




## Bonneygrove Primary School

*"The highest standards of learning and achievement for all"*

Policy Document	
Subject	Science
Approval Date Spring 2016	Review Date Spring 2021
Signed by:  Name: Lisa Kraushaar  Role: Subject Leader	Written by: School  Author name: Lisa Kraushaar

## Introduction

"This policy document sets out the school's aims, principles and strategies for the delivery of **SCIENCE**. It will form the basis for the development of Science in the school.

## Purpose of Study for Science e.g

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

## The school's aims for Science e.g

The national curriculum for science aims to ensure that all pupils:

- develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics
- develop understanding of the **nature, processes and methods of science** through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the **uses and implications** of science, today and for the future.

## The school's curriculum organisation

The school's scheme of work for **SCIENCE** is based on Herts for Learning Framework. Medium term plans are used to highlight: **SMSC**, Key Skills, learning intentions and success criteria. Adaptations are made to ensure the plan is progressive in developing pupil capability. These are used as working documents to identify additional resource needs and to indicate whether extra activities have been undertaken. Once a unit has been completed, an audit is carried out by the class teacher, for the subject leader and to inform future planning.

## **Curriculum Management**

The Science Subject leader will

1. Monitor and evaluate the school's performance in Science by carrying out classroom observations, work sampling, pupil interviews and other appropriate monitoring methods (relating to standards and progress)
2. Assist the Leadership Team in evaluating data and in developing strategies which will secure improvement.
3. Maintain a School Evaluation Form and use this as a basis for drawing up an appropriate action plan at the end of the year
4. Identify where spending is needed and secure best value from the shared CLJ budget.
5. Advise and support staff in their teaching of Science.
6. Keep well-informed about teaching and learning in Science and attend appropriate training.
7. Be familiar with the Scheme of Work for each year group in all key stages/ stages, and to know what each class is covering in Science.
8. Promote and encourage a range of extra-curricular in Science throughout the school.

## **Approaches to teaching**

The school believes that pupils learn more effectively if they are enjoying their experiences. Computing is used across the school to motivate pupils and to support teachers with the teaching of Science. The school uses community and other links to expose pupils to relevant community members for example Science Teachers provide a rich and varied input of teaching methods that motivate all types of learner. (VAK teaching), active learning to engage motivation

## **Cross Curricular links**

Cross curricular links will be used wherever possible in the teaching of Science. Links to Numeracy and Literacy are shown on the plans in foundation subjects. The main approach to the curriculum is skills based. The key concepts, principles and themes are developed through cross-curricular links with the intention of giving children, teachers and teaching assistants more opportunity to work creatively. Long term planning allows cross-curricular links to be developed through topics wherever possible

### Promoting British Values

Part of our vision at Bonneygrove is to prepare the children of the future to become valued members of society. Promoting British Values within the teaching of Science enables children to develop a sense of community and begin to understand their responsibilities and role within it.

### Recording, assessment and reporting

A variety of recording methods will be used and children's work will be regularly marked with improvement comments to move the children on. Children will make improvements to their work during improvement sessions regularly. Teachers assess children against objectives and record on Classroom monitor using Rising Stars National Curriculum criteria. Reports to parents are prepared annually with regard to child's ability linked to the skills required in Science.

### Inclusion

Regardless of a pupil's ability, ethnicity or gender the emphasis is on the whole pupil, whole school inclusive approach. We have high aspirations and expectations of all our pupils, whatever their starting points. All staff are committed in providing all children with an appropriate and high quality education within a broad-based, appropriate curriculum.

### Resources and Accommodation

"A variety of resources are available in school. These include children's reference books, teachers' resources, books, big books, CD ROMs, real artefacts and audio/visual materials. Resources can be allocated to particular year groups to ensure progression and these are kept in the classrooms.

The Science Subject leader is responsible for maintaining resources, monitoring their use and organising storage. Resource purchasing is in accordance with normal school procedures and is based upon the budget restraints. All staff are responsible for maintaining the tidiness and care of Science equipment used.

**Science resources are kept centrally in KS2 staff room organised by topics in labelled storage boxes.**

In KS1 they are kept in the PPA room organised by topics in labelled storage boxes.

Termly topic audits are completed and any new resources sourced (budget permitting)

### Homework and involvement of parents.

Homework is set where appropriate and is wherever possible aimed at involving parents. Children are expected to carry out homework to the same standard as in school and to meet deadlines. Parents will be encouraged to share skills and experiences with pupils where appropriate.

### Health and safety

Teachers are responsible for the safe delivery of Science lessons. Subject leaders are responsible for the safety of equipment and informing on the safe use of said equipment.

**SEE SEPERATE RISK ASSESSMENT DOCUMENT**

### Review



<b>GENERIC RISK ASSESSMENT</b>		<b>Physical Education</b>	
Establishment: Bonneygrove	Assessment by: Lisa Kraushaar	Date: Spring 2016	
Review Date: Spring 2017	Approved by: A. Gorolini	Date: 10.02.16	

Hazard / Risk	Who is at Risk?	Initial Risk Rating	Normal Control Measures <i>(Brief description and/or reference to source of information).</i>	Are Control Measures Y/N/NA		Additional Control Measures <i>(to take account of local/individual circumstances).</i>	Residual Risk Rating
				In Place	Adequate		
<b>Cooker/oven Burns</b> from cooker or hot food or steam.	Children and adults	H	<ul style="list-style-type: none"> <li>Warn children of dangers</li> <li>Children to only be at the cooker 2 at a time with close adult supervision.</li> <li>Oven is only used by an adult.</li> <li>Use oven gloves</li> <li>Never leave the hob unattended, even after use, supervise for 20 minutes.</li> <li>Do not leave items on top of the oven, even when turned off.</li> <li>Ensure suitable fire equipment is by the cooker.</li> <li>Cooker must be checked and pass the electrical safety test.</li> <li>Warning label to be left on the oven trolley.</li> </ul>	Y	Y		M

<p>Food Contamination Food poisoning Stomach upsets</p>	<p>Children and adults</p>	<p>M</p>	<ul style="list-style-type: none"> <li>• Store food appropriately according to what it is.</li> <li>• Store in fridge that is only used for food if it needs to be chilled.</li> <li>• Store in an air-tight container, labelled - contents, sell by date, used by date.</li> <li>• Buy when needed, never use old food.</li> <li>• Adults and children to wear aprons when working with food.</li> <li>• Wash hands and tie back long hair.</li> <li>• Remind class of the importance of not coughing, sneezing or licking fingers.</li> <li>• Use anti-bacterial spray to prepare work surfaces including plastic mats.</li> <li>• Never use spray with children present.</li> <li>• Use clean cloths and tea towels for each session.</li> <li>• Adults to wash up with hot soapy water.</li> </ul>	<p>Y</p>	<p>Y</p>		<p>VL</p>
<p><b>Allergies to food</b></p>	<p>Children and adults</p>	<p>M</p>	<ul style="list-style-type: none"> <li>• Ask children to check for allergies.</li> <li>• Check class medical information records.</li> <li>• Write to parents to inform them of work to be carried out and ask for clarification of any allergies.</li> <li>• Ask parents of children with diabetes for advice about any changes in their normal routine because of the work you will be doing.</li> </ul>	<p>Y</p>	<p>Y</p>		<p>L</p>

<b>Animals and minibeasts</b> Handling and observing	Children and adults	L	<ul style="list-style-type: none"> <li>• Identify any pupils with medical conditions, including those with respiratory problems and allergies.</li> <li>• • Ensure inhalers are readily available.</li> <li>• • Warn pupils about hand, eye and mouth contact when handling creatures.</li> <li>• • Any pupil or adult with an open cut on their hands, with infected cuts or suffering from an infection, must not handle the animals or come into contact with them.</li> <li>• • Collect small creatures for study using a pooter or fine paintbrush to avoid harming them.</li> <li>• • Return small invertebrates collected from the environment as soon as possible.</li> <li>• • Limit the amount of frogspawn kept, and return to the same pond where originally collected before metamorphosis is complete.</li> <li>• • Check out facilities for washing hands at farms and zoos.</li> <li>• • Pupils and adults must wash their hands after touching animals or cages.</li> </ul>	Y	Y		VL
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<b>Environment</b> Working in outdoor areas	Children and adults	L	<ul style="list-style-type: none"> <li>• • Before working in a pond, identify pupils with cuts, grazes or broken skin and cover area.</li> <li>• • Check for suitable dipping places that are not slippery or too steep. Choose a spot where the water is shallow round the edge.</li> <li>• • Check areas prior to visit for sharp objects, poisonous plants or contamination by animals.</li> <li>• • Check that pupils are wearing sturdy footwear.</li> <li>• • Limit amount of frogspawn kept and return to the same pond where originally collected wherever possible before metamorphosis is complete.</li> <li>• • Pupils and adults must wash their hands after touching animals or plants.</li> <li>• • Collect small creatures for study using a pooter or fine paintbrush to avoid harming them.</li> <li>• • Return small invertebrates collected from environment as soon as possible.</li> <li>• • Develop a code of practice for visits into the school environment and local sites.</li> </ul>	Y	Y		VL
<b>Plants</b> Growing and handling plants	Children and adults	L	<ul style="list-style-type: none"> <li>• Display common poisonous species and instruct pupils as to hazards.</li> <li>• • Cover all cuts and grazes.</li> <li>• • Use sterilised soil or potting compost for planting seeds.</li> <li>• • Wash hands after touching plants and soil.</li> <li>• • Wear plastic gloves.</li> <li>• • Warn pupils of dangers of hand, eye and mouth contact.</li> </ul>	Y	Y		VL

<b>Microorganisms</b> Touching and experimenting with	Children and adults	L	<ul style="list-style-type: none"> <li>• Wash hands with soap and water before and after.</li> <li>• • Cover cuts and grazes.</li> <li>• • Keep cultures, such as mouldy bread and other foodstuffs, in sealed containers and dispose of with normal school waste without unsealing when finished.</li> <li>• • Keep away from other foodstuffs (such as in a fridge) to avoid contamination.</li> <li>• • Containers used for growing yeast should only be loosely plugged with cotton wool.</li> <li>• • Wear plastic gloves.</li> <li>• • Tell pupils they must not make hand, eye and mouth contact.</li> </ul>	Y	Y		VL
<b>Testing materials</b>	Children and adults	M	<ul style="list-style-type: none"> <li>• Wear goggles if testing strength or if there is the risk of brittle plastic breaking.</li> <li>• • When squashing rigid materials use a vice or G-clamp.</li> <li>• • Wear strong gardening gloves to protect hands when testing rigid materials.</li> <li>• • Avoid glass.</li> <li>• • Warn pupils of the dangers of breaking wires and elastic bands under tension.</li> </ul>	Y	Y		L

<b>Heating materials</b>	Children and adults	L	<ul style="list-style-type: none"> <li>• Identify any pupils with medical conditions, including those with respiratory problems.</li> <li>• • Ensure inhalers are readily available.</li> <li>• • Ensure room is well ventilated.</li> <li>• • Use a snuffer to extinguish candles.</li> <li>• • Fix candles or night lights on a stable base and place in a sand tray.</li> <li>• • Use safety matches.</li> <li>• • Secure loose clothing, such as at the wrist.</li> <li>• • Tie back long hair.</li> <li>• • Limit quantities of materials to be melted.</li> <li>• • Wear goggles.</li> <li>• • Ensure a bucket of cold water is readily accessible in the event of a burn.</li> <li>• • Pupils should be taught not to sit down during heating activities, so they can move more quickly if there is an accident.</li> </ul>	Y	Y		VL
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<b>Working with liquids</b>	Children and adults	L	<ul style="list-style-type: none"> <li>• Identify any pupils with skin allergies - wear gloves.</li> <li>• • Blow through straw or use shaped bubble blowers.</li> <li>• • Use absorbent material to cover area to avoid slipping. Warn pupils of the dangers of spilt liquids.</li> <li>• • To avoid spillage, encourage pupils to carry small containers of water within a larger one such as in a bucket.</li> <li>• • If hot water is required other than from sink, ensure adult supervision.</li> <li>• • Restrict other liquids to cooking ingredients such as vinegar, cooking oil, syrup.</li> <li>• • Site activities away from electrical appliances and mains supply.</li> <li>• • For mixing purposes, use only cooking ingredients.</li> </ul>	Y	Y		VL
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<b>Burning materials</b>	Children and adults	M	<ul style="list-style-type: none"> <li>• Identify any pupils with medical conditions, including those with respiratory problems.</li> <li>• • Ensure inhalers are readily available.</li> <li>• • Ensure room is well ventilated.</li> <li>• • Use a snuffer to extinguish candles.</li> <li>• • Fix candles or night lights on a stable base and place in a sand tray.</li> <li>• • Use safety matches.</li> <li>• • Secure loose clothing, such as at the wrist.</li> <li>• • Tie back long hair.</li> <li>• • Limit quantities of materials to be melted.</li> <li>• • Wear goggles.</li> <li>• • Ensure a bucket of cold water is readily accessible in the event of a burn.</li> <li>• • Pupils should be taught not to sit down during heating activities, so they can move more quickly if there is an accident.</li> </ul>	Y	Y		L
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<b>Mixing materials</b>	Children and adults	L	<ul style="list-style-type: none"> <li>• Identify any pupils with medical conditions, including those with respiratory problems.</li> <li>• • Ensure inhalers are readily available.</li> <li>• • Ensure room is well ventilated.</li> <li>• • Use a snuffer to extinguish candles.</li> <li>• • Fix candles or night lights on a stable base and place in a sand tray.</li> <li>• • Use safety matches.</li> <li>• • Secure loose clothing, such as at the wrist.</li> <li>• • Tie back long hair.</li> <li>• • Limit quantities of materials to be melted.</li> <li>• • Wear goggles.</li> <li>• • Ensure a bucket of cold water is readily accessible in the event of a burn.</li> <li>• • Pupils should be taught not to sit down during heating activities, so they can move more quickly if there is an accident.</li> </ul>	Y	Y		VL
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<p><b>Electricity and electrical conductivity</b></p>	<p>Children and adults</p>	<p>L</p>	<ul style="list-style-type: none"> <li>• Teach pupils the following:</li> <li>• • electricity can kill</li> <li>• • wires and plugs may become hot and cause minor burn</li> <li>• • never touch electrical appliances, plugs or sockets with wet hands</li> <li>• • keep electrical appliances away from water</li> <li>• • inform an adult if plugs or equipment appear to have a fault, are damaged, or the lead is frayed or burnt, and do not switch on</li> <li>• • switch off at the socket before plugging in or unplugging a piece of equipment</li> <li>• • remove a plug from a socket by holding the plug itself and not by pulling the lead</li> <li>• • check that there are no trailing wires. If there are, tuck them out of the way to prevent accidents.</li> <li>• • Turn handles inwards.</li> <li>• • Indicate when cooker is switched on, such as large hot sign.</li> <li>• • Turn off appliance immediately after use.</li> <li>• • Teach pupils to pull clingfilm from the furthest edge of the container towards themselves so as to allow the steam to escape.</li> <li>• • Avoid re-heating liquids that have already been boiled in microwave ovens. Let heated liquids stand in the microwave before use.</li> <li>• • Melt materials such as foods or wax indirectly, such as over a saucepan of hot water.</li> <li>• • Teach pupils the procedure for dealing with burns</li> </ul>	<p>Y</p>	<p>Y</p>		<p>VL</p>
			<ul style="list-style-type: none"> <li>• • Ensure leads are tucked out of the way to prevent accidents</li> </ul>				

<b>Electricity - batteries and circuits</b>	Children and adults	L	<ul style="list-style-type: none"> <li>• Teach pupils how to prevent short circuiting batteries.</li> <li>• • Ask pupils to disconnect wires from the battery during breaks in the lesson.</li> <li>• • Avoid mixing different types of batteries in investigative work.</li> <li>• • Dispose of batteries when the voltage has dropped below the level at which they can be used, as they may begin to leak.</li> <li>• • The contents of batteries may be corrosive and toxic. Avoid cutting open.</li> <li>• • Store batteries so that the terminals do not touch to avoid the danger of short circuiting, overheating and fire.</li> <li>• • Do not use rechargeable batteries or car batteries.</li> <li>• Teach pupils how to prevent short circuiting batteries.</li> <li>• • Ask pupils to disconnect wires from the battery during any breaks in the lesson.</li> <li>• • Include a component in a circuit when using lengths of wire to make a resistor or an electromagnet.</li> <li>• • Warn pupils that steel wool and aluminium foil may become hot or burn when conducting electricity.</li> </ul>	Y	Y		L
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<b>Wire strippers</b> Metal fragment injuries Punching in eye	Children and adults	L	<ul style="list-style-type: none"> <li>• Teach skills and model safe use.</li> <li>• Dinosaur cutters should be used - never pull them as your hand could slip or the wire could snap.</li> <li>• A dinosaur cutter will bite (cut) then swallow (strip) without pulling - demonstrate.</li> <li>• Be aware that wire is sharp and take extra care with it.</li> <li>• Adult supervision is needed in groups.</li> <li>•</li> </ul>	Y	Y		VL
<b>Electrical Items</b> Electric shock/burns Trip on wire	Children and adults	M	<ul style="list-style-type: none"> <li>• Teach skills and model safe use.</li> <li>• Never use rechargeable batteries with children.</li> <li>• Never mix rechargeable batteries with other batteries.</li> <li>• Never store batteries end to end.</li> <li>• Never use electrical appliances or equipment near water.</li> <li>• Trailing leads should be avoided at all times - either cover with matting or trail leads over table tops.</li> <li>• Store safely</li> </ul>	Y	Y		L
<b>Magnetism</b>	Children and adults	L	<ul style="list-style-type: none"> <li>• Iron filings must be placed in a sealed container.</li> <li>• • Wash hands after contact with loose iron filings.</li> <li>• • Raise pupils' awareness of effect of falling objects. Place a box containing soft, absorbent material to cushion falling objects.</li> <li>• • Eye protection must be worn when there is a risk of snapping or overstretching materials.</li> </ul>	Y	Y		VL

<b>Light</b>	Children and adults	L	<ul style="list-style-type: none"> <li>• • Make pupils aware of the dangers of looking at very bright lights.</li> <li>• • Teach pupils that they should never look directly at the Sun, or through binoculars, telescopes, prisms or lens.</li> <li>• • Ensure there is sufficient supervision.</li> <li>• • Tell pupils to keep away from naked flames.</li> <li>• • Identify pupils with medical conditions, including those with respiratory problems.</li> <li>• • Ensure inhalers are readily available.</li> <li>• • Ensure room is well ventilated.</li> <li>• • Use a snuffer to extinguish candles.</li> <li>• • Fix candles or night lights on a stable base and place in a sand tray.</li> <li>• • Use safety matches.</li> <li>• • Tie back long hair and secure loose clothing, such as at the wrist, when using candles or night lights.</li> <li>• • Pupils should be taught not to sit down when using candles, so they can move more quickly if there is an accident.</li> </ul>	Y	Y		VL
<b>Sound</b>	Children and adults	L	<ul style="list-style-type: none"> <li>• Instruct pupils not to shout into the trumpet or diaphragm ends of stethoscopes or tubes.</li> <li>• • Use robust materials or those designed specifically for musical activities which are unlikely to fracture when exploring sources of sounds.</li> <li>• • Teach pupils to avoid contacting a vibrating tuning fork with their teeth or glass objects.</li> <li>• • Any equipment which is placed into the mouth or ear should be disinfected after each use by a pupil.</li> </ul>	Y	Y		VL

Forces	Children and adults	L	<ul style="list-style-type: none"> <li>• Warn pupils not to put magnets near or in mouths.</li> <li>• • Teach pupils to look out for others when exploring moving objects and also know how to carry out the activity safely.</li> <li>• • Consider whether activities using flying objects would be best carried out indoors or outdoors.</li> <li>• • Avoid using brittle materials to test.</li> <li>• • Wear gloves if there is a risk of cuts when changing the shape of objects.</li> <li>• • Identify pupils with medical conditions, including those with respiratory problems.</li> <li>• • Ensure inhalers are readily available.</li> <li>• • Teach pupils to blow rather than suck when exploring bubbles.</li> <li>• • Ensure that you choose a bubble</li> <li>• Tell pupils that friction generates heat.</li> <li>• • Allow plenty of space for activities involving moving objects.</li> <li>• • Ensure hanging structures, such as pulleys, are firmly fixed.</li> <li>• • Limit the size and load of moving objects.</li> <li>• • Teach pupils to aim away from each other when testing flying objects and projectiles.</li> <li>• • Naked flames must not be used for hot air balloons.</li> </ul>	Y	Y		VL
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<b>Exercise exertion</b>	Children and adults	M	<ul style="list-style-type: none"> <li>• Identify any pupils at risk.</li> <li>• • Ensure inhalers are readily available before exercise.</li> <li>• • Judge whether such pupils can play a useful role in the learning without being subjected to undue risk.</li> <li>• • Use temperature strips or metal probes linked to digital sensors rather than glass thermometers.</li> <li>• • Where thermometers are placed in mouth, sterilise them using disinfectant solution, such as Milton.</li> </ul>	Y	Y		L
<b>Off-site events</b>	Children	L	<ul style="list-style-type: none"> <li>• Ensure children are accompanied by adults at all times and act sensibly off site.</li> <li>• Make sure teacher accompanying group has first aid kit (or access to first aid if at another school) and medicine e.g. asthma pump, if appropriate. Take mobile phone and emergency contact numbers for all children in the group.</li> </ul>	Y	Y		VL
<b>General</b>	Children and adults	L	<ul style="list-style-type: none"> <li>• Correct footwear to be worn by children and teacher.</li> <li>• T to check all equipment at the start of the lesson. T to remove any unsafe/broken equipment and notify PE leader to have fixed or removed</li> <li>• Ensure children remove/tape all earrings and remove watches.</li> <li>• T first aid trained</li> <li>• Ensure children are taught to take responsibility for own safety</li> <li>• First aid equipment and defibriliser available in both buildings</li> <li>•</li> </ul>	Y	Y		VL

<b>REVIEWS:</b>		
<b>DATE OF REVIEW:</b>	<b>REVIEWED BY:</b>	<b>COMMENTS:</b>
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