



Markland Hill Science Curriculum – Lower Key Stage 2 Sequence of Learning – YEAR B

physics biology

Plants (Y3) Scientist: George Washington Carver Substantive Knowledge: - identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers - explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant - investigate the way in which water is transported within plants - explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal Disciplinary Knowledge - comparing the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser - discovering how seeds are formed by observing the different stages of	Forces and Magnets (Y3) Scientist: The Wright Brothers Substantive Knowledge - Compare how things move on different surfaces - notice that some forces need contact between 2 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 2 poles - Predict whether 2 magnets will attract or repel each other, depending on which poles are facing	Electricity (Y4) Scientist: Thomas Edison Substantive Knowledge: - identify common appliances that run on electricity - construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers - identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery - recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit - recognise some common conductors and insulators, and associate metals with being good conductors Disciplinary Knowledge - Observing patterns, for example, that bulbs get brighter if more cells are	Living Things and their Habitats (Y4) Scientist: Jacques Cousteau Substantive Knowledge: - recognise that living things can be grouped in a variety of ways - explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment - recognise that environments can change and that this can sometimes pose dangers to living things Disciplinary Knowledge - using and making simple guides or keys to explore and identify local plants and animals; - raising and answering questions based on their observations of animals and what they have found out about other	Light (Y3) Substantive Knowledge Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by an opaque object. Find patterns in the way that the size of shadows change. Disciplinary Knowledge: Look for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Use results to draw simple conclusions, make predictions for
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plant life cycles over a period of time; • looking for patterns in the structure of fruits that relate to how the seeds are dispersed. • They might observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers. End points • I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. • I can explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. • I can investigate the way in which water is transported within plants. • I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. • I can compare the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser. • I can discover how seeds are formed by observing the different stages of	Disciplinary Knowledge: • Comparing how different things move and grouping them; raising questions and carrying out tests to find out how far things move on different surfaces, gathering and recording data to find answers to their questions; • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Exploring the strengths of different magnets and finding a fair way to compare themSorting materials into those that are magnetic and those that are not; looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another; • Identifying how these properties make magnets useful in everyday items and suggesting creative uses for different magnets. End points • I can compare how things move on different surfaces.	added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit. End points • I can identify common appliances that run on electricity. • I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. • I can identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. • I recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. • I recognise some common conductors and insulators, and associate metals with being good conductors. • I can observe patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.	animals that they have researched. End points • I can recognise that living things can be grouped in a variety of ways. • I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. • I recognise that environments can change and that this can sometimes pose dangers to living things. • I can use and make simple guides or keys to explore and identify local plants and animals. • I can raise and answer questions based on my observations of animals and what I have found out about other animals that I have researched. Key Vocabulary: Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate	new values, suggest improvements and raise further questions End points I can recognise that we need light in order to see things and that dark is the absence of light. I know that light is reflected from surfaces. I recognise that light from the sun can be dangerous and that there are ways to protect their eyes. I recognise that shadows are formed when the light from a light source is blocked by an opaque object. I can find patterns in the way that the size of shadows change. I can look for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes. I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Key Vocabulary: Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface,
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plant life cycles over a period of time. • I can look for patterns in the structure of fruits that relate to how the seeds are dispersed. • I can observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers. Key Vocabulary: photosynthesis, pollen, insect/wind pollination, male, female, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal), air, nutrients, minerals, soil, absorb, transport	• I know that some forces need contact between two objects, but magnetic forces can act at a distance. • I can observe how magnets attract or repel each other and attract some materials and not others. • 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 magnets as having two poles. • I can predict whether two magnets will attract or repel each other, depending on which poles are facing. • I can compare how different things move and group them; raising questions and carrying out tests to finding out how far things move on different surfaces, gathering and recording data to find answers to my questions. • I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	Key Vocabulary: Electricity, electrical appliance, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol	shadow, reflect, mirror, sunlight, dangerous
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- I can explore the strengths of different magnets and find a fair way to compare them.
- I can sort materials into those that are magnetic and those that are not; looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another.

Key Vocabulary:

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