

# Folly View Primary Schools

Long Term Plan 2025/26

SUBJECT: Science



Vision: For children to show a passion for Science and a curiosity for learning about the world around them through an exciting, engaging and challenging curriculum.

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<b>Pre-School</b>	<p><u>Marvellous me</u> The children begin to make sense of who they are.</p> <ul style="list-style-type: none"> <li>• What do I look like?</li> <li>• How do I look different now from when I was a baby?</li> <li>• Who is in my family?</li> <li>• How do we use our senses?</li> <li>• How do we smell/taste/see/touch/hear?</li> </ul> <p>The children will begin to understand and notice the changes in the season of Autumn/Winter.</p> <ul style="list-style-type: none"> <li>• What is the weather like?</li> <li>• What can you see outside?</li> <li>• Celebrating Harvest.</li> </ul> <p><u>What happens in the day and the night?</u> The children begin to make sense of the world around them.</p> <ul style="list-style-type: none"> <li>• What animals do we see during the day and night?</li> <li>• What is the difference between day and night?</li> <li>• Can we name some of the things we see in space?</li> </ul>		<p><u>Let's look at toys!</u> The children begin to explore how things work and move.</p> <ul style="list-style-type: none"> <li>• Do you have a favourite toy?</li> <li>• What makes a good toy?</li> <li>• What are toys made from?</li> <li>• How does it work?</li> <li>• How do moving toys work?</li> </ul> <p><u>Take a look at Spring!</u> The children will begin to understand and notice the changes in the season Spring.</p> <ul style="list-style-type: none"> <li>• What is the weather like?</li> <li>• What can you see outside?</li> <li>• Can you match the animal to their farm animal parent?</li> <li>• What can we grow?</li> </ul>		<p><u>What happens in the garden?</u> The children begin to make sense of the world around them.</p> <ul style="list-style-type: none"> <li>• What is growing in the garden?</li> <li>• What amazing creatures can we see outside?</li> <li>• Where do they live?</li> <li>• How do living things change and grow?</li> </ul> <p><u>Going on a Journey</u> The children begin to explore their own home and community. They continue their journey by looking at seaside's as well as people who help us.</p> <ul style="list-style-type: none"> <li>• Where do I live?</li> <li>• Where do you like to go?</li> <li>• What can I see at the seaside?</li> <li>• How can we look after the ocean?</li> </ul> <p>The children will begin to understand and notice the changes in the season of Summer.</p> <ul style="list-style-type: none"> <li>• What is the weather like?</li> <li>• What can you see outside?</li> </ul>	
<b>Key Vocabulary</b>	before, now, change, different, same, live, smell, touch, taste, see, hear, weather, hot, cold, rain, wind, sunny, leaves, red, orange, brown, yellow, green, space, sun, moon, stars, planets, day, night, light, dark		toy, movement, remote-control, push, pull, press, slide, roll, weather, hot, cold, rain, wind, sunny, flowers, plants, blossom		grow, garden, plants, seed, flowers, leaf, minibeasts, names: spider, woodlouse, slug, snail, worms, life cycle, summer, sunny, warm, hot, home, Faringdon, map, seaside, ocean, sand, animals and their names	
<b>Working scientifically</b>	Science, experiment, find out, fair, explain, reason, why, change					
<b>SMSC</b>	Spiritual – What is special about life. To know more and to wonder about the world. To wonder about the vastness of space. Moral – To become increasingly curious. Social – Working together.		Spiritual – To know more and to wonder about the world. To look at the world in awe and wonder. Moral – To become increasingly curious. Consider the environment. Social – Group practical work. Teamwork and taking responsibility.		Spiritual – To know more and to wonder about the world. To look at the world in awe and wonder. Moral – To become increasingly curious. Consider the environment. Social – Group practical work. Teamwork and taking responsibility.	
<b>Cultural Capital</b>	Understanding the World – British science week – World science day – International Women and Girls Day in science – Baking-Seasons Walk around school					
<b>Reception</b>	<p><u>Who am I?</u> The children look at photos of themselves as babies and describe how they have changed. They look at who is in their family including those they do not live with.</p> <ul style="list-style-type: none"> <li>• How have I changed?</li> <li>• Who is in my family? (beyond whom they live with).</li> <li>• What are our senses?</li> <li>• How do we use them?</li> </ul> <p>The children will notice the changes in the season of Autumn and go on an Autumn Walk.</p>		<p><u>Where in the world?</u> The children taste, explore and describe foods from around the world.</p> <ul style="list-style-type: none"> <li>• What fruits can you name?</li> <li>• Can you name the fruit?</li> <li>• How does it taste?</li> <li>• What is your favourite one?</li> <li>• What is the same?</li> <li>• What is the difference?</li> </ul> <p>The children will notice the changes in the weather and take a Spring Walk.</p>		<p><u>How does your garden grow?</u> The children will explore what they can see outside, they will describe what they can see and find out how things grow.</p> <ul style="list-style-type: none"> <li>• What is a minibeast?</li> <li>• What can you find in the garden?</li> <li>• Where do minibeasts live?</li> <li>• Can we make a home for minibeasts?</li> <li>• What is the life cycle of a butterfly?</li> <li>• How do flowers grow?</li> </ul>	

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	<ul style="list-style-type: none"> <li>• What is the weather like?</li> <li>• What can you see outside?</li> <li>• How have things changed?</li> <li>• What colours can you see?</li> <li>• What clothes do we wear?</li> </ul> <p><u>How do we change food?</u> The children will explore food through their senses. They will explore how certain foods can be changed.</p> <ul style="list-style-type: none"> <li>• What can we smell/taste/see/feel?</li> <li>• What happens to chocolate when we heat it up?</li> <li>• How does porridge change when we heat it up? – The Three Bears.</li> <li>• What happens to ingredients when we mix them together? – Gingerbread Men.</li> <li>• What happens to flour and water? - Little Red Hen: bread rolls</li> </ul>	<ul style="list-style-type: none"> <li>• What is the weather like?</li> <li>• What can you see outside?</li> <li>• How have things changed?</li> <li>• What colours can you see?</li> <li>• What clothes do we wear?</li> </ul> <p><u>How does the weather affect animals?</u> The children will look at and discuss hot and cold climates. They will explore how change can affect animals and the environment.</p> <ul style="list-style-type: none"> <li>• How does the weather affect animals and where they live?</li> <li>• How can we take care of our environment?</li> </ul> <p><u>How do we get around?</u> The children will explore different types of transport and talk about how transport has changed.</p> <ul style="list-style-type: none"> <li>• What types of transport do you know?</li> <li>• How has transport changed?</li> <li>• Can we compare old and new transport?</li> <li>• What makes them go?</li> </ul> <p><u>How do we keep healthy?</u> The children will begin to understand what helps us to keep healthy. Linked to Jigsaw.</p> <ul style="list-style-type: none"> <li>• Why do we need to exercise?</li> <li>• Which foods are healthy?</li> <li>• Why is it important to wash our hands?</li> <li>• Why is sleeping good for us?</li> </ul>	<p><u>Where does the water in puddles go?</u> The children will find out where water comes from and look at the water cycle.</p> <ul style="list-style-type: none"> <li>• Where does water come from?</li> <li>• What is the water cycle?</li> <li>• What is water used for?</li> <li>• What floats and what sinks?</li> </ul>
Key Vocabulary	family, senses, taste, smell, hear, see, touch weather, seasons change, melt, liquid, hard, heat, mix	names of fruit, taste, smell, feel, describe, sweet, sour, bitter, salty, like, dislike weather, seasons animals, hot, cold, environment, affect, change transport, movement exercise, healthy, hygiene	minibeasts, habitat, life cycle, plant, flower, leaf, bulb, seed water cycle, float, sink, health, hygiene
Working scientifically	Science, experiment, find out, fair, explain, reason, why, change, describe, identify, compare, observe		
SMSC	Spiritual – What is special about life. To know more and to wonder about the world. Moral – To become increasingly curious. Social – Working together.	Spiritual – To know more and to wonder about the world. To look at the world in awe and wonder. Moral – To become increasingly curious. Consider the environment. Social – Group practical work. Teamwork and taking responsibility.	Spiritual – To know more and to wonder about the world. To look at the world in awe and wonder. Moral – To become increasingly curious. Consider the environment. Social – Group practical work. Teamwork and taking responsibility.
Cultural Capital	Understanding the World – Around the world party – Observe our caterpillars grow – Mobile farm – British science week – World science day – International Women and Girls Day in science - Visit to church, library and fire station – Cooking: baking and fruit tasting – Poster competition – Harwell Science.		

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<p><b>Year 1</b></p>	<p><u>Everyday materials</u> <u>How do materials help us in everyday life?</u> The children will begin to explore a variety of materials. They will describe and compare materials and move on to simple investigations.</p> <ol style="list-style-type: none"> <li>1. What everyday materials can I name? (<i>Focus: material names – identifying</i>)</li> <li>2. What words can I use to describe how materials feel and look? (<i>Focus: vocabulary – properties</i>)</li> <li>3. How can I sort and group materials by what they are like? (<i>Focus: sorting and comparing</i>)</li> <li>4. What are objects made from, and can I name the materials they are made from? (<i>Focus: distinguishing between object and material – e.g. a window is made of glass</i>)</li> <li>5. What is the best absorbent material? (<i>Focus: working scientifically – asking questions and perform simple tests</i>)</li> <li>6. Which is the strongest material? (<i>Focus: working scientifically – asking questions and perform simple tests</i>)</li> <li>7. <b>TAPs assessment</b> – Float and sink (investigation)</li> </ol> <p><i>Note: For numbers 5 and 6, adapt question based on investigation e.g. What is the strongest material to hold weight without breaking?</i></p> <p><u>Seasonal changes</u> <u>What happens in Autumn?</u> The children will explore and discuss the changes that take place in Autumn.</p> <ol style="list-style-type: none"> <li>1. What are the four seasons called?</li> <li>2. What is the weather like in each season? (<i>Focus: Autumn – weather chart over time; this could be across a week or once a week across a term, photographs, autumn walk – take a photo of an Autumn tree</i>)</li> <li>3. What clothes do we wear in each season?</li> <li>4. How does the length of day change across the year?</li> </ol> <p><i>Note: Create a class scrapbook 'Book of Seasons': to include a photo of the same tree each season – sketches/observations - keep a copy of weather observations)</i></p>	<p><u>Seasonal changes</u> <u>What happens in Winter?</u> (Term 3) The children will explore and discuss the changes that take place in Winter.</p> <ol style="list-style-type: none"> <li>1. What do animals do differently in different seasons? (<i>Focus: hibernation/migration</i>)</li> <li>2. How do people and animals keep warm?</li> <li>3. What is the weather like in Winter? (<i>Focus: Winter – weather chart over time; this could be across a week or once a week across a term, photographs, winter walk – take a photo of a Winter tree- compare tree and weather to Autumn</i>)</li> </ol> <p><u>Animals, including humans</u> <u>What makes an animal, an animal?</u> The children learn about animals and the groups they belong to including pets. They will begin describing the simple structure of animals and explore animal diets.</p> <ol style="list-style-type: none"> <li>1. What kind of animals are there in the world? (<i>Focus: mammals, birds, fish, reptiles, amphibians - include discussion: animals around us e.g. Which animal groups do you see the most of? Which animals do you think will/not be around school? Why?</i>)</li> <li>2. Do all animals eat the same food? (<i>Focus: herbivore, carnivore, and omnivore</i>)</li> <li>3. How can I sort animals into different groups? (<i>Focus: classification based on features and diets</i>) <b>TAPs assessment</b></li> <li>4. What do animals' bodies look like? (<i>Focus: describing animal body structures: wings, fins, fur, etc.</i>)</li> <li>5. How are animals' bodies the same or different? (<i>Focus: comparing body parts, covering similarities and differences</i>)</li> <li>6. Can we tell what an animal eats by looking at its poo? (<i>Investigation Focus: observing, sorting: herbivore, carnivore, and omnivore, discussion</i>)</li> </ol> <p><u>What do we know about the human body?</u> The children learn about the human body and use their senses to explore the world around them.</p> <ol style="list-style-type: none"> <li>7. What are the parts of my body called? (<i>Introduce comparisons with other animals e.g. most have heads, eyes, legs</i>)</li> <li>8. Which part of my body do I use for each of the five senses? (<i>Focus: match senses to the body parts, senses carousel</i>)</li> </ol> <p><u>Seasonal changes</u> <u>What happens in Spring?</u> (Term 4) The children will explore and discuss the changes that take place in Spring.</p> <ol style="list-style-type: none"> <li>1. What can I see outside that tells me the season is changing? (<i>Focus: early signs of Spring – take a photo of a Spring tree, Spring – weather chart over time; this could be across a week or once a week across a term</i>)</li> </ol>	<p><u>Seasonal changes</u> <u>What happens in Spring?</u> (Term 5) The children will explore and discuss the changes that take place in Spring.</p> <ol style="list-style-type: none"> <li>1. What happens to trees and plants in each season? (<i>Focus: plant growth, changes in trees – compare photos – predict what it will look like in Summer</i>)</li> </ol> <p><u>Plants</u> <u>What plants are in our environment?</u> The children will learn about common plants and name the basic structure. The children will learn what is meant by deciduous and evergreen.</p> <ol style="list-style-type: none"> <li>1. How does a plant grow over time? (<i>class investigation – observe over time, sketch changes, discussion only about needs: water, light, warmth</i>)</li> <li>2. What are the parts of a plant called? (<i>Focus: basic plant parts – root, stem, leaf, flower.</i>)</li> <li>3. What garden plants can I name?</li> <li>4. What wild plants can I find and name?</li> <li>5. Do all trees stay green all year? (deciduous and evergreen trees) (look at some common trees)</li> <li>6. How is a tree different from a plant?</li> <li>7. <b>TAPs assessment</b> – Leaf looking OR Plant structure</li> </ol> <p><u>Seasonal changes</u> <u>How can you tell when it is summer in the UK?</u> (Term 6) The children will explore and discuss the changes that take place in Summer.</p> <ol style="list-style-type: none"> <li>1. What is the weather like in Summer? (<i>Focus: Summer – weather chart over time; this could be across a week or once a week across a term, photographs, autumn walk – take a photo of a summer tree</i>)</li> <li>2. What is the weather like in each season? (<i>Review- reflect on the whole year's changes including length of day</i>)</li> </ol>
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<p><b>Key Vocabulary</b></p>	<p>material: wood, plastic, glass, rock, metal, water, paper, object, properties: hard/soft, stretchy/stiff, rough/smooth, bendy/not bendy, absorbent/not absorbent, waterproof/not waterproof, opaque/transparent seasons, weather, day length</p>	<p>Fish, amphibians, reptiles, mammals, birds, herbivore, carnivore, omnivore, head, neck, legs, hair, mouth, eyes, nose, face, ears, body, wings, feathers, beak, scales, gills, live young, body, head, face, arm, hand, fingers, leg, foot, eye, mouth, ear, nose, toes, neck, thumb, teeth, chin, jaw, shoulder, knee, elbow, ankle, wrist, hips, chest, stomach, skin, back, bones, skeleton, muscle, senses – sight: eyes, hearing: ears, smell: nose, taste: tongue, touch: skin season, weather, day length</p>	<p>Plant, tree, shrub, leaves, trunk, branch, twig, flower, petal, root, seed, bulb, bud, stem, fruits, grow/growth, soil, water, sunlight, deciduous, evergreen season, weather, day length</p>
<p><b>Cross Curricular</b></p>	<p>English (term 2) – Autumn poems</p>	<p>English (term 3) - animals – non chronological text/report Term 4 – History – Space – <b>Mae Jemison</b></p>	<p>English – growing cress – instructions. How to grow cress – letter home. Seasonal poems. Term 5 – History – Dinosaurs (diet, features/structure). Scientist – <b>Mary Anning</b></p>
<p><b>Working scientifically</b></p>	<p>Observe, compare, predict, question, answer, group, record, find out, explain, reason, identify, classify, experiment, simple tests</p>		
<p><b>SMSC</b></p>	<p>Spiritual – To know more and to wonder about the world. To look at the world in awe and wonder. Moral – To become increasingly curious. Consider the environment. Be open minded to the suggestion of others. Social – Group practical work. Teamwork and taking responsibility. Taking responsibility for their own and other people’s safety. Begin to understand that science effects our lives. Cultural – Begin to understand scientific discoveries by men and women in many cultures. Begin to understand how the environment and science are linked.</p>		
<p><b>Cultural Capital</b></p>	<p>Trip to museum – dinosaurs. Walk around Faringdon – plants. British science week, World science day, International Women and Girls Day in science.</p>		
<p><b>Year 2</b></p>	<p><b>Uses of everyday materials</b> <b>How do we choose the right material for a job?</b> The children learn about the suitability of a variety of everyday materials for their purpose.</p> <ol style="list-style-type: none"> <li>1. <b>What are objects made from and why?</b> (<i>Revisit: YR1 naming materials, properties and objects. Focus: identifying common materials and their uses</i>)</li> <li>2. <b>How can I describe and compare the properties of different materials?</b> (<i>Revisit: YR1 properties: hard/soft, stretchy/stiff, rough/smooth, bendy/not bendy, absorbent/not absorbent, waterproof/not waterproof, opaque/transparent. Focus: vocabulary- introduce flexibility</i>)</li> <li>3. <b>Which material is best for the job?</b> (<i>Revisit: YR1 distinguishing between object and material – e.g. a window is made of glass. Focus: matching materials to their suitable uses based on properties</i>)</li> <li>4. <b>How can we change the shape of a material?</b> (<i>Focus: exploring flexibility and changes to shape through manipulation</i>)</li> <li>5. <b>Which material is the strongest?</b> (<i>Focus: investigation – such as use materials to make simple bridges and test to see which one is the strongest</i>)</li> </ol>	<p><b>Big Science</b> Term 3 is focussed on investigations relating to working scientifically. The children will ask questions and answer them, set up simple experiments, they will compare and learn about fair testing. They will have the opportunity to observe and take measurements using a range of equipment. They will gather data, record and present their findings in a variety of ways to help answer a question. The children will use their knowledge and learning to make predictions. They will use their findings to draw simple conclusions, suggest improvements and raise further questions.</p> <p><b>Living things and their habitats</b> <b>How do living things survive in their habitats?</b> The children will learn, explore and compare living things and their habitats.</p> <ol style="list-style-type: none"> <li>1. <b>What is alive, dead or has never been alive?</b> (<i>Focus: sorting and identifying things in the environment</i>)</li> <li>2. <b>What do all living things do?</b> (<i>Focus: seven life processes – MRS GREN</i>)</li> <li>3. <b>What is a microhabitat?</b> (<i>Focus: under logs, piles of leaves, bark – who lives there?</i>)</li> <li>4. <b>How are habitats different around the world?</b> (<i>Focus: compare a variety of habitats – deserts, woodlands, ponds, forests, ocean, jungle</i>)</li> <li>5. <b>Do we have any habitats at school?</b> (investigation)</li> <li>6. <b>How do different animals and plants depend on their habitat?</b> (<i>Focus: explore how do habitats meet the needs of living things.</i>)</li> </ol>	<p><b>Living things and their habitats</b> <b>Do all food chains start with a plant?</b> The children will learn about food chains and how living things depend on each other.</p> <ol style="list-style-type: none"> <li>1. <b>How do different animals and plants depend on each other?</b> (<i>Focus: where do animals and plants obtain their food from - simple food chains</i>)</li> <li>2. <b>How can we help protect living things and their habitats?</b> (<i>Focus: environmental responsibility – caring for local habitats, pollution</i>)</li> <li>3. <b>How did <b>Rachel Carson</b> help us care for living things and their habitats?</b></li> <li>4. <b>TAPS assessment</b> – Feeding simulation</li> </ol> <p><b>Plants</b> <b>How do I keep a plant healthy?</b> The children will set up a simple test to find out what plants need to grow, stay healthy and survive. They will observe over time.</p> <ol style="list-style-type: none"> <li>1. <b>What are the different parts of a plant and what do they do?</b> (<i>Revisit: YR1 naming parts of a plant. Revisit YR2 how we know a plant is a living thing: MRS GREN. Focus: introduce basic functions e.g. roots help hold the plant in the ground and take in water, stem holds</i>)</li> </ol>



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	<p>6. <b>How did Charles Macintosh help us stay dry?</b> TAPs assessment - Waterproof</p> <p><b>Animals, including humans</b> Do all animals look like smaller versions of their parents? The children learn about animals and their offspring. They will learn about a variety of animal life cycles and find out what animals need to survive?</p> <ol style="list-style-type: none"> <li><b>What do animals, including humans, need to survive?</b> (Revisit: YR1: mammals, birds, fish, reptiles, amphibians) <i>Focus: food, water, air, shelter</i></li> <li><b>Which offspring belongs to which animal?</b> (Revisit: YR1 describing animal body structures: wings, fins, fur, etc. <i>Focus: baby animals often share some physical features with their parents e.g. fur, body shape- mammals usually look like their parents, some baby animals look different from their parents</i>)</li> <li><b>How do animals change as they grow?</b> (Focus: life cycles and stages of growth)</li> <li><b>Do we all grow the same?</b> TAPs assessment -- handspan</li> <li><b>How can I stay healthy?</b> (Focus: balanced diet, exercise, hygiene, sleep)</li> <li><b>Do we need exercise?</b> (Focus: notice that exercise affects our bodies – focus on observing and description – tired, heart beats faster, breathing.)</li> <li><b>What happens to germs if I do not wash my hands?</b> (Focus: hygiene – What are germs/bacteria? Glitter experiment to show transfer – how do we get rid of bacteria? Pepper and soap experiment)</li> </ol>		<p><i>the plant up and carries water, leaves catch the sunlight, flowers make seeds)</i></p> <ol style="list-style-type: none"> <li><b>What do plants need to grow and stay healthy?</b> (Revisit: YR1 cress investigation – needs: water, light, warmth. <i>Focus: understanding basic needs – water, light, warmth and soil</i>)</li> <li><b>How can we find out what plants need to grow well?</b> (Focus: planning and carrying out simple test – growing seeds with/without sunlight, with/without water – observe over time: sketches, describe changes.)</li> <li><b>How does a seed grow into a plant?</b> (Focus: life cycle of a plant including germination and growth steps)</li> <li><b>Do all plants have seeds and where can we find them?</b> (Focus: seeds often found in flowers and fruits – most plants grow from seeds, but some grow from bulbs, spores or cuttings – look at and compare a variety of seeds and bulbs)</li> <li><b>What plants grow in our local area?</b> (Revisit: YR1 – identifying and naming common wild and garden plants. <i>Focus: observational skills on the school grounds</i>)</li> <li><b>Which parts of a plant can we eat?</b> (Focus: explore different parts of a plant (use real examples to look at): root (carrot), stem, (celery), leaf (spinach), flower (broccoli), fruit (apple), seed (peas) – could create a plant part's we eat plate/poster)</li> </ol>
<p><b>Key Vocabulary</b></p>	<p>Names of materials: wood, metal, plastic, glass, brick, rock, paper, cardboard, rubber. Properties: hard/soft, stretchy/stiff, rough/smooth, bendy/not bendy, absorbent/not absorbent, waterproof/not waterproof, opaque/transparent/translucent, flexible/rigid Changing shape: push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching Living, dead, never been alive, suited, suitable, basic needs, food, shelter, move, feed.</p>	<p>Names of habitats (both local and wider): pond, woodland, jungle, ocean etc. Names of microhabitats: e.g. under a long/rock, bushes, tree trunk, plants</p>	<p>Food, food chain, leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, bud. Names of common garden and wild flowering plants and trees. Light, shade, sun, warm, cool, water, grow, healthy, temperature</p>
<p><b>Cross Curricular</b></p>		<p>English – Wild (fiction) – setting description and innovative writing.</p>	<p>DT – balanced diet</p>
<p><b>Working scientifically</b></p>	<p>Observe, compare, predict, ask questions, answer, group, record, research, explain, reason, identify, classify, experiment, perform simple tests, gather data</p>		

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<p><b>SMSC</b></p>	<p>Spiritual – To know more and to wonder about the world. To look at the world in awe and wonder.                  Moral – To become increasingly curious. Consider the environment. Be open minded to the suggestion of others.                  Social – Group practical work. Teamwork and taking responsibility. Taking responsibility for their own and other people’s safety. Begin to understand that science effects our lives.                  Cultural – Begin to understand scientific discoveries by men and women in many cultures. Begin to understand how the environment and science are linked.</p>		
<p><b>Cultural Capital</b></p>	<p>Trip to museum – Wroughton Science Museum                  British science week and World science day.                  International Women and Girls Day in science.</p>		
<p><b>Year 3</b></p>	<p><u>Light</u>  <b>How does light help us to see the world around us?</b>                  The children explore the way that light behaves including light sources, reflection and shadows.</p> <ol style="list-style-type: none"> <li>1. <b>What is light and where does it come from?</b> (Focus: understanding that light is a form of energy and identifying natural and artificial light sources e.g. the Sun, torch, lamp.)</li> <li>2. <b>Why do we need light to see things?</b> (Focus: exploring how we see objects only when light reflects off them and enters our eyes and how light travels)</li> <li>3. <b>What is darkness?</b> (Focus: learning that darkness is the absence of light, and understanding situations where we can’t see because there is no light)</li> <li>4. <b>Which surfaces reflect light the best?</b> (Focus: investigating reflective materials and why shiny surfaces (like mirrors) reflect more light than dull ones)</li> <li>5. <b>How are shadows made and how do they change?</b> (Focus: discovering that shadows form when light is blocked by an opaque object. Size and shape change depending on the position of the light source)</li> <li>6. <b>Why is it dangerous to look directly at the sun?</b> (Focus: learning that the Sun is a powerful light source and can damage our eyes if looked at directly)</li> </ol> <p><u>Rocks</u>  <b>What are rocks and soils like?</b>                  The children will learn that rocks can be placed into three categories. They will recognise that soils are made from rocks and organic matter and explore how fossils are formed.</p> <ol style="list-style-type: none"> <li>1. <b>What are the different types of rocks and how are they formed?</b> (Focus: identifying and describing the three main types of rock – igneous, sedimentary, and metamorphic – and understanding the basic processes of how they are formed)</li> <li>2. <b>Are all rocks the same?</b> (Focus: comparing and grouping rocks based on observable properties such as appearance, texture, and hardness through practical investigation)</li> <li>3. <b>What is soil made from?</b> (Focus: understanding that soil is made from tiny pieces of rock, organic material, water, and air; exploring different soil types and their properties)</li> </ol>	<p><u>Big Science</u>                  Term 3 is focussed on investigations relating to working scientifically. The children will ask questions and answer them, set up simple experiments, they will compare and learn about fair testing. They will have the opportunity to observe and take measurements using a range of equipment. They will gather data, record and present their findings in a variety of ways to help answer a question. The children will use their knowledge and learning to make predictions. They will use their findings to draw simple conclusions, suggest improvements and raise further questions.</p> <p><u>Forces and magnets</u>  <b>How do different forces change the way things move?</b>                  The children will observe how magnets attract or repel each other and attract some materials and not others.</p> <ol style="list-style-type: none"> <li>1. <b>What is a force and how can it make things move or stop?</b> (Focus: introducing the concept of a force as a push or a pull, and exploring how forces can change an object’s speed, direction, or shape)</li> <li>2. <b>How do objects move on different surfaces?</b> (Focus: investigating how friction affects movement: comparing how objects slide or roll on smooth, rough, or uneven surfaces)</li> <li>3. <b>Do all forces need to touch the object to work?</b> (Focus: introduce the idea of non-contact forces, using magnets as an example of forces that can attract or repel objects without touching them)</li> <li>4. <b>What happens when magnets interact with each other?</b> (Focus: discovering that magnets can attract or repel each other depending on their poles, predict whether 2 magnets will attract or repel each other, depending on which poles they are facing))</li> <li>5. <b>What materials are magnetic and why?</b> (Revisit: YR2 naming, materials properties and uses. Focus: explore materials that are magnetic and why e.g. iron, nickel, cobalt, and test everyday objects to identify them. Discuss what they have in common)</li> <li>6. <b>TAPS assessment</b> - Are all magnets the same strength?</li> </ol>	<p><u>Animals, including humans</u>  <b>What would happen if we didn’t have bones or muscles?</b>                  The children will develop their understanding of the main body parts, along with being introduced to nutrition.</p> <ol style="list-style-type: none"> <li>1. <b>What types of nutrition do we need and why?</b> (Revisit: YR2 the basic needs: food, water, air, and shelter and that animals cannot make their own food, they get nutrition from what they eat. Focus: understanding the different food groups and their role in keeping us healthy e.g. protein – growth and repair, carbohydrates – energy))</li> <li>2. <b>How do skeletons help animals and humans?</b> (Revisit: YR2 human life cycle. Focus: identifying the three main functions of a skeleton: support, protection, and movement)</li> <li>3. <b>What are the different types of skeletons animals can have?</b> (Focus: exploring endoskeletons like humans, birds and fish, exoskeletons like insects or crabs, and no skeleton, like worms and jellyfish)</li> <li>4. <b>How do muscles help us move?</b> (Focus: understanding that muscles pull on bones to create movement)</li> <li>5. <b>What’s in our food?</b> (Revisit: YR2 how can we stay healthy. Focus: investigation – identify different types of nutrients in food and understand their roll in a balanced diet – look at food labels; record or sort foods based on their main nutrients. Discuss: which food gives you the most energy? Which helps your body grow and repair? Which should we each less of? Children to explain why. Children could create a healthy lunchbox)</li> </ol> <p><u>Plants</u>  <b>What do plants need to live, grown, and reproduce?</b>                  The children will identify and describe the functions of different parts of flowering plants. They will explore the requirements of plants for life and growth and investigate the way in which water is transported within a plant.</p> <ol style="list-style-type: none"> <li>1. <b>What are the parts of a plant and what do they do?</b> (Revisit: YR2 parts of a plant and basic functions. Focus: deeper understanding of functions – root: anchor, absorb, stem: support, transport, leaf: nutrition, flower: reproduction)</li> <li>2. <b>What do plants need to live and grow well?</b> (Revisit YR2 understanding of basic needs – light, water, warmth, soil. PREAPRED 5 days BEFORE – show two of the same plants, one that has been in</li> </ol>

# Folly View Primary Schools

Long Term Plan 2025/26

SUBJECT: Science



Vision: For children to show a passion for Science and a curiosity for learning about the world around them through an exciting, engaging and challenging curriculum.

	<p>4. <b>How do rocks change over time?</b> (<i>Focus: exploring how rocks can be weathered, eroded, and broken down into smaller pieces</i>)</p> <p>5. <b>What are fossils and how are they formed in rocks?</b> (<i>Focus: understanding that fossils are the remains of living things from the past, found in sedimentary rocks, and learning the basic process of fossilization</i>)</p> <p>6. <b>What did Inge Lehman discover about the Earth?</b></p> <p>7. <b>TAPs assessment</b> - Reporting rocks</p>		<p><i>light and one kept in the dark: ask what do you notice, why are they different, what might have happened etc.</i></p> <p><i>Focus: observe over time and fair testing – investigation how different variables affect plant growth and recording finding through measurement. Possible ideas: The effect of water on plant growth: grow two identical plants and give different amounts of water – measure height/count leaves, draw line graphs or bar charts/record observations (leaf colour, stem strength, wilting). Do plants grow better in different soils? – sand, compost, and clay. How fast do roots grow? Use transparent cups to observe and measure length)</i></p> <p>3. <b>TAPs assessment</b> - How does water travel through a plant?</p> <p>4. <b>Why do flowers matter to plants?</b> (<i>Focus: understand that flowers are for reproduction. Identify stamen, carpel, and pollen.</i>)</p> <p>5. <b>How do pollination and fertilisation happen?</b> (<i>Revisit YR2 growth from bulbs/seeds. Focus: learn the role of insects and wind in pollination. Match parts of flowers to function in reproduction. Create or act out the pollination process</i>)</p> <p>6. <b>How do seeds get from one place to another?</b> (<i>Revisit: YR2 plant lifecycle. Focus: explore seed dispersal methods: wind, water, animals, explosion. Draw full plant life cycle to include – germination, growth, flowering, pollination and seed dispersal</i>)</p> <p>7. <b>How did George Washington Carver use plants to help farmers?</b> (<i>Focus: explore the importance of plants in farming and soil health. Understand crop rotation and how it benefits the environment. Learn about Carver's contributions as a scientist and inventor. Appreciate how science can be used to solve real-world problems</i>)</p>
<p><b>Key Vocabulary</b></p>	<p>Light, dark, dim, bright, reflection, shadows, light source, reflect, reflective, ray, opaque, translucent, transparent, pupil, retina, surface, mirror, electricity, shadows, torches, emit, angle</p> <p>Rocks, minerals, igneous rock, sedimentary rock, metamorphic rocks, magma, lava, sediment, permeable, impermeable, fossilisation, palaeontology, erosion, extinct, matter, organic matter, topsoil, sub soil, bedrock, decaying</p>	<p>Friction, magnet, magnetic force, magnetic field, pole, north, south, attract, repel, compass, metal, force, push, pull, surface, resistance, opposite</p>	<p>Healthy, nutrition, nutrients, energy, saturated fats, unsaturated fats, balanced diet, carbohydrates, protein, fats, vitamins, minerals, fibre, water, muscles, tendons, joints, vertebrate, invertebrate, joints, backbone, contract, relax, skeleton, endoskeleton, exoskeleton</p> <p>Roots, stem, leaves, flowers, nutrients, evaporation, water, light, air, fertilisation, life cycle, petal, stamen, carpel, sepal, pollination, pollinator, germination, seed dispersal, seed formation, flowering, stigma, carbon dioxide</p>
<p><b>Cross Curricular</b></p>			<p>Healthy eating – persuasive writing.</p>
<p><b>Working scientifically</b></p>	<p>Observe, compare, predict, question, answer, group, record, research, explain, reason, identify, classify, experiment, simple tests, pattern seeking</p>		
<p><b>SMSC</b></p>	<p>Spiritual – To know more and to wonder about the world. To look at the world in awe and wonder. The interdependence of all living things and materials on Earth.</p> <p>Moral – To become increasingly curious. Consider the environment. Be open minded to the suggestion of others.</p> <p>Social – Group practical work. Teamwork and taking responsibility. Taking responsibility for their own and other people's safety. Begin to understand that science effects our lives.</p> <p>Cultural – Begin to understand scientific discoveries by men and women in many cultures. Begin to understand how the environment and science are linked.</p>		
<p><b>Cultural Capital</b></p>	<p>British science week and World science day.</p> <p>International Women and Girls Day in science.</p>		

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<p><b>Year 4</b></p>	<p><b>Sound</b> <u>How do we hear sound and how can we change them?</u> The children will learn how sounds are made and how sound travels.</p> <ol style="list-style-type: none"> <li>1. <b>What is sound and how is it made?</b> (<i>Focus: identify how sounds are made, associating them with something vibrating</i>)</li> <li>2. <b>How do vibrations travel through different materials to reach our ears?</b> (<i>Focus: Understand how sound travels through solids, liquids and gases</i>)</li> <li>3. <b>What affects the pitch of sound?</b> (<i>Focus: identify how pitch is linked to the features of the object making the sound e.g. length, tightness, or thickness of string</i>)</li> <li>4. <b>How can we change the volume of a sound?</b> (<i>Focus: investigate the relationship between vibration strength and sound volume</i>)</li> <li>5. <b>Why can we sometimes hear sounds from far away and sometimes not?</b> (<i>Focus: explore how sound gets fainter as the distance from the source increases</i>)</li> <li>6. <b>How did Alexander Graham Bell help us to talk to people?</b> (<i>Focus: short biography of Bell. Compare old and modern phones. Demonstrate sound travelling through a cup and string telephone</i>)</li> </ol> <p><b>States of matter</b> <u>How do materials change?</u> The children will use their knowledge and understanding of everyday materials to understand states of matter.</p> <ol style="list-style-type: none"> <li>1. <b>What are solids, liquids and gases, and how are they different?</b> (<i>Revisit: YR1 naming everyday materials and YR2 comparing and grouping based on properties. Focus: classify materials into the three states of matter based on their properties e.g. shape, flow</i>)</li> <li>2. <b>Do all liquids behave the same?</b> (<i>Focus: observe and describe differences in how liquids pour, flow, or spread. Begin to understand that not all liquids behave in the same way</i>)</li> <li>3. <b>Does gas have mass?</b> (<i>Focus: can we find evidence that gases are real substances and have mass? Develop understanding that gases are real substances and not nothing. Explore the idea that gases occupy space and have mass, even if we can't see them. Example 1: Balloon mass – weigh an empty balloon, blow it up and weigh it again. Where did the extra mass come from? For visual – hand both balloons on a hanger. Example 2: Syringe test – seal nozzle and try to push the plunger in. You feel resistance because gas is compressible. Fizzy drink investigation</i>)</li> <li>4. <b>How can materials change from one state to another?</b> (<i>Revisit: YR2 changing the shape of materials – squeeze, pull, bend etc. Focus: explore reversible changes between solid,</i></li> </ol>	<p>Term 3 is focussed on investigations relating to working scientifically. The children will ask questions and answer them, set up simple experiments, they will compare and learn about fair testing. They will have the opportunity to observe and take measurements using a range of equipment. They will gather data, record and present their findings in a variety of ways to help answer a question. The children will use their knowledge and learning to make predictions. They will use their findings to draw simple conclusions, suggest improvements and raise further questions. They will report on findings from enquiries, including orally, written, displays or presentations.</p> <p><b>Electricity</b> <u>How does electricity help things work?</u> The children will identify common appliance that run on electricity. They will construct simple series electrical circuits, identifying and naming simple parts.</p> <ol style="list-style-type: none"> <li>1. <b>What is electricity and where does it come from?</b> (<i>Focus: understand electricity is a form of energy and identify mains vs battery-powered appliances. Identify common appliances that run on electricity</i>)</li> <li>2. <b>How do we make a simple circuit?</b> (<i>Focus: construct simple series circuits using wires, bulbs, cells, and switches</i>)</li> <li>3. <b>What makes a circuit work, or stop working?</b> (<i>Focus: explore complete or incomplete circuits and identify breaks or problems</i>)</li> <li>4. <b>What do different materials do in a circuit?</b> <b>TAPS assessment</b> – (<i>Focus: investigate conductors and insulators – sort materials based on whether they allow electricity to flow. Record using Venn or Carroll diagrams</i>)</li> <li>5. <b>How can we control electricity in a circuit?</b> (<i>Focus: understand how a switch works and how it can control a circuit by opening and closing it</i>)</li> </ol>	<p><b>Animals, including humans</b> <u>What happens to food when we eat it?</u> The children will learn about the digestive system and its parts. They will construct and interpret a variety of food chains.</p> <ol style="list-style-type: none"> <li>1. <b>What are the main parts of the human digestive system and what do they do?</b> (<i>Focus: identify and describe the basic functions of organs in the digestive system</i>)</li> <li>2. <b>What is the digestion process?</b> (<i>Focus: understand the process of digestion from chewing to waste – investigation</i>)</li> <li>3. <b>What do our teeth do and how do we look after them?</b> (<i>Revisit: YR1 animal diets. Focus: identify types of teeth and understand their roles. Discuss decay and hygiene. Why are teeth different shapes – compare herbivores, carnivores and omnivores teeth</i>)</li> <li>4. <b>What drink causes the most tooth decay?</b> - <b>TAPS assessment</b></li> <li>5. <b>What are food chains?</b> (<i>Revisit: YR2 what do animals need to survive and how do animals and plants depend on each other. Focus: introduce producers, prey, and predators in simple food chains</i>)</li> </ol> <p><b>Living things and their habitats</b> <u>How do living things survive in different environments?</u> The children will use classification keys to group, identify, and name a variety of living things.</p> <ol style="list-style-type: none"> <li>1. <b>What are the seven life processes?</b> (<i>Revisit: YR2 - MRS GREN</i>)</li> <li>2. <b>What are vertebrates and invertebrates?</b> (<i>Revisit: YR3 learning on skeletons. Focus: understand the concept of a backbone</i>)</li> <li>3. <b>How can we group living things in different ways?</b> (<i>Revisit: YR1 animal groups and diets. Focus: group living things based on observable characteristics including vertebrates and invertebrates</i>)</li> <li>4. <b>What is a classification key?</b> (<i>Revisit: YR1 describing animal features and groups – mammals, birds, reptiles, fish, amphibians. Focus: explore and use classification keys to help group, identify and name a variety of living things</i>)</li> <li>5. <b>Which living things can be found in the local area?</b> (<i>Revisit: YR2 learning of minibeasts. Focus: observe and classify living things on our school ground using classification keys</i>)</li> <li>6. <b>What happens when environments change?</b> (<i>Revisit: YR2 learning how habitats meet animals' needs and how and why certain features help animals/plants survive. Focus: understand how natural changes, like floods, and human actions, like deforestation or pollution, affect habitats. Explore the danger to species and possible extinction</i>)</li> <li>7. <b>Who is Sir David Attenborough and what can we learn from him?</b> (<i>Revisit: YR2 Rachel Carson and YR3 George Washington Carver. Focus: short biography. Explore how his work helps us to understand and protect living things and their habitats</i>)</li> </ol>
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	<p>liquid, and gas through heating and cooling. Discuss the boiling point and freezing point of water – 0 degrees Celsius and 100 degrees Celsius)</p> <p>5. <b>What happens to water when it evaporates or condenses?</b> (<i>Focus: understand evaporation and condensation linked to heating and cooling. TAPS assessment - How does water evaporate?</i>)</p> <p>6. <b>What is the water cycle?</b> (<i>Focus: understand how water moves through its different states naturally and why it matters for life</i>)</p>		
Key Vocabulary	<p>Vibration, sound wave, volume, amplitude, quiet, loud, pitch, high-pitched, low-pitched, ear, faster, slower, particles, distance, soundproof, absorb sound, vacuum, eardrum, echo, hammer, anvil, stirrup, larynx, vocal cords</p> <p>States of matter, solids, liquids, gases, water vapour, melt, freeze, evaporate, condense, evaporation, condensation, precipitation, temperature, solid, liquid, gas</p>	<p><b>Dependent variable</b> – what you are measuring during an experiment. <b>Independent variable</b> – what you are changing during an experiment. <b>Control variables</b> – what you are keeping the same to ensure you have a valid test.</p> <p>Electricity, appliances, battery, circuit, cell, bulb, buzzer, wires, motor, switch, mains electricity, electrical conductor, electrical insulator, component</p>	<p>Digest, oesophagus, stomach, small intestine, large intestine, rectum, anus, tongue, mouth, salivary gland, liver, gall bladder, pancreas, teeth, incisor, canine, molar, premolar, herbivore, carnivore, omnivore, producer, predator, prey</p> <p>Classification, organisms, life processes, respiration, sensitivity, reproduction, excretion, nutrition, habitat, endangered, extinct, vertebrates, invertebrates, characteristics</p>
Cross Curricular	<p>English - Information text on sound.</p> <p>Music – pitch and volume – exploring instruments</p>	<p>DT – design and making torches</p>	<p>Geography – Rivers – water cycle</p> <p>DT – Electrical circuits</p>
Working scientifically	<p>Observe, compare, predict, question, answer, group, record, research, explain, reason, identify, classify, experiment, simple tests, pattern seeking</p>		
SMSC	<p>Spiritual – To know more and to wonder about the world. To look at the world in awe and wonder. The interdependence of all living things and materials on Earth. Wonder at the vastness of space and the beauty of natural objects.</p> <p>Moral – To become increasingly curious. Consider the environment. Be open minded to the suggestion of others.</p> <p>Social – Group practical work. Teamwork and taking responsibility. Taking responsibility for their own and other people’s safety. Begin to understand that science affects our lives.</p> <p>Cultural – Begin to understand scientific discoveries by men and women in many cultures. Begin to understand how the environment and science are linked.</p>		
Cultural Capital	<p>British science week and World science day</p> <p>International Women and Girls Day in science.</p> <p>Engineer visitor.</p>		
Year 5	<p><b>Earth and space</b></p> <p><b>Sun, Earth and Moon: What is moving and how do we know?</b></p> <p>The children will begin learning all about Earth and space.</p> <ol style="list-style-type: none"> <li>What are the most important events in the history of space exploration, and how have they changed our knowledge of Earth and space? (<i>Focus: Explore milestones such as Galillei’s telescope, the first moon landing (1969), Hubble Telescope, Mars Rovers, International Space Station</i>)</li> <li>How do we know the Earth, Sun and Moon are spherical, and not flat or disc-shaped? (<i>Focus: consider the work of Ptolemy, Alhazen and Copernicus – understand spherical shapes of celestial bodies and evidence for this</i>)</li> <li>What are the planets in our Solar System and how do they move in relation to the Sun? (<i>Focus: order of planets</i>)</li> <li>What is the Sun, and why is it so important? (<i>Revisit: YR2 Sun gives light, warmth, energy. YR3 Sun is a light source. Focus: the Sun is a star; light, heat and energy source for life. Planets</i>)</li> </ol>	<p>Term 3 is focussed on investigations relating to working scientifically. The children will plan different types of scientific enquires to answer questions, including recognising and controlling variables. They will use a range of scientific equipment to take measurements with increasing accuracy and precision. They will record data. They will record data and results of increasing complexity. The children will use their predictions to set up further comparative and fair tests. They will report and present their findings in a variety of ways and will use scientific evidence to support or refuse ideas or arguments.</p> <p><b>Living things and their habitats</b></p> <p>Do all plants and animals reproduce in the same way?</p> <p>The children will describe differences between animal life cycles and learn about the life process of reproduction in some animals and plants.</p> <ol style="list-style-type: none"> <li>How do plants reproduce? (<i>Revisit: YR3 seed dispersal and plant growth. Focus: explore sexual and asexual reproduction in plants</i>)</li> <li>How do animals reproduce? (<i>Revisit: YR2 life cycles, animals and their offspring. Focus: understand reproduction in different animal groups</i>)</li> </ol>	<p><b>Properties and changes of materials</b></p> <p><b>How do the properties of materials help us choose them, and what happens when they change?</b></p> <p>The children will re-cap their understanding of states of matter and explore reversible changes, including evaporating, filtering, sieving, melting and dissolving.</p> <ol style="list-style-type: none"> <li>How can we compare and group materials based on their properties? (<i>Revisit: YR1 and 2 everyday materials and their properties. YR4 states of matter. Focus: compare materials using properties like hardness, solubility, transparency, conductivity, and magnetism</i>)</li> <li>Which materials are good thermal conductors and insulators? (<i>Revisit: YR4 temperature, change of state. Focus: explore how materials conduct heat, learn the difference between conductors and insulators – e.g. Which material would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting or to</i>)</li> </ol>

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	<p>orbit the Sun due to gravity. How long does it take Earth (and other planets) to orbit the sun?)</p> <ol style="list-style-type: none"> <li>5. <b>Why do we have day and night on Earth?</b> (Revisit: YR1 seasonal changes. YR3 shadow patterns. <b>Focus:</b> Earth's rotation on its axis causes day/night)</li> <li>6. <b>How does the moon move in relation to Earth?</b> (Revisit: YR3 reflection of light. <b>Focus:</b> Moon orbits Earth; phases depend on position relative to Sun and Earth)</li> <li>7. <b>Who is Dr. Maggie Aderin-Pocock</b> and how has she contributed to our understanding of space? (<b>Focus:</b> how has she helped us discover more about space and inspired people to love science – what are her achievements?)</li> <li>8. <b>TAPs assessment:</b> Craters OR Space travel questions</li> </ol> <p><b>Forces</b> <b>How do forces affect the way objects move and interact with each other?</b> The children will learn why unsupported objects fall towards the Earth. They will explore and identify the effects of air resistance, water resistance and friction. They will explore a variety of mechanisms.</p> <ol style="list-style-type: none"> <li>1. <b>What is a force and how can we see its effects?</b> (Revisit: YR2 push and pull. YR3 observing how objects move. <b>Focus:</b> forces are a push and pull – explore their effect on motion e.g. hands on exploration with toy cars, balls, and ramps to see forces in action. Draw and label the forces in action and add arrows to show the direction of opposing forces)</li> <li>2. <b>How does gravity affect objects on Earth?</b> (Revisit: YR3 pushes and pulls. <b>Focus:</b> gravity is a force pulling objects toward Earth – difference between weight and mass- investigation)</li> <li>3. <b>Why do some objects fall more slowly than other through air?</b> (<b>Focus:</b> air resistance as a force opposing movement - investigation)</li> <li>4. <b>How does water slow down moving objects?</b> (Revisit: YR3 forces affecting motion. YR4 solids, liquids, and gases. <b>Focus:</b> water resistance/drag; streamlines vs. blunt shapes - investigation)</li> <li>5. <b>How do levers, pulleys and gears help us to move heavy objects more easily?</b> (Link: YR4 DT mechanisms. <b>Focus:</b> simple machines – mechanical advantage- build/test simple systems; observe how force needed changes)</li> <li>6. <b>How does friction affect movement between surfaces?</b> (Revisit: YR3 forces on different surfaces. <b>Focus:</b> friction as a contact force resisting motion – use a force meter to measure how much force is needed to pull objects across different surfaces)</li> </ol>	<ol style="list-style-type: none"> <li>3. <b>What are the stages in the life cycle of a mammal?</b> (Revisit: YR2 life cycles. YR4 growth and development in animals. <b>Focus:</b> understand that mammals are born, grow, reproduce and die – identify key stages – recognise that all mammals share these stages, but timing and care vary – compare mammals life cycles)</li> <li>4. <b>What is the life cycle of a bird and a reptile?</b> (Revisit: YR2 life cycles. YR4 growth and development in animals. <b>Focus:</b> understand that birds and reptiles hatch from eggs – identify key stages for both birds and reptiles – compare the stages of birds and reptiles' life cycles – compare to mammal life cycles)</li> <li>5. <b>What is the life cycle of an amphibian and an insect?</b> (Revisit: YR2 life cycles. YR4 growth and development in animals. <b>Focus:</b> understand life cycles of living things that undergo metamorphosis – amphibians live in water and on land at different stage – compare amphibians and insect life cycles – compare these life cycles to other animal's groups)</li> <li>6. <b>What did Jane Goodall</b> discover about chimpanzees? (<b>Focus:</b> understand how Jane Goodall studied chimpanzees, what she discovered about their behaviour, and what her work is important for protecting habitats)</li> <li>7. <b>TAPs assessment:</b> Life cycle report</li> </ol>	<p>stop coffee getting cold? OR Which is the best material to keep your lunch cool?)</p> <ol style="list-style-type: none"> <li>3. <b>Which materials allow electricity to flow, and why are some better conductors than others?</b> (Revisit: YR4 simple circuits, conductors and insulators. <b>Focus:</b> investigate a wider range of materials – different types of metal, graphite, water, rubber, glass. Compare materials and explain their uses in terms of safety and effectiveness. Apply learning to the real-world: What are metals used in wires? Why is plastic used as coverings? Understand that conductivity is a property)</li> <li>4. <b>Which materials dissolve in water and which do not?</b> (Revisit: YR4 solids, liquids and gases. <b>Focus:</b> investigate soluble and insoluble materials; define solution, solubility, dissolving or melting)</li> <li>5. <b>How can we separate mixtures of materials?</b> (Revisit: YR4 changes of state – melting/evaporating water, freezing. <b>Focus:</b> filtering, sieving, evaporating to separate mixtures and solutions)</li> <li>6. <b>What changes to materials are reversible and which are irreversible?</b> (Revisit: YR4 reversible changes of state – melting, freezing, evaporating. <b>Focus:</b> investigate different types of changes in materials. Recognise some are reversible (melting, freezing, dissolving, evaporating), and others are irreversible (burning, rusting, cooking, chemical reactions)</li> </ol> <p><b>Animals, including humans</b> <b>How do humans change as they grow and develop?</b> The children will focus on the growth and development of humans.</p> <ol style="list-style-type: none"> <li>1. <b>How do humans develop before birth?</b> (Revisit: YR2 offspring grow into adults – life cycle of humans. <b>Focus:</b> introduce prenatal development – embryo-foetus-baby. Explain gestation and compare human gestation with other mammals)</li> <li>2. <b>How do humans grow and develop from babies to children?</b> (Revisit: YR2 offspring grow into adults – life cycle of humans. <b>Focus:</b> introduce early childhood – physical changes, learning new skills, gaining independence)</li> <li>3. <b>What changes happen during puberty and adolescence?</b> (Link: YR4 PSHE puberty. <b>Focus:</b> introduce puberty as the stage when a child's body starts to become an adult body. Identify physical changes: growth spurts, body hair, voice changes, development of breasts and menstruation in girls. Identify emotional change)</li> <li>4. <b>What changes do humans experience in adulthood and old age?</b> (<b>Focus:</b> identify the changes that take place)</li> <li>5. <b>How can we represent the stages of human growth and development?</b> (<b>Focus:</b> reinforce understanding of all life stages: parental, infancy, childhood, adolescence, adulthood, and old age. Show the sequence of changes over a human lifetime. Connect physical, emotional and social changes to each stage – create a visual timeline)</li> </ol>
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# Folly View Primary Schools

Long Term Plan 2025/26

SUBJECT: Science



Vision: For children to show a passion for Science and a curiosity for learning about the world around them through an exciting, engaging and challenging curriculum.

	7. Who was <b>Isaac Newton</b> , and how did his ideas help us understand forces and motion? ( <i>Focus: who was Isaac Newton, how did his discoveries explain why objects move and fall</i> )		6. <b>TAPs assessment</b> – Growth survey
Key Vocabulary	Sun, star, moon, planet, sphere, spherical bodies, satellite, Mercury, Venus, Earth, Mars, Saturn, Jupiter, Uranus, Neptune, orbit, rotate, axis, geocentric model, heliocentric model, astronomer Forces, gravity, Earth's gravitational pull, weight, mass, friction, air resistance, water resistance, buoyancy, streamlined, mechanism, upthrust, pulley, gears, cogs, levers	<b>Dependent variable</b> – what you are measuring during an experiment. <b>Independent variable</b> – what you are changing during an experiment. <b>Control variables</b> – what you are keeping the same to ensure you have a valid test. Asexual reproduction, fertilise, gestation, life cycle, metamorphosis, pollination, reproduction, sexual reproduction	Materials, solids, liquids, gases, melting, freezing, evaporating, condensing, conductor, insulator, transparency, sieving, filtering, evaporating, particles Fertilisation, prenatal, gestation, reproduce, asexual reproduction, sexual reproduction, life cycle, adolescence, puberty, menstruation, adulthood, life expectancy
Cross Curricular	English – Letter writing – Space station. Recount – linked to virtual visit to international space station.	English – explanatory text linked to life cycles	
Working scientifically	Observe, compare, predict, question, answer, group, record, research, explain, reason, identify, classify, experiment, simple tests, pattern seeking		
SMSC	Spiritual – To know more and to wonder about the world. To look at the world in awe and wonder. The interdependence of all living things and materials on Earth. Wonder at the vastness of space and the beauty of natural objects. Moral – To become increasingly curious. Consider the environment. Be open minded to the suggestion of others. Social – Group practical work. Teamwork and taking responsibility. Taking responsibility for their own and other people's safety. Begin to understand that science affects our lives. Cultural – Begin to understand scientific discoveries by men and women in many cultures. Begin to understand how the environment and science are linked.		
Cultural Capital	British science week. World science day. International Women and Girls Day in science. Poster competition – Harwell Science. Sun Dome, FCC scientists visit, FCC engineering visit, The Curious Science Centre trip, FCC STEM Days		
Year 6	<b>Electricity</b> <u>How can understanding electricity help us solve real-world problems?</u> The children will further build on their knowledge gained in year 4. This will include learning about voltage and using symbols when representing a simple circuit in a diagram. 1. Why is it important to use electricity safely? ( <i>Focus: identify common electrical hazards at home and school and explain how to stay safe when working with electrical equipment.</i> )	Term 3 is focussed on investigations relating to working scientifically. The children will plan different types of scientific enquires to answer questions, including recognising and controlling variables. They will use a range of scientific equipment to take measurements with increasing accuracy and precision. They will record data. They will record data and results of increasing complexity. The children will use their predictions to set up further comparative and fair tests. They will report and present their findings in a variety of ways and will use scientific evidence to support or refuse ideas or arguments.	<b>Evolution and inheritance</b> <u>How do living things change overtime and why?</u> The children will learn about how things have changed over time. 1. How can we tell that living things have changed over time? ( <i>Revisit: YR3 learning of fossils. Focus: understand that fossils provide evidence about organisms that lived long ago</i> ) 2. How are characteristics passed on from parents to offspring? ( <i>Revisit: YR2 offspring grow into adults and YR5 human development and reproduction. Focus: explore the concept of inheritance e.g. eye</i> )

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	<p>2. <b>How do we represent a simple series circuit as a diagram?</b> (Revisit: YR4 knowledge of simple circuits and component names describing how they are used to make a simple circuit. Discuss the purpose of switches and understanding of an open/closed circuit – complete/incomplete. <b>Focus:</b> Draw accurate diagrams using basic circuit symbols – use a ruler, no labels, in pencil.)</p> <p>3. <b>What effect does adding more cells have on a series circuit?</b> (Revisit: YR4 understanding of why a circuit might not work – break in circuit, loose connection, drained cell, faulty components, connections are wrong ends. <b>Focus:</b> Investigate how the number and voltage of cells changes the bulbs' brightness or a buzzer's volume).</p> <p>4. <b>What happens if we add more bulbs/buzzers into a simple series circuit?</b> (<b>Focus:</b> Compare circuits with different number of bulbs/buzzers to see how each component changes.)</p> <p>5. <b>How have ideas about electricity changed over time?</b> (<b>Focus:</b> explore how our understanding of electricity has developed through the work of scientists: <b>Thales of Miletus</b> (624-546 BCE) – he is credited with one of the earliest recorded observations of static electricity – early ideas were based on observation not understanding. <b>William Gilbert</b> (1544-1603) – coined the term 'electricity'. First to investigate static electricity scientifically. <b>Benjamin Franklin</b> (1706-1790) – he conducted his famous kite experiment - he connected the natural phenomena, lightning, with electricity. <b>Alessandro Volta</b> (1745-1827) – invented first chemical battery. <b>Michael Faraday</b> (1791-1867) – discovered electromagnetic induction – led to the invention of electric motors and generators. <b>Thomas Edison</b> (1847-1931) – improved the electric lightbulb and developed first power station. <b>Lewis Howard Latimer</b> (1848-1928) – invented a longer lasting carbon filament, making electric lightbulbs cheaper, safer, and more practical. <b>Nikola Tesla</b> (1856-1943) – AC current and electrical systems. <b>Mildred Dresselhaus</b> (1930-2017) – advanced our understanding of how electricity behaves in materials- especially carbon-based materials.</p> <p>6. <b>Can I design and build a working alarm system for a treasure box?</b> (<b>Focus:</b> Using knowledge of and applying understanding of series circuits, switches, and buzzers to design, test, and evaluate a functional alarm system. – This may require two lessons: 1- design, 2 – build and evaluate.</p> <p><b>Light</b> <b>How does light affect the way we experience the world?</b></p>	<p><b>Animals, including humans</b> <b>How does the human body keep us alive and working?</b> <b>The children will identify and name the main parts of the human circulatory system. They will learn how the choices we make impacts the way our bodies function.</b></p> <ol style="list-style-type: none"> <li><b>What does the circulatory system do, and how does it work?</b> (<b>Remind</b> children that we have learnt about a system in YR4 – digestive system. <b>Focus:</b> introduce the circulatory system as a whole and identify and describe the heart, blood vessels, and blood. Understand the function of the circulatory system in transporting oxygen, nutrients, and waste)</li> <li><b>How does blood travel around the body?</b> (<b>Focus:</b> explore the journey of blood - explore how the heart acts as a pump to move blood through the body. Understand that blood carries oxygen and nutrients to where they are needed. Learn that blood also removes waste)</li> <li><b>How do diet, exercise, and lifestyle affect how our bodies function?</b> (<b>Revisit</b> prior understanding YR1 need for food and exercise, YR3 importance of a balanced diet. <b>Focus:</b> explore how healthy choices (diet, exercise, sleep, drugs) affect our organs and long-term health. Link heart rate and health to body efficiency)</li> <li><b>How are nutrients and oxygen transported and used in the body?</b> (<b>Focus:</b> explore how the digestive system and circulatory systems work together to transport useful substances to cells. Link back to food – digestion – blood – cells)</li> <li><b>How can we investigate how our bodies respond to exercise?</b> (<b>Revisit:</b> YR2 understanding of what happens to our bodies after exercise. <b>Focus:</b> investigate (measure and record changes to pulse) and explain why and how exercise impacts organs like heart and lungs. Focus on data collection, analysis and explanation)</li> <li><b>How do drugs and alcohol affect our bodies?</b> (<b>Focus:</b> identify how substances like nicotine, alcohol and some drugs affect the heart, lungs, and brain. Explore short- and long-term effects on the circulatory system and overall health)</li> </ol>	<p>colour, dimples. Understand that offspring vary and are not identical to parents. Use simple models to illustrate inherited traits)</p> <ol style="list-style-type: none"> <li><b>How are living things similar and different, even within the same species?</b> (<b>Focus:</b> explore variation in inherited and environmental characteristics, compare individuals and discuss why variety exists e.g. fur patterns, height. Create and analyse branching classification trees)</li> <li><b>Why do some living things survive better than others?</b> (<b>Revisit:</b> YR2 understanding of what living things need to survive. <b>Focus:</b> introduce adaptation to environments e.g. polar bears, camels, cactus. Link to survival and reproduction. Identify adaptations in real animals and plants)</li> <li><b>How does adaptation lead to evolution over time?</b> (<b>Focus:</b> adaptation + inheritance + time = evolution. Introduce <b>Charles Darwin</b> and the theory of natural selection. Use scenarios e.g. peppered moth, finches to show change over generations)</li> <li><b>How do we know about evolution and who helped us understand it?</b> (<b>Focus:</b> Explore <b>Charles Darwin</b>, <b>Mary Anning</b> (YR1) and <b>Alfred Wallace</b>. Understand how ideas and theories develop and change over time. Link back to fossils as evidence and the process of scientific discover)</li> </ol> <p><b>Living things and their habitats</b> <b>How do scientists' group, classify and understand living things?</b> <b>The children will describe how living things are classified into broad groups and give reasons for classifying plants and animals based on specific characteristics.</b></p> <ol style="list-style-type: none"> <li><b>How do scientists' groups and classify living things?</b> (<b>Revisit:</b> YR4 understanding of classification keys. <b>Focus:</b> Introduce <b>Cari Linnaeus</b>, pioneer of classification – explore his system (simplified). Understand why we classify – to organise and study the natural world. Group living things into broad groups: animals (vertebrates and invertebrates), plants. Use observational characteristics to sort. E.g. number of legs, body covering, structure. Explore groups such as mammals, reptiles etc)</li> <li><b>How can we investigate if yeast is a living thing?</b> (<b>Focus:</b> carry out a practical enquiry to test whether yeast respire e.g. balloon or gas bubble experiment with sugar and warm water. Observe life processes. <b>Link</b> to YR2 and YR4 MRS GREEN.)</li> <li><b>What are micro-organisms and what makes them living things?</b> (<b>Revisit:</b> YR2/4 MRS GREEN – life processes. <b>Focus:</b> define micro-organisms and introduce key groups: bacteria, fungi, yeast. Compare them with visible living things.)</li> <li><b>How can we classify micro-organisms?</b> (<b>Focus:</b> Use characteristics to sort micro-organisms into groups. Compare bacteria, fungi (yeast/mould), and viruses. Understand how scientists use microscopes and evidence to classify what they cannot see.)</li> </ol>
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	<p>The children will develop their understanding of light, exploring how it behaves, including light sources, reflections and shadows.</p> <ol style="list-style-type: none"> <li><b>What is light, and how does it travel?</b> (Revisit: YR3 understanding of what is light and where does it come from. <i>Focus:</i> exploring how it moves – understand that light travels in straight lines from a source and can be blocked or reflected)</li> <li><b>How do we see things?</b> (Revisit: YR3 why do we need light to see things. <i>Focus:</i> learn that we see objects because light travels from light sources to objects and then to our eyes. Moving beyond YR3 'light helps us to see' to exploring the path of light to the eye)</li> <li><b>Why do shadows change size and shape?</b> (Revisit: YR3 understanding of how shadows are formed and how the size and shape can change depending on the position of the light source. <i>Focus:</i> investigate how shadows are formed and how changing the position of a light source affects them. Extends YR3 shadow work to include ideas about light direction and angles)</li> <li><b>What happens when light is reflected?</b> (Revisit: YR3 understanding of which surfaces reflect light the best. <i>Focus:</i> investigate reflective materials and mirrors – Which material reflects the most light? Do the properties of materials affect the amount of light reflected?)</li> <li><b>Can I use mirrors to change the direction of light?</b> (<i>Focus:</i> make a periscope to explore reflections, reinforce light travels in straight lines and can be redirected using mirrors – angle in = angle out – can children make predictions?)</li> </ol>		<ol style="list-style-type: none"> <li><b>What happens to living things when their environment changes?</b> (Revisit: YR4 learning. <i>Focus:</i> explore how environmental changes affect organisms e.g. human activity, pollution, climate change. Discuss real examples of animals endangered, extinct or thriving in changing environments. Make predictions about the future)</li> <li><b>How do scientists discover and record new species?</b> (Revisit: YR classification key. <i>Focus:</i> learn how new species are identified and classified. Explore examples of modern discoveries e.g. deep-sea creatures, rainforest species. Research unfamiliar animals and plants and decide where they belong in the classification system and/or design and classify their own imaginary organism using branching keys)</li> </ol>
<p>Key Vocabulary</p>	<p>Circuit, symbol, cell/battery, current, voltage, resistance, electrons, lamp/bulb, indicator, lighting, wire, switch, motor, buzzer Light, light source, reflection, incident ray, reflected ray, the law of reflection, refraction visible spectrum, prism, shadow, transparent, translucent, opaque, angle</p>	<p><b>Dependent variable</b> – what you are measuring during an experiment. <b>Independent variable</b> – what you are changing during an experiment. <b>Control variables</b> – what you are keeping the same to ensure you have a valid test Circulatory system, heart, blood vessels, oxygenated blood, deoxygenated blood, drug, alcohol, nutrients</p>	<p>Characteristics, classify, taxonomist, key, species, bacteria, microorganism, microscope Offspring, inheritance, variations, characteristics, adaption, habitat, environment, evolution, natural selection, fossil, adaptive traits, inherited traits</p>
<p>Cross Curricular</p>	<p>English – Instructions – How to make a series circuit; How to make the bulb dimmer or brighter</p>	<p>KS1/KS2 PSHE – learning about healthy choices.</p>	<p>PSHE – YR4 – Unique.</p>
<p>Working scientifically</p>	<p>Observe, compare, predict, question, answer, group, record, research, explain, reason, identify, classify, experiment, simple tests, pattern seeking</p>		
<p>SMSC</p>	<p>Spiritual – To know more and to wonder about the world. To look at the world in awe and wonder. Look for meaning and purpose in natural and physical phenomena. Have an awareness of the scale of living things from the small micro-organism to the largest. The interdependence of all living things and materials on Earth. Wonder at the vastness of space and the beauty of natural objects. Moral – To become increasingly curious. Consider the environment. Be open minded to the suggestion of others. Social – Group practical work. Teamwork and taking responsibility. Taking responsibility for their own and other people's safety. Begin to understand that science affects our lives. Begin to understand that science has a major effect on the quality of our lives Cultural – Begin to understand scientific discoveries by men and women in many cultures. Begin to understand how the environment and science are linked.</p>		

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<p><b>Cultural Capital</b></p>	<p>International Women and Girls Day in science. British science week and World science day Poster competition – Harwell Science. Injury Minimisation Programme for Schools training Junior Citizens Trust activity day</p>		
<p><b>Year 7</b></p>	<p><u>What are the scientific principles?</u> <b>The children will focus on lab safety, increasing confidence and practical ability with a range of scientific equipment. The children will be able to make links with working scientifically from primary school.</b></p> <ul style="list-style-type: none"> <li>• How do we keep safe in the lab?</li> <li>• What are variables in science?</li> <li>• What is meant by dependent, independent and control?</li> <li>• Can we use and draw graphs correctly to show our work?</li> </ul> <p><u>Chemistry - Can you separate particles?</u> <b>The children will learn about the different properties of solids, liquids and gases through their understanding of particles.</b></p> <ul style="list-style-type: none"> <li>• What are states of matter?</li> <li>• Why do states of matter have different properties?</li> <li>• What are changes of state?</li> <li>• What is diffusion?</li> <li>• What is solubility?</li> <li>• How to distill your own orange juice?</li> <li>• What is chromatography?</li> <li>• Can you obtain the greatest mass of pure salt?</li> </ul> <p><u>Chemistry – What is reactive chemistry?</u> <b>The children will carry out practical experiments involving reacting acids with metals and carbonates. They will learn about acids and alkalis. They will use various indicators to test the pH of different substances.</b></p> <ul style="list-style-type: none"> <li>• What are physical and chemical changes?</li> <li>• What is needed for combustion?</li> <li>• What happens when one of the key requirements is removed for combustion?</li> <li>• What is acid and alkali?</li> <li>• What is the pH scale and how is it used?</li> <li>• Can you make your own indicator?</li> <li>• What are neutralisation reactions?</li> <li>• Which antacid tablet is the best?</li> </ul>	<p><u>Physics – (Forces) Can we use the density of an objects to predict if it will sink or float?</u> <b>The children will measure force using a Newton metre. They will carry out a practical investigation to measure density. They will be introduced to speed, distance and time equation.</b></p> <ul style="list-style-type: none"> <li>• What is a force?</li> <li>• Can you name some forces?</li> <li>• Can you measure force?</li> <li>• How do you use a newton metre?</li> <li>• Is friction a good thing?</li> <li>• What is density?</li> <li>• Can you work out the density of objects?</li> <li>• Using the density of an object, can you predict if it will sink or float?</li> <li>• What is the speed, distance and time equation?</li> </ul> <p><u>Physics – (Solar system) Why is the moon so important to us on Earth?</u> <b>The children will begin by learning about the scale of planets in our solar system. They will learn about the phases of the moon and different eclipses.</b></p> <ul style="list-style-type: none"> <li>• Can you name the planets in our solar system?</li> <li>• What is the scale size of the planets?</li> <li>• Why do we have day/night and seasons?</li> <li>• Can you describe the phases of the moon?</li> <li>• Why is the moon important?</li> <li>• What are the different eclipses?</li> <li>• How do we carry out calculations that involve light years?</li> </ul>	<p><u>Biology – (Living things and the environment) – What are the pros and cons of selective breeding?</u> <b>The children will be able to describe key features of different habitats. They will learn about selective breeding and look at predator prey relationships. They will begin to understand food webs and the pyramid of numbers.</b></p> <ul style="list-style-type: none"> <li>• What is variation and classification?</li> <li>• What are the main groups of vertebrates?</li> <li>• Can you describe the key features of different habitats?</li> <li>• What is selective breeding?</li> <li>• What are the pros and cons of selective breeding?</li> <li>• Can you describe predator prey relationships?</li> <li>• Can you interpret a predator prey graph and give key features? E.g. What happens when the number of predators increases?</li> <li>• Can you interpret and create food webs?</li> <li>• What is a pyramid of numbers?</li> </ul> <p><u>Biology – (Cells) – What's in a cell?</u> <b>The children will draw and label plant and animal cells as well as describe the functions of the labelled parts. They will prepare their own animal (cheek) cell and plant (onion) cell and, use a microscope to look closely. They will learn about specialised cells and mitosis.</b></p> <ul style="list-style-type: none"> <li>• Can you draw and label the parts of an animal and plant cell?</li> <li>• Can you describe the functions of each part of a cell?</li> <li>• Using a microscope, can you describe what you can see?</li> <li>• What is a specialised cell?</li> <li>• How do specialised cells adapt to their functions?</li> <li>• What is mitosis?</li> <li>• How did you start out?</li> <li>• What is a fertilized egg cell?</li> </ul>
<p><b>Key Vocabulary</b></p>	<p>Variables, dependent, independent and control, graphs.  States of matter – solid, liquid, gas, particles, changes of state, properties – shape and volume, diffusion, solubility, distillation, chromatography, mass, solute, solvent, solution</p>	<p>Forces, newton metre, friction, density, speed, distance and time equation  Solar system, names of planets, scale, day, night, seasons, phases of the moon – waxing crescent, first quarter, waxing gibbous, full moon, waning gibbous, third quarter, waning crescent, eclipses – total, partial, hybrid, annular, light years</p>	<p>Variation, classification, vertebrates, habitat, features, selective breeding, predator, prey, food chain, food web, pyramid of numbers  Cells, plant cell, animal cell, nucleus, cell wall, cell membrane, cytoplasm, functions, microscope, specialised cells – red blood cell, sperm cell, egg cell, nerve cell, muscle cell, mitosis (cell division), fertilised</p>

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	Acid, alkali, reaction, carbonates, combustion, pH scale, indicator, substance, neutralisation reactions		
SMSC	Spiritual – To know more and to wonder about the world. To look at the world in awe and wonder. Look for meaning and purpose in natural and physical phenomena. Have an awareness of the scale of living things from the small micro-organism to the largest. The interdependence of all living things and materials on Earth. Wonder at the vastness of space and the beauty of natural objects. Moral – To become increasingly curious. Consider the environment. Be open minded to the suggestion of others. Scientific developments may give rise to moral dilemmas. Social – Group practical work. Teamwork and taking responsibility. Taking responsibility for their own and other people's safety. Understand that science has a major effect on the quality of our lives. Consider the benefits of scientific developments and begin to consider the social responsibility involved. Cultural – Scientific discoveries as a part of our culture. Scientific discoveries by men and women in many cultures. Environmental issues are central to science.		