

Sc 1 Scientific enquiry	Sc2 Life processes and living things	Sc 3 Materials and their properties	Sc 4 Physical processes
Pupils describe or respond appropriately to simple features of objects, living things and events they observe, communicating their findings in simple ways [for example, talking about their work, through drawings, simple charts].	Pupils recognise and name external parts of the body [for example, head, arm] and of plants [for example, leaf, flower].	Pupils know about a range of properties [for example, texture, appearance] and communicate observations of materials in terms of these properties.	Pupils communicate observations of changes in light, sound or movement that result from actions [for example, switching on a simple electrical circuit, pushing and pulling objects].
Pupils respond to suggestions about how to find things out and, with help, make their own suggestions about how to collect data to answer questions.	They communicate observations of a range of animals and plants in terms of features [for example, colour of coat, size of leaf].	Pupils identify a range of common materials and know about some of their properties.	They recognise that sound and light come from a variety of sources and name some of these.
They use simple texts, with help, to find information.	They recognise and identify a range of common animals [for example, fly, goldfish, robin].	They describe similarities and differences between materials.	Pupils know about a range of physical phenomena and recognise and describe similarities and differences associated with them.
They use simple equipment provided and make observations related to their task.	Pupils use their knowledge about living things to describe the basic conditions [for example, a supply of food, water, air, light] that animals and plants need in order to survive.	They sort materials into groups and describe the basis for their groupings in everyday terms [for example, shininess, hardness, smoothness].	They compare the way in which devices [for example, bulbs] work in different electrical circuits.
They observe and compare objects, living things and events.	They recognise that living things grow and reproduce.	They describe ways in which some materials are changed by heating or cooling or by processes such as bending or stretching.	They compare the brightness or colour of lights, and the loudness or pitch of sounds.
They describe their observations using scientific vocabulary and record them, using simple tables when appropriate.	They sort living things into groups, using simple features.	Pupils use their knowledge and understanding of materials when they describe a variety of ways of sorting them into groups according to their properties.	They compare the movement of different objects in terms of speed or direction.
They say whether what happened was what they expected.	They describe the basis for their groupings [for example, number of legs, shape of leaf].	They explain simply why some materials are particularly suitable for specific purposes [for example, glass for windows, copper for electrical cables].	Pupils use their knowledge and understanding of physical phenomena to link cause and effect in simple explanations [for example, a bulb failing to light because of a break in an electrical circuit, the direction or speed of movement of an object changing because of a push or a pull].
Pupils respond to suggestions and put forward their own ideas about how to find the answer to a question.	They recognise that different living things are found in different places [for example, ponds, woods].	They recognise that some changes [for example, the freezing of water] can be reversed and some [for example, the baking of clay] cannot, and they classify changes in this way.	They begin to make simple generalisations about physical phenomena [for example, explaining that sounds they hear become fainter the further they are from the source].
They recognise why it is important to collect data to answer questions.	Pupils use their knowledge and understanding of basic life processes [for example, growth, reproduction] when they describe differences between living and nonliving things.	Pupils demonstrate knowledge and understanding of life processes and living things drawn from the Key Stage 2 or Key Stage 3 programme of study.	Pupils demonstrate knowledge and understanding of physical processes drawn from the Key Stage 2 or Key Stage 3 programme of study.
They use simple texts to find information.	They provide simple explanations for changes in living things [for example, diet affecting the health of humans or other animals, lack of light or water altering plant growth].	They use scientific names for some major organs of body systems [for example, the heart at Key Stage 2, the stomach at Key Stage 3] and identify the position of these organs in the human body.	They describe and explain physical phenomena [for example, how a particular device may be connected to work in an electrical circuit, how the apparent position of the Sun changes over the course of a day].
They make relevant observations and measure quantities, such as length or mass, using a range of simple equipment.	They identify ways in which an animal is suited to its environment [for example, a fish having fins to help it swim].	They describe differences between the properties of different materials and explain how these differences are used to classify substances [for example, as solids, liquids, gases at Key Stage 2, as acids, alkalis at Key Stage 3].	They make generalisations about physical phenomena [for example, motion is affected by forces, including gravitational attraction, magnetic attraction and friction].
Where appropriate, they carry out a fair test with some help, recognising and explaining why it is fair.	Pupils demonstrate knowledge and understanding of life processes and living things drawn from the Key Stage 2 or Key Stage 3 programme of study.	They describe some methods [for example, filtration, distillation] that are used to separate simple mixtures.	They use physical ideas to explain simple phenomena [for example, the formation of shadows, sounds being heard through a variety of materials].
They record their observations in a variety of ways.	They use keys based on observable external features to help them to identify and group living things systematically.	They use scientific terms [for example, evaporation, condensation] to describe changes.	Pupils demonstrate knowledge and understanding of physical processes drawn from the Key Stage 2 or Key Stage 3 programme of study.
They provide explanations for observations and for simple patterns in recorded measurements.	They recognise that feeding relationships exist between plants and animals in a habitat, and describe these relationships using food chains and terms [for example, predator and prey].	They use knowledge about some reversible and irreversible changes to make simple predictions about whether other changes are reversible or not.	They use ideas to explain how to make a range of changes [for example, altering the current in a circuit, altering the pitch or loudness of a sound].
They communicate in a scientific way what they have found out and suggest improvements in their work.	Pupils demonstrate an increasing knowledge and understanding of life processes and living things drawn from the Key Stage 2 or Key Stage 3 programme of study.	They use simple models to explain effects that are caused by the movement of the Earth [for example, the length of a day or year].	They use some abstract ideas in descriptions of familiar phenomena [for example, objects are seen when light from them enters the eye at Key Stage 2, forces are balanced when an object is stationary at Key Stage 3].
Pupils recognise that scientific ideas are based on evidence.	They describe the main functions of organs of the human body [for example, the heart at Key Stage 2, stomach at Key Stage 3], and of the plant [for example, the stamen at Key Stage 2, root hairs at Key Stage 3].	Pupils demonstrate an increasing knowledge and understanding of materials and their properties drawn from the Key Stage 2 or Key Stage 3 programme of study.	They use simple models to explain effects that are caused by the movement of the Earth [for example, the length of a day or year].
In their own investigative work, they decide on an appropriate approach [for example, using a fair test] to answer a question.	They explain how these functions are essential to the organism.	They describe some metallic properties [for example, good electrical conductivity] and use these properties to distinguish metals from other solids.	
Where appropriate, they describe, or show in the way they perform their task, how to vary one factor while keeping others the same.	They describe the main stages of the life cycles of humans and flowering plants and point out similarities.	They identify a range of contexts in which changes [for example, evaporation, condensation] take place.	
Where appropriate, they make predictions.	They recognise that there is a great variety of living things and understand the importance of classification.	They use knowledge about how a specific mixture [for example, salt and water, sand and water] can be separated to suggest ways in which other similar mixtures might be separated.	
They select information from sources provided for them.	They explain that different organisms are found in different habitats because of differences in environmental factors [for example, the availability of light or water].		
They select suitable equipment and make a series of observations and measurements that are adequate for the task.			
They record their observations, comparisons and measurements using tables and bar charts.			
They begin to plot points to form simple graphs, and use these graphs to point out and interpret patterns in their data.			
They begin to relate their conclusions to these patterns and to scientific knowledge and understanding, and to communicate them with appropriate scientific language.			
They suggest improvements in their work, giving reasons.			
Pupils describe how experimental evidence and creative thinking have been combined to provide a scientific explanation [for example, Jenner's work on vaccination at Key Stage 2, Lavoisier's work on burning at Key Stage 3].			
When they try to answer a scientific question, they identify an appropriate approach.			
They select from a range of sources of information.			
When the investigation involves a fair test, they identify key factors to be considered.			
Where appropriate, they make predictions based on their scientific knowledge and understanding.			
They select apparatus for a range of tasks and plan to use it effectively.			
They make a series of observations, comparisons or measurements with precision appropriate to the task.			
They begin to repeat observations and measurements and to offer simple explanations for any differences they encounter.			
They record observations and measurements systematically and, where appropriate, present data as line graphs.			
They draw conclusions that are consistent with the evidence and begin to relate these to scientific knowledge and understanding.			
They make practical suggestions about how their working methods could be improved.			
They use appropriate scientific language and conventions to communicate quantitative and qualitative data.			

<b>Key:</b>
Level 1
Level 2
Level 3
Level 4
Level 5



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Pupils respond to suggestions about how to find things out and, with help, make their own suggestions about how to collect data to answer questions.	They communicate observations of a range of animals and plants in terms of features [for example, colour of coat, size of leaf].	Pupils identify a range of common materials and know about some of their properties.	They recognise that sound and light come from a variety of sources and name some of these.
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They use simple equipment provided and make observations related to their task.	Pupils use their knowledge about living things to describe the basic conditions [for example, a supply of food, water, air, light] that animals and plants need in order to survive.	They sort materials into groups and describe the basis for their groupings in everyday terms [for example, shininess, hardness, smoothness].	They compare the way in which devices [for example, bulbs] work in different electrical circuits.
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They describe their observations using scientific vocabulary and record them, using simple tables when appropriate.	They sort living things into groups, using simple features.	Pupils use their knowledge and understanding of materials when they describe a variety of ways of sorting them into groups according to their properties.	They compare the movement of different objects in terms of speed or direction.
They say whether what happened was what they expected.	They describe the basis for their groupings [for example, number of legs, shape of leaf].	They explain simply why some materials are particularly suitable for specific purposes [for example, glass for windows, copper for electrical cables].	Pupils use their knowledge and understanding of physical phenomena to link cause and effect in simple explanations [for example, a bulb failing to light because of a break in an electrical circuit, the direction or speed of movement of an object changing because of a push or a pull].
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They make relevant observations and measure quantities, such as length or mass, using a range of simple equipment.	They identify ways in which an animal is suited to its environment [for example, a fish having fins to help it swim].	They describe some methods [for example, filtration, distillation] that are used to separate simple mixtures.	They make generalisations about physical phenomena [for example, motion is affected by forces, including gravitational attraction, magnetic attraction and friction].
Where appropriate, they carry out a fair test with some help, recognising and explaining why it is fair.	Pupils demonstrate knowledge and understanding of life processes and living things drawn from the Key Stage 2 or Key Stage 3 programme of study.	They use scientific terms [for example, evaporation, condensation] to describe changes.	They use physical ideas to explain simple phenomena [for example, the formation of shadows, sounds being heard through a variety of materials].
They record their observations in a variety of ways.	They use scientific names for some major organs of body systems [for example, the heart at Key Stage 2, the stomach at Key Stage 3] and identify the position of these organs in the human body.	They use knowledge about some reversible and irreversible changes to make simple predictions about whether other changes are reversible or not.	Pupils demonstrate knowledge and understanding of physical processes drawn from the Key Stage 2 or Key Stage 3 programme of study.
They provide explanations for observations and for simple patterns in recorded measurements.	They identify organs [for example, stamen at Key Stage 2, stigma, root hairs at Key Stage 3] of different plants they observe.	Pupils demonstrate an increasing knowledge and understanding of materials and their properties drawn from the Key Stage 2 or Key Stage 3 programme of study.	They use ideas to explain how to make a range of changes [for example, altering the current in a circuit, altering the pitch or loudness of a sound].
They communicate in a scientific way what they have found out and suggest improvements in their work.	They use keys based on observable external features to help them to identify and group living things systematically.	They describe some metallic properties [for example, good electrical conductivity] and use these properties to distinguish metals from other solids.	They use some abstract ideas in descriptions of familiar phenomena [for example, objects are seen when light from them enters the eye at Key Stage 2, forces are balanced when an object is stationary at Key Stage 3].
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