Beehive Lane Community Primary School

"Releasing the potential within all"

SCIENCE LONG TERM PLAN

	Autumn Term		Spring Term		Summer Term	
Year R	**Seasons:** Autumn	- **Seasons:** Winter - **Melting & Freezing**	**Pushes & Pulls**	**Seasons:** Spring	- **Plants** - **Lifecycles** - **Healthy Eating**	- **Floating & Sinking** - **Materials** - **Seasons:** Summer
Skills	• Explore the natural world around them • Describe what they see, hear and feel whilst outside • Understand the effect of changing seasons on the natural world around them					
Year 1	**- Animals including Humans:** Parts of the body and Senses **- Seasonal Changes:** Autumn	**Pushes & Pulls**	**Seasonal Changes:** Winter	- **Seasonal Changes:** Spring - **Materials:** Simple physical properties	**Plants**: Basic structure of plants	**- Animals including Humans:** Different types of animals **- Seasonal Changes:** Summer
Skills	• Ask simple questions and recognise that they can be answered in different ways • Observe closely, using simple equipment • Perform simple tests • Identify and classify • Use observations and ideas to suggest answers to questions • Gather and record data to help answer a question					
Year 2	**Materials**	**Animals including Humans:** Life cycles and needs	**Magical Mixtures**	**Flight**	**Plants:** How plants grow	**Living Things and their Habitats:** Food chains
Skills	• Ask simple questions and recognise that they can be answered in different ways • Observe closely, using simple equipment • Perform simple tests • Identify and classify • Use observations and ideas to suggest answers to questions • Gather and record data to help answer a question					
Year 3	**Rocks and Soils**	**Forces and Magnets**	**Materials and their properties**	**Light**	**Plants:** - The function of different parts of plants - The life cycle of flowering plants	**Animals including Humans:** The Musculoskeletal System
Skills	• Ask relevant questions and use different types of scientific enquiries to answer them • Set up simple practical enquiries, comparative and fair tests • Make systematic and careful observations and take accurate measurements using standard units, using a range of equipment • Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables					

	• Report on findings from enquiries, including oral and written explanations and conclusions • Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Identify differences, similarities or changes related to simple scientific ideas and processes • Use straightforward scientific evidence to answer questions or support findings					
Year 4	**Living Things and their Habitats:** Classification, Food Chains and Food Webs	**States of Matter**	**Sound**	**Forces:** Gravity, Friction	**Animals including Humans:** The Digestive System	**Electricity**
Skills	• Ask relevant questions and use different types of scientific enquiries to answer them • Set up simple practical enquiries, comparative and fair tests • Make systematic and careful observations and take accurate measurements using standard units, using a range of equipment • Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables • Report on findings from enquiries, including oral and written explanations and conclusions • Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Identify differences, similarities or changes related to simple scientific ideas and processes • Use straightforward scientific evidence to answer questions or support findings					
Year 5	**Properties of Materials**	**Animals including Humans:** From birth to old age	**Earth and Space**	**Forces & Mechanisms:** Levers, Pulleys, Gears	**Materials:** Changes and Separation	**Living Things and their Habitats:** Plant Reproduction
Skills	• Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • Record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • Use test results to make predictions to set up further comparative and fair tests • Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results • Identify scientific evidence that has been used to support or refute ideas or argument					
Year 6	- **CSI: Crime Solving** - **Micro-organisms**	**Living Things and their Habitats:** Linnaean Taxonomy	**Light**	**Animals including Humans:** The Circulatory System	**Evolution and Inheritance**	**Electricity**
Skills	• Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • Record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • Use test results to make predictions to set up further comparative and fair tests • Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results • Identify scientific evidence that has been used to support or refute ideas or argument					

SKILLS PROGRESSION IN SCIENCE

	Year R		
From Development Matters			- Explore the natural world around them - Describe what they see, hear and feel whilst outside - Understand the effect of changing seasons on the natural world around them

	Year 1 & 2	Year 3 & 4	Year 5 & 6
National Curriculum	- Ask simple questions and recognise that they can be answered in different ways - Observe closely, using simple equipment - Perform simple tests - Identify and classify - Use observations and ideas to suggest answers to questions - Gather and record data to help answer a question	- Ask relevant questions and use different types of scientific enquiries to answer them - Set up simple practical enquiries, comparative and fair tests - Make systematic and careful observations and take accurate measurements using standard units, using a range of equipment - Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables - Report on findings from enquiries, including oral and written explanations and conclusions - Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions - Identify differences, similarities or changes related to simple scientific ideas and processes - Use straightforward scientific evidence to answer questions or support findings	- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary - Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate - Record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs - Use test results to make predictions to set up further comparative and fair tests - Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results - Identify scientific evidence that has been used to support or refute ideas or argument
Questioning	- Who? What? Where? When? How many? - Understanding: What happened when? What do you notice about …? Why do you think … happened?	- Who? What? Where? When? How many? - Understanding: What happened when? What do you notice about …? Why do you think … happened? - Applying knowledge: What do you want to find out? Where are you going to start? What variables do you need to consider/control? - Analysing investigations: What do your results tell you? Why did … happen? If you did …, what do you think would happen?	- Who? What? Where? When? How many? - Understanding: What happened when? What do you notice about …? Why do you think … happened? - Applying knowledge: What do you want to find out? Where are you going to start? What variables do you need to consider/control? - Analysing investigations: What do your results tell you? Why did … happen? If you did …, what do you think would happen? - Evaluating investigations: What surprised you about the results/outcome? Why were there some surprise results? What would you change if you re-did the investigation? - Future: How do your findings help with …? What other questions do you have now? How are you going to investigate those?
Sorting/ Classifying	- Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying and classifying)	- Talk about criteria for grouping, sorting and classifying - Use simple keys	- Use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment
Observing	- Use simple equipment to observe closely: shape, size, position, number, colour, weight + other physical properties as appropriate - With help, observe changes over time	- Make systematic and careful (measured where appropriate) observations: shape, size, position, number, colour, weight, texture, structure, pattern/markings, reactions + other physical properties as appropriate - Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used	- Make decisions about what observations to make, what measurements to use and how long to make them for: shape, size, position, number, colour, weight, texture, structure, pattern/markings, reactions + other physical properties as appropriate, changes over time, the effect of changing variables (eg number of components in an electrical circuit, type of electrical circuit) - Identify similarities and differences to compare 2 or more items

Testing	- Begin to recognise different ways in which they might answer scientific questions - Carry out simple tests	- Start to make decisions about the most appropriate type of scientific enquiry to answer questions - Set up simple practical enquiries, comparative and fair tests - Recognise when a simple fair test is necessary and help to decide how to set it up	- Select and plan the most appropriate type of scientific enquiry to use to answer scientific questions - Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why
Predicting	- Make a prediction – what will happen? Start to suggest reasons why that might happen	- Make predictions based on existing scientific knowledge	- Make and explain predictions based on existing scientific knowledge
Measuring	- Use simple measurements and equipment to gather data	- Take accurate measurements using standard units - Learn how to use a range of new equipment appropriately	- Choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately - Understand the purpose of taking repeat readings - Understand how to calculate the mean of a set of data and when/why this is useful
Recording	Record simple data: tables, diagrams, tally charts, bar graphs	- Collect and record data from observations and measurements in a variety of ways: notes, bar charts and tables, standard units, drawings, labelled diagrams, keys and help to make decisions about how to analyse this data	- Decide how to record data and results of increasing complexity from a choice of familiar approaches: labelled diagrams, results tables, classification keys, bar charts, line graphs, flow charts, scatter graphs
Conclusions & Evaluations	- With guidance, begin to notice patterns and relationships - Use observations and ideas to suggest answers to questions - Talk about what they have found out and how they found it out - With help, record and communicate findings in a range of ways and begin to use simple scientific language	- With help, look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions - Use relevant simple scientific language to discuss ideas and communicate findings - Begin to look for patterns and decide what data to collect to identify them - With support, identify new questions arising from data, making predictions for new values within or beyond the data collected and finding ways of improving what has already been done	- Look for different patterns and relationships in data and identify evidence that refutes or supports ideas - Use relevant scientific language and illustrations to communicate and explain findings - Ask follow-up questions to set up further investigations
Secondary sources	- Ask people questions and use simple secondary sources to find answers	- Recognise when and how secondary sources might help to answer questions that cannot be answered through practical investigations	Recognise which secondary sources will be most useful to research ideas and begin to separate opinion from fact