



SUBJECT: Science

SUBJECT LEADER: Miss Fury (supported by Mrs Longden)

LOWER KEY STAGE 2				
YEAR GROUP	SCIENCE TOPICS COVERED: THEMATIC/TOPIC LINKS CURRICULUM DELIVERY METHOD	NC CONTENT: KNOWLEDGE AND SKILLS COVERED (Which key skills and content from NC is covered) PUPILS WILL BE TAUGHT TO...	LEARNING OUTCOMES	KEY VOCABULARY CONCEPTUAL LINKS ACROSS THE CURRICULUM
YEAR 3	<p>AUTUMN: <u>What can we find out about the lifecycle of plants and seed dispersal?</u></p>	<p>PLANTS</p> <ul style="list-style-type: none"> 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 	<p>PLANTS</p> <ul style="list-style-type: none"> I can describe the function of different parts of flowering plants and trees. I can explore and describe the needs of different plants for survival. I can explore and describe how water is transported within plants. I can describe the plant life cycle, especially the importance of flowers. <p>EXP Generally, the functions of different parts of flowering plants are identified and described, e.g. the roots absorb water from the soil to feed the plant, the stem helps to support the plants, the leaves use sunlight to provide the plant with energy and the flower helps the plant to reproduce. Generally, the requirements of plants for life and growth, and how these vary from plant to plant are identified and explored. Generally, the way in which water is transported within plants is investigated. The role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal, is explored.</p> <p>GDS The functions of different parts of flowering plants are independently identified and described. The function of other parts of flowering plants begin to be described, e.g. stamen, style, stigma, anther, filament, ovary, etc. The requirements of plants for life and growth, and how these vary from plant to plant, are independently identified and explored. Pupils plan their own investigation into the way in which water is transported within plants. The role of flowers in the life cycle of flowering plants, including pollination, fertilisation, seed formation and seed dispersal, is explored independently.</p>	<p>PLANTS</p> <p>leaf/leaves flower blossom petal fruit berry root bulb seed trunk branch stem bark stalk water notice similarities observations identify differences light air nutrients soil fertiliser damp/wet/dry dark/light hot/warm/ cool/cold use comparatives e.g. hotter grow/growth healthy temperature changes increase structure function transported life cycle pollination seed formation seed dispersal</p>



	<p>DELIVERY METHOD Weekly science lessons. Science elements also integrated into creative, enquiry based creative curriculum.</p> <p>ENRICHMENT/EXTRA-CURRICULAR OPPORTUNITIES Science and technology week. Health and Sports Week.</p> <p>Educational Visits: The Deep</p> <p>Cookery and nutrition lessons</p>	<ul style="list-style-type: none"> 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. <p>WORKING SCIENTIFICALLY OVER Y3 AND 4 PUPILS SHOULD BE TAUGHT</p> <ul style="list-style-type: none"> to ask relevant questions and using different types of scientific enquiries to answer them to set up simple practical enquiries, comparative and fair tests to make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers to gather, record, classify and present data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled 	<ul style="list-style-type: none"> I can describe how changes to an environment could endanger living things. <p>EXP Reasons are given for classifying plants and animals based on specific characteristics. Generally, it is recognised that environments are constantly changing and that this can sometimes pose dangers to specific habitats.</p> <p>GDS Accurate, fluent reasons are given for classifying plants and animals based on specific characteristics. It is clearly recognised that environments are constantly changing and the dangers to specific habitats that this can pose are explained clearly.</p> <p>WORKING SCIENTIFICALLY Y3/4 OUTCOMES FOR THE END OF THE PHASE</p> <ul style="list-style-type: none"> I can ask relevant scientific questions. I can use observations and knowledge to answer scientific questions. I can set up a simple enquiry to explore a scientific question. I can set up a test to compare two things. I can set up a fair test and explain why it is fair. I can make careful and accurate observations, including the use of standard units. I can use equipment, including thermometers and data loggers to make measurements. I can gather, record, classify and present data in different ways to answer scientific questions. I can use diagrams, keys, bar charts and tables; using scientific language. I can use findings to report in different ways, including oral and written explanations, presentation. I can draw conclusions and suggest improvements. I can make a prediction with a reason. I can identify differences, similarities and changes related to an enquiry. 	<p>invertebrates name some invertebrates classify sort group marine ocean sea food chain shelter beach rock pool sea bed</p> <p>WORKING SCIENTIFICALLY observations questions answers equipment gather measure record results evidence present data/evidence/results keys bar charts table results conclusions prediction thermometers data loggers fair tests variables results independent variable dependent variable controlled variable careful accurate accuracy precision degree of trust equipment gather measure record</p>
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<p>YEAR 3 / 4</p>	<p>AUTUMN: <u>How does light help us see?</u></p>	<p>diagrams, keys, bar charts, and tables</p> <ul style="list-style-type: none"> reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings <p>LIGHT</p> <ul style="list-style-type: none"> 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 	<p>LIGHT</p> <ul style="list-style-type: none"> I can describe what dark is (the absence of light). I can explain that light is needed in order to see. I can explain that light is reflected from a surface. I can explain and demonstrate how a shadow is formed. I can explore shadow size and explain. I can explain the danger of direct sunlight and describe how to keep protected. <p>EXP</p> <p>Generally, accurate descriptions of how light is required in order to see are given. It is understood that dark is the absence of light. Generally, it is noticed that light is reflected from surfaces. Generally, it is understood that the light from the sun can be dangerous and some basic ways of protecting the eyes are understood. Shadows are associated with a light source being blocked by something, and patterns are found that determine the size of shadows.</p> <p>GDS</p>	<p>LIGHT</p> <p>light light source names of light sources e.g. torch dark/darkness transparent opaque translucent reflect reflective mirror Shadow block direct/direction</p>
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<p>What is magnetism and how does it work?</p> <p>SPRING: <u>What do humans need to stay keep healthy?</u></p> <p>SUMMER:</p>	<ul style="list-style-type: none"> find patterns in the way that the size of shadows change. <p>MAGNETS</p> <ul style="list-style-type: none"> 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 <p>ANIMALS INCLUDING HUMANS</p> <ul style="list-style-type: none"> identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat 	<p>Without prompts, a fluent and accurate explanation of how light is required to see, and that dark is the absence of light, is given. It is noticed that light is reflected from surfaces, and explanations are given for this.</p> <p>A range of measures to protect the eyes from the dangers of light from the sun are described.</p> <p>Shadows are associated with a light source being blocked by an opaque object and, without support, patterns are found that determine the size of shadows.</p> <p>MAGNETS</p> <ul style="list-style-type: none"> I can explain how some forces require contact and some do not, giving examples. I can explore and explain how objects attract and repel in relation to objects and other magnets. I can predict whether objects will be magnetic and carry out an enquiry to test this out. I can describe how magnets work. I can predict whether magnets will attract or repel and give a reason. <p>EXP</p> <p>The way in which magnets attract or repel each other and attract some materials and not others is observed.</p> <p>Generally, a variety of everyday materials are compared and grouped together on the basis of whether they are attracted to a magnet. Some magnetic materials are identified.</p> <p>The term poles is generally used to describe magnets. Generally, the term poles is used to help explain predictions as to whether magnets will attract or repel each other.</p> <p>GDS</p> <p>The way in which magnets attract or repel each other is explained scientifically.</p> <p>A variety of everyday materials are compared and grouped together on the basis of whether they are attracted to a magnet. Some magnetic materials are identified with reference to their properties. The term poles is fully understood and used without prompt to describe magnets.</p> <p>The rule that like poles repel and opposite poles attract is used fluently to explain predictions as to whether magnets will attract or repel each other.</p> <p>ANIMALS INCLUDING HUMANS</p> <ul style="list-style-type: none"> I can explain the importance of a nutritious, balanced diet. I can explain how nutrients, water and oxygen are transported within animals and humans. I can describe and explain the skeletal system of a human. I can describe and explain the muscular system of a human. I can describe the purpose of the skeleton in humans and animals. 	<p>MAGNETS</p> <p>magnet strength bar magnet ring magnet button magnet horseshoe magnet attract repel magnetic material metal iron steel non-magnetic material poles north pole south pole</p> <p>ANIMALS INCLUDING HUMANS</p> <p>Nutrition nutrients food types fruit and vegetable bread, rice, potato, pasta milk and dairy foods foods high in fat or sugar meat, fish, egg, beans</p>
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<p>YEAR 4</p>	<p><u>How have famous scientists and inventors impacted on our lives today?</u> <u>Let's investigate!</u> focus on working scientifically</p> <p>DELIVERY METHOD Weekly science lessons. Science elements also integrated into creative, enquiry based creative curriculum.</p> <p>ENRICHMENT/EXTRA-CURRICULAR OPPORTUNITIES Science and technology week. Health and Sports Week. Cookery and nutrition lessons</p> <p>AUTUMN: <u>What are states of matter?</u></p>	<ul style="list-style-type: none"> identify that humans and some other animals have skeletons and muscles for support, protection and movement <p>WORKING SCIENTIFICALLY (SEE ABOVE)</p> <p>STATES OF MATTER</p> <ul style="list-style-type: none"> compare and group materials together, according to whether they are solids, liquids or gases observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) identify the part played by evaporation and condensation in the water 	<p>WORKING SCIENTIFICALLY (SEE ABOVE)</p> <p>STATES OF MATTER</p> <ul style="list-style-type: none"> I can group materials based on their state of matter (solid, liquid, gas). I can describe how some materials can change state. I can explore how materials change state. I can measure the temperature at which materials change state. I can describe the water cycle. I can explain the part played by evaporation and condensation in the water cycle. <p>EXP Materials are compared and grouped together according to whether they are solids, liquids or gases.</p>	<p>carbohydrates protein vitamins and mineral fat dietary fibre water balanced diet skeleton muscles support protection movement skull ribs spine/vertebra joints sockets bones tendons Similarities differences</p> <p>WORKING SCIENTIFICALLY (SEE ABOVE)</p> <p>STATES OF MATTER</p> <p>states of matter solid liquid gas air oxygen powder grain/granular crystals change state ice/water/steam water vapour heated/heating cooled/cooling temperature degrees Celsius melt freeze solidify melting point molten boil boiling point evaporate/evaporation condense/condensation water</p>
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	<p><u>What can we find out about electricity?</u></p>	<p>cycle and associate the rate of evaporation with temperature</p> <p>ELECTRICITY</p> <ul style="list-style-type: none"> • 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 	<p>Generally, the four main stages of the water cycle are understood and the part played by evaporation, condensation and precipitation in the water cycle is identified.</p> <p>Generally, the rate of evaporation is associated with temperature. Generally, it is observed that some materials change when they are heated or cooled and the temperature at which this happens is measured in degrees Celsius.</p> <p>This builds on the teaching in mathematics.</p> <p>GDS</p> <p>Materials are independently and accurately grouped and compared according to their state of matter.</p> <p>The four main stages of the water cycle are understood independently and this process can be articulated and explained clearly and accurately. Without support, the part played by evaporation and condensation in the water cycle is identified, and the rate of evaporation is associated with temperature.</p> <p>It is consistently observed that some materials change when they are heated or cooled and the temperature at which this happens is measured in degrees Celsius. This builds on the teaching in mathematics.</p> <p>ELECTRICITY</p> <ul style="list-style-type: none"> • I can identify and name appliances that require electricity to function. • I can construct a series circuit. • I can identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers). • I can draw a circuit diagram. • I can predict and test whether a lamp will light within a circuit. • I can describe the function of a switch in a circuit. • I can describe the difference between a conductor and insulators; giving examples of each. <p>EXP</p> <p>Materials are compared and grouped together according to whether they are solids, liquids or gases.</p> <p>Generally, the four main stages of the water cycle are understood and the part played by evaporation, condensation and precipitation in the water cycle is identified.</p> <p>Generally, the rate of evaporation is associated with temperature.</p> <p>GDS</p> <p>Materials are independently and accurately grouped and compared according to their state of matter.</p> <p>The four main stages of the water cycle are understood independently and this process can be articulated and explained clearly and accurately. Without support, the part played by evaporation and condensation in the water cycle is identified, and the rate of evaporation is associated with temperature.</p>	<p>cycle precipitation transpiration</p> <p>ELECTRICITY</p> <p>states of matter solid liquid gas air oxygen powder grain/granular crystals change state ice/water/steam water vapour heated/heating cooled/cooling temperature degrees Celsius melt freeze solidify melting point molten boil boiling point evaporate/evaporation condense/condensation water cycle precipitation transpiration</p>
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	<p>SPRING: <u>Let's investigate variation and classification</u> <u>What can we discover about food chains?</u></p> <p>SUMMER: <u>How does the digestive system work?</u></p>	<p>LIVING THINGS IN THEIR HABITATS</p> <ul style="list-style-type: none"> 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 construct and interpret a variety of food chains, identifying producers, predators and prey <p>ANIMALS INCLUDING HUMANS (Health and Sports Week)</p> <ul style="list-style-type: none"> identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat identify that humans and some other animals have skeletons and muscles for support, protection and movement describe the simple functions of the basic 	<p>LIVING THINGS IN THEIR HABITATS</p> <ul style="list-style-type: none"> I can group living things in different ways. I can use classification keys to group, identify and name living things. I can create classification keys to group, identify and name living things (for others to use). I can describe how changes to an environment could endanger living things. <p>EXP Materials are compared and grouped together according to whether they are solids, liquids or gases. Generally, the four main stages of the water cycle are understood and the part played by evaporation, condensation and precipitation in the water cycle is identified. Generally, the rate of evaporation is associated with temperature.</p> <p>GDS Materials are independently and accurately grouped and compared according to their state of matter. The four main stages of the water cycle are understood independently and this process can be articulated and explained clearly and accurately. Without support, the part played by evaporation and condensation in the water cycle is identified, and the rate of evaporation is associated with temperature.</p> <p>ANIMALS INCLUDING HUMANS</p> <ul style="list-style-type: none"> I can identify and name the parts of the human digestive system. I can describe the functions of the organs in the human digestive system. I can identify and describe the different types of teeth in humans. I can describe the functions of different human teeth. I can use food chains to identify producers, predators and prey. I can construct food chains to identify producers, predators and prey. <p>EXP The simple functions of the parts of the digestive system in humans, e.g. mouth, oesophagus, liver, stomach, small intestine, large intestine and rectum, are described and identified. Generally, the different types of teeth in humans, e.g. molars, incisors and canines, and their simple functions, are identified.</p>	<p>LIVING THINGS IN THEIR HABITATS</p> <p>states of matter solid liquid gas air oxygen powder grain/granular crystals change state ice/water/steam water vapour heated/heating cooled/cooling temperature degrees Celsius melt freeze solidify melting point molten boil boiling point evaporate/evaporation condense/condensation water cycle precipitation transpiration</p> <p>ANIMALS INCLUDING HUMANS</p> <p>digestive system nutrition nutrients oesophagus (gullet) stomach small intestine large intestine rectum anus mouth teeth canines incisor molar pre-molar saliva tongue rip, tear, chew, grind, cut</p>
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	<p><u>What on Earth is beyond our planet? Space and the solar system</u></p> <p>DELIVERY METHOD Weekly science lessons. Science elements also integrated into creative, enquiry based creative curriculum.</p> <p>ENRICHMENT/EXTRA-CURRICULAR OPPORTUNITIES Science and technology week. Cookery and nutrition lessons Health and Sports Week Educational visit – to the Space Centre</p>	<p>parts of the digestive system in humans</p> <ul style="list-style-type: none"> identify the different types of teeth in humans and their simple functions <p>EARTH AND SPACE</p> <ul style="list-style-type: none"> describe the movement of the Earth, and other planets, relative to the Sun in the solar system describe the movement of the Moon relative to the Earth describe the Sun, Earth and Moon as approximately spherical bodies use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky. <p>WORKING SCIENTIFICALLY (SEE ABOVE)</p>	<p>Generally, it is recognised that: canines are used for tearing and ripping food, incisors are to help bite off and chew pieces of food and molars are to help crush and grind food.</p> <p>GDS The functions of the parts of the digestive system in humans, e.g. mouth, oesophagus, liver, stomach, small intestine, large intestine and rectum, are identified independently. The different types of teeth in humans, e.g. molars, incisors and canines, and their simple functions, are identified independently. The functions of the teeth are clearly recognised and links are made to the shape of the teeth described and identified accurately and without support.</p> <p>EARTH AND SPACE</p> <ul style="list-style-type: none"> I can describe and explain the movement of the Earth and other planets relative to the Sun. I can describe and explain the movement of the Moon relative to the Earth. I can explain and demonstrate how night and day are created. I can describe the Sun, Earth and Moon (using the term spherical). <p>EXP Generally, the movement of the Earth relative to the Sun in the solar system is described. Without support, the movement of the Moon relative to the Earth is described. With prompting, the Sun, Earth and Moon are described as approximately spherical bodies. The idea of the Earth’s rotation is used to explain day and night.</p> <p>GDS The movement of the Earth relative to the Sun in the solar system is described clearly and independently. The movement of the Moon relative to the Earth is fluently described. Independently, the Sun, Earth and Moon are described as approximately spherical bodies. The idea of the Earth’s rotation is used to explain day and night. Rotation is used to explain the apparent movement of the sun across the sky.</p> <p>WORKING SCIENTIFICALLY (SEE ABOVE)</p>	<p>EARTH AND SPACE</p> <p>Earth planets Sun solar system geocentric model heliocentric model Moon Mercury Venus Mars Jupiter Saturn Uranus Neptune Pluto 'dwarf' planet orbit revolve geocentric model heliocentric model celestial body sphere/spherical rotate/rotation spin night and day shadow clocks sundials astronomical clocks</p> <p>WORKING SCIENTIFICALLY (SEE ABOVE)</p>
<p>CONCEPTUAL LINKS TO OTHER CURRICULUM AREAS</p> <p>GEOGRAPHY – links with climate, weather, biomes, location in relation to temperature and climate. Map skills physical and human elements of geography. Geology.</p> <p>DESIGN & TECHNOLOGY – links to properties of materials and suitability to function and purpose. Elements of building design and architecture.</p> <p>PSHE – Links between biology and the importance of diet, fitness and mental wellbeing to health. Conservation</p>				



WOMBWELL PARK STREET PRIMARY SCHOOL

HISTORY – links between historical periods covered and science knowledge and understanding at the time. How historical scientific innovation has impacted on our lives today.

MATHEMATICAL CONCEPTS – measurement. Recording, presenting and interpreting data