding of the vocabulary: magnetic, push, pull, metal, stick, attracted, non-metal Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and</p> | <p>Understand the term magnet. Understand what magnetic means. Understand how magnets attract magnetic objects</p> | <p>Have a fridge magnet and show the children, ask them to comment on what they think it is/does – write key words down that they say. Present different objects to the children (paper clip, coin, toy car) and ask children to predict whether they think it is magnetic or not and give reasons why they think this. Introduce magnets fully to the children by using the full definition of a magnet – “an object that</p> | <p>Explain to children that we are going to do an experiment today to explore what things are magnetic and non-magnetic. Give them a range of materials to test whether they are magnetic or non-</p> | <p>Use visuals to demonstrate how magnets work. Allow children to record findings using photos Have pictures of objects to sort rather than words</p> |



Science Medium Term Plan

| | | | | | |
|--------|---|--|---|---|--|
| | <p>identify some magnetic materials. Observe closely, using simple equipment (e.g. hand lenses, egg timers).</p> | | <p>attracts certain materials.” Show children pictures of different magnets and then discuss the key vocabulary (magnet – an object that has the ability to attract certain objects, magnetic – materials that are attracted to magnets and non-magnetic – materials that are not attracted to magnets. Using visuals, show how a magnet works with both magnetic and non-magnetic objects.</p> | <p>magnetic encouraging them to make predictions before they test. Children are encouraged to record their findings on a chart and separate the objects. Once children have completed the activity, invite them back to the carpet and share pictures of what they found – are there any connections to the objects? Ask children how do we know if something is magnetic or not?</p> | |
| Forces | <p>How do magnets work? Observe how magnets attract or repel each other and attract some materials and not others. Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing. With help, carry out a simple test / comparative test. Talk about ways of setting up a test.</p> | <p>Understand what a magnet is. Understand how magnets work. Understand what attract and repel means Understand that they can attract or repel things. Understand that magnets have poles Understand that these poles can attract and repel each other</p> | <p>Remind children about what we have been looking at so far in Science – magnets. Can they answer questions to recall information? Have a variety of magnets on the carpet and allow children to go round the classroom to see what things they can attract. Revisit and introduce new vocabulary (magnet – an object that can attract or repel other magnetic materials, pole – the ends of a magnet where the magnetic force is strongest, the north and south pole, attraction – a force that pulls objects toward each other, repulsion – a force that pushes objects away from each other) Using visual aids and videos, demonstrate what happens what different poles get put together, during demonstration use the new vocabulary allowing children to repeat.</p> | <p>Using bar and horseshoe magnets, allow children to explore the different poles. Allow children to follow steps for the experiment 1. Identify the poles using smaller magnetic materials like a paper clip. 2. Test the attraction or repulsion by bringing different poles together. 3. Record their observations on their worksheets.</p> | <p>Have adapted worksheets where children can record their observations Key word sheet</p> |
| Forces | <p>Are all magnets the same strength? Observe how magnets attract or repel each other and attract some materials and not others. Describe magnets as having two poles.</p> | <p>Understand what a magnet is. Understand how magnets work. Understand what attract and repel means</p> | <p>Ask children about what they can remember about magnets so far, can they recall the key vocabulary learnt? Read the question focus of the lesson, what do the children think? do they think all magnets are the same strength? Allow them to justify their answers. Have a range of magnets and explain to children that we are going to test to</p> | <p>Have a range of magnets on a table and paperclips. Make predictions on different magnets of how many paperclips each magnet will pick up. Complete the experiment by then recording how</p> | <p>Support with counting Adapted recording sheets Number formation sheet</p> |



Science Medium Term Plan

| | | | | | |
|--------|--|--|--|---|---|
| | <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p> <p>With help, carry out a simple test / comparative test.</p> <p>Talk about ways of setting up a test.</p> <p>Measure using non-standard units e.g. how many lolly sticks / cubes / handfuls, etc.</p> | <p>Understand that they can attract or repel things.</p> <p>Understand that not all magnets have the same strength.</p> | <p>see if all magnets are the same strength by conducting an experiment. Explain to children the experiment.</p> | <p>many paperclips it picks up. Children are to share their findings on the carpet at the end.</p> | |
| Forces | <p>Does distance affect the strength of a magnet?</p> <p>Notice that some forces need contact between two objects but magnetic forces can act at a distance.</p> <p>With help, carry out a simple test / comparative test.</p> <p>Talk about ways of setting up a test.</p> | <p>Understand what a magnet is.</p> <p>Understand how magnets work.</p> <p>Understand what attract and repel means</p> <p>Understand that they can attract or repel things.</p> <p>Understand that a magnets strength is weaker the further away it is</p> | <p>Ask children about what we were learning about last week, can they remember key words? Can they remember the experiment we did and what we were testing? Remind them that we were looking at the strength of a magnet and tell them that today we are going to explore that even more. Tell them the question that we are going to answer, allow them to make predictions before the lesson starts. Explain to them that we are going to do another experiment to test this. Explain to the children how we are going to do the experiment but also how we need to ensure that it is a fair test.</p> | <p>Using the same magnet, have a pile of paper clips and markings of 1cm, 2cm and so on away from the pile. Allow children to predict how many paper clips it will attract from 1cm and then complete this, then predict from 2cm and so on. Allow children to discuss their findings and justify their answers as they go.</p> | <p>Support recognising numbers</p> <p>Adapted recording sheet</p> |
| Forces | <p>What if everything was magnetic?</p> <p>Observe how magnets attract or repel each other and attract some materials and not others.</p> <p>Begin to use simple scientific language to talk about or record what they have noticed.</p> | <p>Understand what a magnet is.</p> <p>Understand how magnets work.</p> <p>Understand what attract and repel means</p> <p>Understand that they can attract or repel things.</p> | <p>Recall all knowledge that children have learnt about magnets using prompts and visuals if necessary – revisit our question at the start of the unit – what if everything was magnetic? What are children’s thoughts about this? Allow them to use their knowledge that they have learnt to justify their answers drawing on key vocab and concepts such as attract/repel/poles etc.</p> <p>Have a kahoot quiz to allow for understanding of the unit.</p> | <p>Children are to write/draw pros and cons of everything being magnetic</p> | <p>Key word list.</p> <p>Sound mat</p> <p>Sentence starters</p> |