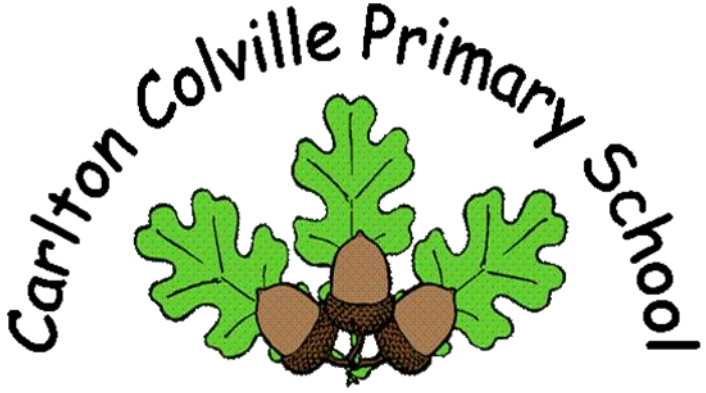

Science

Assessment Document

Defining B.A.D.

Depth of Learning	Cognitive challenge	Nature of progress	Typically, pupils will	Predominant teaching style
Basic (Fundamental foundations)	Low level cognitive demand. Involves following instructions.	Acquiring	name, describe, follow instructions or methods, complete tasks, recall information, ask basic questions, use, match, report, measure, list, illustrate, label, recognise, tell, repeat, arrange, define, memorise.	Modelling Explaining
Advancing (Application of the fundatmental Foundations)	Higher level of cognitive demand. Involves mental processing beyond recall. Requires some degree of decision making.	Practising	apply skills to solve problems, explain methods, classify, infer, categorise, identify patterns, organise, modify, predict, interpret, summarise, make observations, estimate, compare.	Reminding Guiding
Deep (Inventive use of the fundamental foundations)	Cognitive demands are complex and abstract. Involves problems with multi-steps or more than one possible answer. Requires justification of answers.	Deepening Understanding	solve non-routine problems, appraise, explain concepts, hypothesise, investigate, cite evidence, design, create, prove.	Coaching Mentoring

Defining B1 - D2

Depth of Learning	Cognitive challenge	Nature of progress
Basic (Fundamental foundations)	1	Some evidence of some of the indicators
	2	Widespread evidence of some of the indicators
Advancing (Application of the fundamental foundations)	3	Some evidence of most of the indicators
	4	Widespread evidence of most of the indicators
Deep (Inventive use of the fundamental foundations)	5	Some evidence of all of the indicators
	6	Widespread evidence of all of the indicators

Milestone 1

Note: Independently or 'without support' means – Choosing to by oneself not when asked.

Assessment criteria for science

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
Working scientifically	To work scientifically	Ask simple questions. [1]	With the support of a teacher, simple questions can be asked, using: How? What will happen if? Why? With the support of a teacher, questions can be sorted into those that can be answered by trying them out and those that cannot.	Generally, simple questions are asked. Generally, questions that can be tested can be asked. [1] Generally, questions can be sorted into those that can be answered by trying it out and those that cannot. [1]	Without support, simple questions are asked. Questions that lead to scientific enquiry are asked independently.
		Observe closely, using simple equipment. [2a]	With the support of a teacher, close observations are made and instructions are followed for using simple equipment correctly and safely. Generally, close observations are made, equipment is chosen from a limited range and simple equipment is used correctly.	Close observations are made over time, using simple equipment. [2a]	Without support, an explanation can be given as to why something has happened, using appropriate scientific vocabulary. Close observations are made independently, using simple equipment.
		Perform simple tests. [2d]	With the support of a teacher, simple tests are performed.	Generally, simple tests are performed. [2d]	More complex tests, such as fair tests, are beginning to be performed.
		Identify and classify. [2c]	With the support of a teacher, there is an ability to classify.	Generally, there is an ability to classify. [2c]	There is an ability to independently classify using more complicated taxonomies, etc.
		Use observations and ideas to suggest answers to questions. [2a] [3]	With the support of a teacher, observations and ideas are used to suggest 'why' something has happened and to answer questions. With guidance, some measurements of what is observed occur. These observations are non-standard, e.g. loud, quiet, short, long.	Observations and ideas are used to suggest answers to questions, using appropriate vocabulary. [2a] Generally, systematic observations and measurements of what is observed are made using appropriate vocabulary. [3]	Observations and ideas are used to suggest answers to questions independently. Without support, systematic observations and measurements of what is observed are made.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
		Gather and record data to help in answering questions. [2][2e]	With support, data is gathered and recorded to help in answering questions; drawings and tables are used to show evidence.	Generally, observations are recorded using ICT and on paper, using text, drawings and labelled diagrams. [2] Generally, data is gathered and recorded to help in answering questions. [2] Prepared tables and block graphs are generally used to help record data. [2] Secondary sources are used to find evidence.[2e]	Observations are recorded independently using ICT and on paper, using text, drawings and labelled diagrams. Prepared tables and block graphs are used to present information without support. Independently, data is gathered and recorded to help in answering questions.
Biology	To understand plants	Identify and name a variety of common plants, including garden plants, wild plants and trees and those classified as deciduous and evergreen.	With the support of a teacher, a variety of common plants and trees are identified and named. With the support of a teacher, plants and trees can be classified as deciduous and evergreen.	Generally, a variety of common plants and trees and those classified as deciduous and evergreen are identified and named.	Without support, a variety of common plants and trees and those classified as deciduous and evergreen are identified and named.
		Identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers. [8]	With support, the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers, is identified and described.	The basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers, is identified and described. [8]	The basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers, is identified and described independently.
		Observe and describe how seeds and bulbs grow into mature plants. [6]	Observations are made of how seeds and bulbs grow into mature plants and, with support, this process can be described.	Generally, observations are made and descriptions are given of how seeds and bulbs grow into mature plants. [6]	Without support, observations are made and descriptions are given of how seeds and bulbs grow into mature plants.
		Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. [12]	With support, the basic conditions required for plants to survive (food, water, air, warmth and light) are described.	The conditions required for plants to grow and stay healthy (food, water, air, warmth and light) are identified and described. [12]	Without support, the conditions required for plants to grow and stay healthy (food, water, air, warmth and light) are identified and described. Explanations are beginning to be offered for changes in living things, e.g. light or water altering plant growth.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
	To understand animals and humans	Identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates.	With support, some common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates are identified and named.	Generally, some common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates are identified and named. Generally, living things can be sorted into groups with justification as to why they have been placed into these groups.	Common animals are classified as birds, fish, amphibians, reptiles, mammals and invertebrates independently.
		Identify and name a variety of common animals that are carnivores, herbivores and omnivores. [9]	Generally, a variety of common animals that are carnivores, herbivores and omnivores are identified and, with the support of a teacher, these animals are named.	A variety of common animals that are carnivores, herbivores and omnivores are identified and named. [9]	A variety of common animals that are carnivores, herbivores and omnivores are independently and confidently identified and named.
		Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets). [8]	With the support of a teacher, the structure of a variety of common animals is described.	Generally, the structure of a variety of common animals, e.g. spine, tail, fur, wings, is described. These structures can then be compared. [8]	The structure of a variety of common animals is described independently. These structures are then compared and reasons for their differences are suggested.
		Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. [4]	With the support of a teacher, the basic parts of the human body are recognised and named. With support, the part of the body associated with each sense can be identified.	The basic parts of the human body are identified, named, drawn and labelled. The part of the body associated with each sense is identified. [4]	Parts of the human body are identified, named, drawn and labelled independently. The part of the body associated with each sense is identified.
		Notice that animals, including humans, have offspring which grow into adults. [5]	With prompts, there is an awareness that animals have offspring which grow into adults.	The changes as young animals, including humans growing into adults are described. [5	The changes as young animals, including humans growing into adults are described well using scientific vocabulary.
		Investigate and describe the basic needs of animals, including humans, for survival (water, food and air). [4] [5]	With support, the basic needs of animals, including humans, for survival are described.	The basic needs of animals, including humans, for survival are investigated and described. [4] [5]	The basic needs of animals, including humans, for survival are investigated and described independently.
		Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene. [4]	With the support of a teacher, the importance for humans of exercise, hygiene and diet is described.	Generally, the importance for humans of exercise, eating the right amounts of different types of food and hygiene is described. [4]	Without support, the importance for humans of exercise, eating the right amounts of different types of food and hygiene is described.
		Describe and compare the structure of a variety of common animals. [8]	With the support of a teacher, basic descriptions of the structure of common animals are given.	The structure and variety of common animals are described. Some details are left out. [8]	Without prompts or reminders common animals are described. The terms birds, fish, amphibians, reptiles, mammals and invertebrates are used accurately.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
	To investigate living things	Explore and compare the differences between things that are living, that are dead and that have never been alive. [7]	With the support of a teacher, the differences between things that are living, that are dead and that have never been alive are described.	Generally, the differences between things that are living, that are dead and that have never been alive are explored and compared. [7]	The differences between things that are living, that are dead and that have never been alive are explored and compared.
		Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. [9]	With the support of a teacher, the fact that living things live in habitats is identified. There are the beginnings of an understanding of how different habitats provide for the basic needs of different kinds of animals and plants, e.g. the desert is the habitat for cacti and camels (living things that can store water for an amount of time).	Generally, the fact that most living things live in habitats to which they are suited is identified. [9] Generally, the way in which different habitats provide for the basic needs of different kinds of animals and plants is described, e.g. rainforest, coral reefs and the tundra are all habitats where particular kinds of plants and animals might be found. [9]	The fact that most living things live in habitats to which they are suited is independently identified. Without support, the way in which different habitats provide for the basic needs of different kinds of animals and plants is described, e.g. rainforest, coral reefs and the tundra are all habitats where particular kinds of plants and animals might be found.
		Identify and name a variety of plants and animals in their habitats, including micro-habitats. [11]	With the support of a teacher, plants and animals are named. There is some awareness of animal habitats.	Generally, plants and animals are identified and named. [11] Animals habitats are identified and described. [11]	Without prompts, a variety of plants and animals are named and described. Animals habitats are identified, described and there is an awareness of why habitats are suitable for an animal.
		Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. [9]	With the support of a teacher, simple food chains are described.	Generally, simple food chains are described. [9]	Simple food chains are described and explained.
	To understand evolution and inheritance	*Identify how humans resemble their parents in many features.*	With support, common features between offspring and their parents are described.	The way in which humans resemble their parents in many features is identified and described.	Without support, the way in which humans resemble their parents in many features is identified and described.
Chemistry	To investigate materials	Distinguish between an object and the material from which it is made. [12]	With the support of a teacher, there is the ability to distinguish between an object and the material from which it is made, e.g. a window is made from glass, a bottle is made from plastic.	Generally, there is an ability to distinguish between an object and the material from which it is made, with some corrections if needed. [12]	There is an ability independently to distinguish between an object and the material from which it is made.
		Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. [12]	With support, a variety of everyday materials are identified and named.	Generally, a variety of everyday materials are identified and named. [12]	A variety of materials are independently identified, named and compared.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
		Describe the simple physical properties of a variety of everyday materials. [12]	With support, the simplest physical properties, e.g. strength, flexibility and transparency, of a variety of everyday materials can be described.	The simple physical properties, e.g. strength, flexibility and transparency, of a variety of everyday materials are described. [12]	The simple physical properties of a variety of everyday materials are described. More complex physical properties of a variety of materials, e.g. waterproof, rigid, magnetic, hard, conductor, insulator, absorbent, are beginning to be described.
		Compare and group together a variety of everyday materials on the basis of their simple physical properties. [12]	With the support of a teacher, a variety of everyday materials can be grouped on the basis of their simple physical properties.	Generally, a variety of everyday materials are grouped and compared on the basis of their simple physical properties, using appropriate vocabulary. [12]	Without support, a variety of everyday materials are grouped and compared on the basis of their simple physical properties.
		Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. [12]	With the support of a teacher, there is an ability to find out how the shapes of solid objects made from some materials can be changed.	Generally, there is an ability to find out how the shapes of solid objects made from some materials can be changed. [12]	There is an ability to independently find out how the shapes of solid objects made from some materials can be changed.
		Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard for particular uses. [12]	With support, the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock and paper/cardboard, can be identified.	The uses of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock and paper/cardboard, are identified and compared. [12]	Without support, the uses of a variety of everyday materials including wood, metal, plastic, glass, brick/rock and paper/ cardboard are identified and compared.
Physics	To understand movement, forces and magnets	*Notice and describe how things move, using simple comparisons such as faster and slower.*	With the support of a teacher, there is an awareness of how things move, using simple comparisons such as faster and slower.	Generally, there is an awareness of the way in which things move, using simple comparisons such as faster and slower.	Without support, there is an awareness of the way in which things move, using more complex comparisons such as push and pull.
		Compare how different things move.	The way in which different things move is beginning to be compared.	The way in which different things move is compared.	The way in which different things move is compared independently.
	To understand light and seeing	*Observe and name a variety of sources of light, including electric lights, flames and the Sun, explaining that we see things because light travels from them to our eyes.*	With the support of a teacher, a variety of sources of light are observed and named. There are the beginnings of an ability to explain that we see things because light travels from them to our eyes.	Generally, a variety of sources of light are observed and named. An explanation can be given that we see things because light travels from them to our eyes.	Without support, a variety of sources of light, including electric lights, flames and the Sun, are observed and named. An explanation can be given that we see things because light travels from them to our eyes.
	To investigate sound and hearing	*Observe and name a variety of sources of sound, noticing that we hear with our ears.*	With the support of a teacher, a variety of sources of sound are observed and named, and the fact that we hear with our ears is noticed.	A variety of sources of sound are observed and the fact that we hear with our ears is noticed.	Without support, a variety of sources of sound are observed and named, and there are the beginnings of an ability to explain how we hear.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
	To understand electrical circuits	*Identify common appliances that run on electricity.*	With the support of a teacher, common appliances that run on electricity are identified.	Generally, common appliances that run on electricity are identified.	Common appliances that run on electricity are identified independently.
		Construct a simple series electrical circuit.	With the support of a teacher, a simple series electrical circuit is constructed.	A simple series electrical circuit is constructed.	Without support, a more complex series electrical circuit is constructed.
	To understand the Earth's movement in space	*Observe the apparent movement of the Sun during the day.*	With the support of a teacher, the apparent movement of the Sun during the day is observed.	Generally, the apparent movement of the Sun during the day and the way in which shadows change as this happens is observed.	Without support, the apparent movement of the Sun during the day is observed and a clear explanation can be given as to how shadows change as this happens.
		Observe changes across the four seasons. [10]	With the support of a teacher, simple changes across the four seasons are observed.	Changes across the four seasons are observed and discussed. [10]	The changes across the four seasons are observed and discussed independently, and a clear explanation can be given as to how the four seasons in the UK occur.
		Observe and describe weather associated with the seasons and how day length varies. [10]	With the support of a teacher, the weather associated with the seasons and the variation in day length is observed and described.	Generally, the weather associated with the seasons and the variation in day length is observed and described. [10]	Without support, the weather associated with the seasons and the variation in day length is observed and described.

Assessment criteria for science

Milestone 2

Note: Independently or 'without support' means – Choosing to by oneself not when asked.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
Working Scientifically	To work scientifically	Ask relevant questions.	With support, questions that are relevant begin to be asked. With the support of a teacher, questions can be sorted into those that can be answered by trying it out and those that cannot.	Relevant questions that lead to scientific investigation are generally asked. Generally, there is an awareness that there are different ways of asking scientific questions.	Questions for scientific investigations are asked and personal ideas are offered without support. Questions are beginning to be improved in order to clarify exactly what is being investigated.
		Set up simple practical enquiries and comparative and fair tests.	With support, very simple practical enquiries and comparative and fair tests are set up.	Simple practical enquiries and comparative and fair tests are set up, with prompts if necessary.	Without support, practical enquires and comparative and fair tests are set up and the most appropriate approach to an investigation is chosen.
		Make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers.	With support, accurate measurements using standard units and simple equipment begin to be made.	Generally, accurate measurements are made using standard units and a range of equipment.	Without support, accurate measurements using standard units are made and accurate readings are taken.
		Gather, record, classify and present data in a variety of ways to help in answering questions.	With support, data begins to be gathered, recorded, classified and presented in a variety of ways to help in answering questions. Generally, the most appropriate way to present data once collected is selected.	Generally, simple scientific language, drawings, labelled diagrams, bar charts and tables are used to record findings.	Data is gathered, recorded, classified and presented in a variety of ways to help in answering questions without support.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
		Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.	Very basic/simple scientific language, drawings or tables are used to record findings. With support, line graphs are used to record observations.	Generally, observations are recorded, and data is classified and presented, using tables, charts, text and labelled diagrams. A series of observations are made using standard measuring equipment for measuring most quantities.	Without support, the most appropriate way to present data once collected is selected. Points are plotted to make simple line graphs.
		Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	With support, reports on findings from enquiries are given, including oral and written explanations, displays or presentations of results and conclusions.	Generally, it is recognised why it is important to collect data in order to answer a question, and data is gathered, recorded, classified and presented in a variety of ways to help in answering questions. Reports on findings from enquiries are given, including oral and written explanations, displays or presentations of results and conclusions.	Without support, observations, including those for repeat readings, are recorded using tables and bar charts. Without support, reports on findings from enquiries are given, including oral and written explanations, displays or presentations of results and conclusions.
		Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.	With prompts, results are used to draw simple conclusions and suggest improvements. With prompts, predictions about what will happen are made.	Results are used to draw simple conclusions and suggest improvements. Generally, predictions are made as to what may happen before any tests are carried out. Reasons are suggested for predictions and further predictions are made about new, simple contexts.	Sometimes, patterns found in results are related to previous scientific knowledge, where possible. Independently, results are used to draw simple conclusions and suggest improvements, and conclusions are related to the patterns found in the results. Predictions are made without support and reasons for these predictions are offered.
		Identify differences, similarities or changes related to simple, scientific ideas and processes.	With support, differences or similarities related to simple, scientific ideas are identified.	Differences, similarities or changes related to simple, scientific ideas and processes are identified.	Without support, differences, similarities or changes related to more complex scientific ideas and processes are identified.
		Use straightforward, scientific evidence to answer questions or to support their findings.	With prompts, very basic/simple scientific evidence is used to support findings and answer questions.	Generally, appropriate scientific language and straightforward, scientific evidence is used to answer questions or to support findings.	Scientific evidence is used to answer questions or to support findings.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
Biology	To understand plants	Identify and describe the functions of different parts of flowering plants: roots, stem, leaves and flowers. [8]	With the support of a teacher, the main parts of a plant are described and the functions of different parts of flowering plants begin to be described.	Generally, the functions of different parts of flowering plants are identified and described, e.g. the roots absorb water from the soil to feed the plant, the stem helps to support the plants, the leaves use sunlight to provide the plant with energy and the flower helps the plant to reproduce. [8]	The functions of different parts of flowering plants are independently identified and described, e.g. the roots absorb water from the soil to feed the plant, the stem helps to support the plants, the leaves use sunlight to provide the plant with energy and the flower helps the plant to reproduce. The function of other parts of flowering plants begin to be described, e.g. stamen, style, stigma, anther, filament, ovary, etc.
		Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.	With the support of a teacher, the requirements of plants for life and growth are identified. With guidance, these requirements are explored.	Generally, the requirements of plants for life and growth, and how these vary from plant to plant are identified and explored.	The requirements of plants for life and growth, and how these vary from plant to plant, are independently identified and explored.
		Investigate the way in which water is transported within plants. [8]	With support, the way in which water is transported within plants is investigated.	Generally, the way in which water is transported within plants is investigated. [8]	Without support, the way in which water is transported within plants is investigated.
		Explore the role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. [8]	There are the beginnings of an awareness of the role of flowers in the life cycle of flowering plants.	The role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal, is explored. [8]	The role of flowers in the life cycle of flowering plants, including pollination, fertilisation, seed formation and seed dispersal, is explored independently.
	To understand animals and humans	Identify that animals, including humans, need the right types and amounts of nutrition, that they cannot make their own food and they get nutrition from what they eat.	There are the beginnings of an understanding of what 'nutrition' means. With the support of a teacher, the fact that animals, including humans, need the right types and amounts of nutrition is identified.	Generally, the terms 'nutrition' and a 'balanced diet' are understood. Generally, the fact that animals, including humans, need the right types and amounts of nutrition is identified.	Without support, the terms 'nutrition' and a 'balanced diet' are understood. The reasons why humans need the right types and amounts of nutrition are articulated.
		Construct and interpret a variety of food chains, identifying producers, predators and prey. [10]	With the support of a teacher, food chains are constructed. There is some awareness of the terms predator and prey.	A range of food chains are constructed or interpreted. [10] The terms predator and prey are used correctly. [10]	A wide range of food chains are constructed and interpreted. The terms predator and prey are fully understood and used accurately.
		Identify that humans and some animals have skeletons and muscles for support, protection and movement. [6]	With support, the fact that humans and some animals have skeletons and muscles for support, protection and movement is identified.	Generally, the fact that humans and some animals have skeletons and muscles for support, protection and movement is identified. [6]	Without support, the fact that humans and some animals have skeletons and muscles for support, protection and movement is identified. It is understood that invertebrates do not have a skeleton.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
		Describe the simple functions of the basic parts of the digestive system in humans. [6]	With support, the simple functions of the basic parts of the digestive system in humans, e.g. mouth, stomach, intestines, is described.	The simple functions of the parts of the digestive system in humans, e.g. mouth, oesophagus, liver, stomach, small intestine, large intestine and rectum, are described and identified. [6]	The functions of the parts of the digestive system in humans, e.g. mouth, oesophagus, liver, stomach, small intestine, large intestine and rectum, are described and identified accurately and without support.
		Identify the different types of teeth in humans and their simple functions.	With the support of a teacher, the different types of teeth in humans, e.g. molars, incisors and canines, are identified. Their simple functions begin to be recognised.	Generally, the different types of teeth in humans, e.g. molars, incisors and canines, and their simple functions, are identified. Generally, it is recognised that: canines are used for tearing and ripping food, incisors are to help bite off and chew pieces of food and molars are to help crush and grind food.	The different types of teeth in humans, e.g. molars, incisors and canines, and their simple functions, are identified independently. Without support, it is recognised that: canines are used for tearing and ripping food, incisors are to help bite off and chew pieces of food and molars are to help crush and grind food.
	To investigate living things	Explore and use classification keys.	With the support of a teacher and by using simple classification keys e.g. animal, plant, material, a variety of living things can be identified and named.	Generally, a variety of living things in the local and wider environment are identified and named, using classification keys (e.g. taxonomic titles, features, habitats) to assign them to groups. Generally, vertebrate animals are begun to be put into groups, e.g. fish, amphibians, reptiles, birds and mammals; invertebrates into groups, e.g. snails and slugs, worms, spiders and insects; and plants into groups, e.g. flowering plants, including grasses, and non-flowering plants into groups, e.g. ferns and mosses.	A variety of living things in the local and wider environment are identified and named, without support, using classification keys (e.g. taxonomic titles, features, habitats) to assign them to groups. Keys based on observable features are used to help identify and group living things systematically.
		Recognise that living things can be grouped in a variety of ways.	With the support of a teacher, the reasons for classifying plants and animals can be described. With the support of a teacher, food chains are described.	Reasons are given for classifying plants and animals based on specific characteristics. Animals are classified as predator and prey.	Without support, reasons are given for classifying plants and animals based on specific characteristics. There is an awareness that feeding relationships exist between plants and animals in a habitat, and this relationship is described using food chains and terms such as predator and prey.
		Recognise that environments can change and that this can sometimes pose dangers to specific habitats. [11]	With support, the fact that environments are changing is recognised and some potential dangers to specific habitats are identified.	Generally, it is recognised that environments are constantly changing and that this can sometimes pose dangers to specific habitats. [11]	It is recognised independently that environments are constantly changing and that this can sometimes pose dangers to specific habitats.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
	To understand evolution and inheritance	*Identify how plants and animals, including humans, resemble their parents in many features.*	With the support of a teacher, the way in which plants and animals, including humans, resemble their parents in many features is recognised.	Generally, the way in which plants and animals, including humans, resemble their parents in many features, is identified and recognised.	The way in which plants and animals, including humans, resemble their parents in many features is independently identified and explained.
		Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.	With support, the fact that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago is recognised.	It is recognised that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.	It is recognised, without support, that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.
		Identify how animals and plants are suited to and adapt to their environment in different ways.	With the support of a teacher, the fact that animals and plants are suited to and adapt to their environment in different ways is recognised.	Generally, the way in which animals and plants are suited to and adapt to their environment in different ways is identified.	The way in which a variety of animals and plants are suited to and adapt to their environment in different ways is independently recognised and explained.
Chemistry	**Rocks and Soils**				
	To investigate materials	Compare and group together different kinds of rocks on the basis of their simple, physical properties.	With support, different kinds of rocks are grouped together on the basis of their simple physical properties, e.g. soft, hard, permeable, impermeable.	Generally, different kinds of rocks are grouped together and compared on the basis of their simple physical properties, e.g. soft, hard, permeable, impermeable.	Independently, different kinds of rocks are grouped together and compared on the basis of their physical properties.
		Relate the simple physical properties of some rocks to their formation (igneous or sedimentary).	With the support of a teacher, the simple physical properties of some rocks begin to be related to their formation.	The simple physical properties of some rocks are related to their formation.	Without support, the physical properties of some rocks are related to their formation and comparisons begin to be made where appropriate.
		Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock.	With support, what a fossil is and how fossils are formed begin to be described.	Generally, there is an ability to describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock.	The way in which fossils are formed is described and explained independently.
		Recognise that soils are made from rocks and organic matter.	There is some awareness that soil is created from rocks and organic matter.	Soils are generally described accurately as being made of rocks and organic matter.	The composition of soils are described and understood. There is some awareness that different proportions of rock and organic matter give rise to different soil types.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
	States of Matter				
		Compare and group materials together, according to whether they are solids, liquids or gases.	With the support of a teacher, materials are grouped together according to whether they are solids, liquids or gases.	Materials are compared and grouped together according to whether they are solids, liquids or gases.	Materials are independently and accurately grouped and compared according to their state of matter.
		Observe that some materials change state when they are heated or cooled, and measure the temperature at which this happens in degrees Celsius (°C), building on the teaching in mathematics.	With the support of a teacher, there is an ability to observe that some materials change state when they are heated or cooled. With the support of a teacher, the temperatures at which some materials change state is measured in degrees Celsius.	Generally, it is observed that some materials change when they are heated or cooled and the temperature at which this happens is measured in degrees Celsius. This builds on the teaching in mathematics.	It is observed that some materials change when they are heated or cooled and the temperature at which this happens is measured in degrees Celsius. This builds on the teaching in mathematics.
		Identify the part played by evaporation and condensation in the water cycle, and associate the rate of evaporation with temperature.	With the support of a teacher, the water cycle begins to be understood. The terminology 'evaporation' and 'condensation' begin to be used.	Generally, the four main stages of the water cycle are understood and the part played by evaporation, condensation and precipitation in the water cycle is identified. Generally, the rate of evaporation is associated with temperature.	The four main stages of the water cycle are understood independently and this process can be articulated and explained clearly and accurately. Without support, the part played by evaporation and condensation in the water cycle is identified, and the rate of evaporation is associated with temperature.
Physics	To understand movement, force and magnets	Compare how things move on different surfaces.	With the support of a teacher, objects are moved on different textures of surface and their movement compared.	The term friction is used to describe how things move on different surfaces.	The terms friction and texture are used without prompt to explain the difference in the way that things move on different surfaces.
		Notice that some forces need contact between two objects and some forces act at a distance. [20]	With the support of a teacher, it begins to be noticed that some forces need contact between two objects and some forces act at a distance. (E.g. it may be observed that magnetic forces can act without direct contact, unlike most forces, where direct contact is necessary, e.g. opening a door or pushing a swing.)	Generally, it is noticed that some forces need contact between two objects and some forces act at a distance. (E.g. it is observed that magnetic forces can act without direct contact, unlike most forces, where direct contact is necessary, e.g. opening a door or pushing a swing.) [20]	Without support, it is noticed that some forces need contact between two objects and some forces act at a distance. Questions begin to be asked about forces that make things begin to move, get faster or slow down.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
		Observe how magnets attract or repel each other and attract some materials and not others.	The way in which magnets attract or repel each other and attract some materials and not others begins to be observed.	The way in which magnets attract or repel each other and attract some materials and not others is observed.	The way in which magnets attract or repel each other is explained.
		Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials.	With the support of a teacher, a variety of everyday materials are grouped together on the basis of whether or not they are attracted to a magnet. Some magnetic materials begin to be identified.	Generally, a variety of everyday materials are compared and grouped together on the basis of whether they are attracted to a magnet. Some magnetic materials are identified.	A variety of everyday materials are compared and grouped together on the basis of whether they are attracted to a magnet. Some magnetic materials are identified without support.
		Describe magnets as having two poles.	With the support of a teacher, magnets are experienced and described as having two poles.	The term poles is generally used to describe magnets.	The term poles is fully understood and used without prompt to describe magnets.
		Predict whether two magnets will attract or repel each other, depending on which poles are facing.	With the support of a teacher, predictions are made as to whether two magnets will attract or repel each other.	Generally, the term poles is used to help explain predictions as to whether magnets will attract or repel each other.	The rule that like poles repel and opposite poles attract is used fluently to explain predictions as to whether magnets will attract or repel each other.
	To understand light and seeing	Notice that light is reflected from surfaces.	With prompts, it is noticed that light is reflected from surfaces.	Generally, it is noticed that light is reflected from surfaces.	Without support, it is noticed that light is reflected from surfaces.
		Recognise that shadows are formed when the light from a light source is blocked by a solid object.	With the support of a teacher, it is understood that shadows are formed when a light source is being blocked by something.	Shadows are associated with a light source being blocked by something and patterns are found that determine the size of shadows.	Independently, shadows are associated with a light source being blocked by something and, without support, patterns are found that determine the size of shadows.
		Recognise that light is needed in order to see things and that dark is the absence of light.	With the support of a teacher, experiments are conducted to explore light and seeing. There is an awareness that dark is the absence of light.	Generally, accurate descriptions of how light is required in order to see are given. It is understood that dark is the absence of light.	Without prompts, fluent and accurate explanations of how light is required to see and that dark is the absence of light are given.
		Recognise that light from the sun can be dangerous and that there are ways to protect the eyes.	With the guidance of a teacher and carefully controlled situations, there is an awareness of the danger to the eyes from the sun.	Generally, it is understood that the light from the sun can be dangerous and some basic ways of protecting the eyes are understood.	A range of measures to protect the eyes from the dangers of light from the sun are described.
		Find patterns in the way that the size of shadows change.	With the support of a teacher, experiments to find patterns in the way that the size of shadows change are undertaken.	There is a general awareness that the intensity, distance of light source, angle and object causing the shadow are factors in the size and shape of shadows.	Fluent explanations describing intensity, distance, angle and object, along with evidence from experiments are used to explain patterns in the way that the size of shadows change.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
	To investigate sound and hearing	Identify how sounds are made, associating some of them with something vibrating. [18]	With the support of a teacher, the way in which sounds are made is identified.	Generally, the way in which sounds are made is identified and some of them are associated with something vibrating. [18]	Without support, the way in which sounds are made is identified and some of them are associated with something vibrating.
		Recognise that vibrations from sounds travel through a medium to the ear. [18]	With the support of a teacher, experiments to show how vibrations from sounds travel through various media to the ear.	Generally, the word vibrations is used to describe how sounds travel through various media to the ear. [18]	Fluent and clear explanations about how vibrations from sounds travel through various media to the ear are given.
	To understand electrical circuits	Identify whether or not a lamp will light in a simple series circuit based on whether or not the lamp is part of a complete loop with a battery.	With the support of a teacher, it is identified whether or not a lamp will light in a simple series circuit and this begins to be based on whether or not the lamp is part of a complete loop with a battery.	Generally, it is identified whether or not a lamp will light in a simple series circuit and this is based on whether or not the lamp is part of a complete loop with a battery.	Independently, it is identified whether or not a lamp will light in a simple series circuit and this is based on whether or not the lamp is part of a complete loop with a battery.
		Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.	With support, it is understood that a switch opens and closes a circuit.	It is recognised that a switch opens and closes a circuit and this is associated with whether or not a lamp lights in a simple series circuit.	Without support, it is recognised that a switch opens and closes a circuit and this is associated with whether or not a lamp lights in a simple series circuit. A simple circuit is represented in a diagram using recognised symbols.
		Recognise some common conductors and insulators and associate metals with being good conductors.	With support, some common conductors, e.g. steel and aluminium and insulators, e.g. plastic and wood, are recognised.	Generally, some common conductors and insulators are recognised, and metals are associated with being good conductors.	A wide variety of conductors and insulators are independently recognised and metals are associated with being good conductors.
		Identify common appliances that run on electricity.	With structured activity, a range of appliances, both battery and mains powered are named.	Generally, all common electrical appliances are named and described as battery, solar or mains powered.	The terms battery, solar and mains powered are fully understood and used to describe a range of common appliances.
		Construct a simple series circuit identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. [22]	With the help of a teacher, simple series circuits are constructed and their parts named.	Generally, the terms cells, wires, bulbs, switches and buzzers are used to describe simple circuits that have been constructed independently. [22]	The terms cells, wires, bulbs, switches and buzzers are used fluently and without prompt to plan, construct and diagnose problems with simple circuits.
	To understand Earth's movement in space	*Describe the movement of the Earth relative to the Sun in the solar system. [23]*	With the support of a teacher, the movement of the Earth relative to the Sun in the solar system is described.	Generally, the movement of the Earth relative to the Sun in the solar system is described. [23]	The movement of the Earth relative to the Sun in the solar system is described independently.
		Describe the movement of the Moon relative to the Earth. [23]	With support, the movement of the Moon relative to the Earth begins to be described.	Generally, the movement of the Moon relative to the Earth is described. [23]	Without support, the movement of the Moon relative to the Earth is described.

Assessment criteria for science

Milestone 3

Note: Independently or 'without support' means – Choosing to by oneself not when asked.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
Working Scientifically	To work scientifically	Plan enquiries, including recognising and controlling variables where necessary. [2]	Generally, simple enquiries are planned. With support, variables are recognised and controlled where necessary. Questions to clarify what is being investigated are encouraged by a teacher.	Generally, simple enquiries are planned. [2] Variables are recognised and controlled where necessary. [2] Questions to clarify what is being investigated are encouraged by a teacher. [2]	Enquiries are planned independently, including recognising and controlling variables where necessary. Questions to clarify what is being investigated are asked independently.
		Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work. [2]	Generally, equipment is selected and appropriate techniques, apparatus, and materials are beginning to be used during fieldwork and laboratory work.	Generally, appropriate techniques, apparatus and materials are used during fieldwork and laboratory work. [2]	Appropriate techniques, apparatus and materials are used independently during fieldwork and laboratory work.
		Take measurements, using a range of scientific equipment, with increasing accuracy and precision. [3]	With support, measurements are taken using a range of scientific equipment. With support, decisions are made as to what to measure or observe in order to answer a question.	Generally, measurements are taken, using a range of scientific equipment, with increasing accuracy and precision. [3] Generally, decisions are made as to what to measure or observe in order to answer a question. [3]	Without support, measurements are taken, using a range of scientific equipment, with increasing accuracy and precision. Independently, decisions are made as to what to measure or observe in order to answer a question.
		Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models. [4]	With support, data is recorded using scientific diagrams and labels. With support, a line graph is used to record data and results.	Generally, data and results of increasing complexity are recorded using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models. [4] Generally, the most appropriate ways to present evidence and findings are selected. [4] Observations, including those for repeat readings, are recorded using tables and bar charts. [4] Points are plotted to make simple line graphs. [4]	Without support, data and results of increasing complexity are recorded using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
		Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions. [5a]	Observations, comparisons and measurements are recorded using tables, charts, text and labelled diagrams. With support, findings from enquiries are reported, including oral and written explanations of results and explanations. Scientific vocabulary is used to describe observations.	Findings from enquiries are reported, including oral and written explanations of results and explanations involving causal relationships, and conclusions. [5]	Findings from enquiries are reported independently, including oral and written explanations of results and explanations involving causal relationships, and conclusions. Without support, the appropriate way to record and present evidence, including line graphs, is selected.
		Present findings in written form, displays and other presentations.	With support, findings are presented in written form and displays.	Generally, appropriate scientific language is used.	Well chosen scientific language is used without support.
		Use test results to make predictions to set up further comparative and fair tests. [5b]	With prompts, test results are used to make predictions to set up further comparative and fair tests. Predictions of what might happen are made before tests are carried out. With prompts, reasons for predictions are suggested.	Generally, test results are used to make predictions and set up further comparative tests, reasons are suggested for these and previous knowledge is used where appropriate. [5b]	Predictions are made and justified by scientific knowledge and understanding. Predictions are presented in appropriate ways, e.g. a line graph can be sketched to show the expected patterns in results. Further predictions are made from results and these are used to test out the patterns found in relationships.
		Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments. [1]	With support, simple models are used to describe scientific ideas. With support, information is found from a variety of sources. With prompts or support, limitations of evidence are talked about.	Generally, simple models are used to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments. [1]	Without support, models are used to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments. It is recognised that scientific ideas are based on evidence and that this comes from observations or data gathered. Selections from a range of sources of information are made without support. Appropriate scientific language and conventions are used independently to communicate quantitative (numbers and frequencies) and qualitative (observations and surveys) information.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
Biology	To understand plants	*Relate knowledge of plants to studies of evolution and inheritance.*	With the support of a teacher, knowledge of plants is beginning to be related to studies of evolution and inheritance.	Generally, knowledge of plants is related to studies of evolution and inheritance.	Without support, knowledge of plants is related to studies of evolution.
		Relate knowledge of plants to studies of all living things.	With the support of a teacher, knowledge of plants is related to studies of all living things.	Generally, knowledge of plants is related to studies of all living things.	Without support, knowledge of plants is related to studies of all living things.
	To understand animals and humans	Identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood. [6]	With the support of a teacher, the main parts of the human circulatory system are identified and the most basic parts, e.g. heart and blood, can be named.	Generally, the main parts of the human circulatory system are identified and named, and the functions of the heart, blood vessels and blood, including the pulse and clotting, are explained. [6] Scientific names are used for some major organs of body systems and the position of these in the human body can be located. [6]	Independently, the main parts of the human circulatory system are identified and named, and the functions of the heart (including the chambers and the valve) and the blood vessels (veins, arteries) and blood (including the pulse and clotting) are explained. The main functions of the organs of the human body are described without support.
		Describe the changes as humans develop from birth to old age.	With support, the changes as humans develop from birth to old age are described.	Generally, the changes as humans develop from birth to old age are explained, using appropriate terminology.	The changes that take place as humans develop from birth to old age are explained in depth with appropriate terminology and examples given.
		Recognise the importance of diet, exercise, drugs and lifestyle on the way the human body functions. [7]	With the support of a teacher and structured activities, there is an awareness of how diet, exercise, drugs and lifestyle affect the human body functions.	Generally, there is a good understanding on the impact of diet, exercise, drugs and lifestyle on the body's major organs. [7]	There is a fluent and full understanding that diet, exercise, drugs and lifestyle affects many aspects of how the human body functions. Examples are given related to a number of different scenarios.
		Describe ways in which nutrients and water are transported within animals, including humans.	With the support of a teacher, there is an awareness that nutrients and water are transported within animals and humans.	Generally, there is a good understanding of water absorption, the circulatory system, sweating and urination.	With some fluency, comparisons of plants, animals and human water and nutrient transportation are made.
	To investigate living things	Describe the differences in the life cycles of a mammal, amphibian, an insect and a bird.	With the support of a teacher, the life cycles common to a variety of animals including humans (birth, growth, development, reproduction and death) are described.	Generally, the life cycles common to a variety of animals, including humans (birth, growth, development, reproduction and death) are described.	There is a sound understanding and good knowledge of all basic life processes. Without support, the life cycles common to a variety of animals, including humans (birth, growth, development, reproduction and death) are described.
		Describe the life process of reproduction in some plants and animals. [6]	With support, the life processes of reproduction in some plants and animals are described.	Generally, the life processes of reproduction in some plants and animals are described. [6]	Independently, the life processes of reproduction in some plants and animals are described.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
		Describe how living things are classified into broad groups according to common observable characteristics. [9]	With the support of a teacher, living things are classified into broad groups. There is some awareness of similarities, differences, microorganisms, plants and animals.	Generally, broad groups are identified and used to classify living things. [9] The terminology of similarities, differences, micro-organisms and animals is generally used when describing groups. [9]	Board groups to identify and classify living things are fully understood and used appropriately.
		Give reasons for classifying plants and animals based on specific characteristics. [9]	With structured activity, links are made between the classification of plants and animals and the reasons for their groupings.	Generally, suggestions are given as to how to classify plants and animals, with reasons given for the classification. [9]	Reasons for classifying plants and animals are explained and justified.
	To understand evolution and inheritance	Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.	Generally, it is recognised that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.	It is recognised that living things produce offspring of the same kind, but that normally offspring vary and are not identical to their parents.	It is recognised independently that living things produce offspring of the same kind and explanations are beginning to be given as to why offspring vary and are not identical to their parents.
		Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. [12]	With the support of a teacher and structured activities, there is an awareness that living things have changed over time.	Generally, there is an understanding that living things have changed over time. [12] Examples are given and fossil evidence used to describe living things that inhabited the Earth millions of years ago. [12]	A wide range of examples are given to describe how living things have changed over time. Clear, well-structured examples show how fossil evidence can tell us about life on Earth millions of years ago.
		Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. [12]	With the support of a teacher, there is an awareness that different animals and plants are suited to different environments.	Generally, good examples of how different animals and plants are suited to different environments are given. There is an awareness of how adaptation may lead to evolution. [12]	Demonstrate many examples that explain how different environments suit different animals and plants. The theory of evolution is explained in basic terms.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
Chemistry	To investigate materials	Compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, conductivity (electrical and thermal) and response to magnets. [13]	With the support of a teacher, everyday materials are grouped together based on evidence from comparative and fair tests.	Generally, everyday materials are grouped together and compared based on evidence from comparative and fair tests. [13]	Everyday materials are grouped together and compared independently and accurately based on evidence from comparative and fair tests.
		Understand how some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. [15]	There are the beginnings of an understanding of how some materials dissolve in liquid to form a solution and, with the support of a teacher, the method for recovering a substance from a solution is described.	Generally, it is understood how some materials dissolve in liquid to form a solution, and how to recover a substance from a solution can be described. The terms 'soluble' and 'insoluble' are used accurately. [15]	Without support, it is understood how some materials dissolve in liquid to form a solution and how to recover a substance from a solution is described. The terms 'soluble' and 'insoluble' are used accurately.
		Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. [14]	With the support of a teacher, knowledge of solids, liquids and gases is used to decide how mixtures might be separated. The processes of filtering, sieving and evaporating are beginning to be used and understood.	Knowledge of solids, liquids and gases is used to decide how mixtures might be separated, including through filtering, sieving and evaporating. [14] Knowledge is used to explain, for example, the water cycle. [14]	Without support, knowledge of solids, liquids and gases is used to decide how mixtures might be separated, including through filtering, sieving and evaporating.
		Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.	With prompts, reasons are given, based on evidence from tests, for particular uses of everyday materials including metals, wood and plastic.	Generally, reasons are given, based on evidence from tests, for particular uses of everyday materials including metals, wood and plastic.	Without support, reasons are given, based on evidence from tests, for particular uses of everyday materials including metals, wood and plastic.
		Demonstrate that dissolving, mixing and changes of state are reversible changes. [16]	It is beginning to be understood that some changes of state are reversible and, with the support of a teacher, this can be demonstrated through dissolving and mixing.	It is demonstrated that dissolving, mixing and changes of state are reversible changes. [16]	Independently, it is demonstrated that dissolving, mixing and changes of state are reversible changes. Without support, knowledge of how a mixture can be separated is used to suggest ways in which other similar mixtures might be separated, e.g. salt and water, sand and water.
		Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning, oxidisation and the action of acid on bicarbonate of soda. [16]	It is beginning to be understood that some changes result in the formation of new materials and that this kind of change is not usually reversible. Changes are beginning to be classified using the terms 'reversible' and 'non-reversible'.	Knowledge of reversible and non-reversible changes is used to make predictions about whether changes are reversible or not. [16] Generally, it is understood that some changes result in the formation of new materials and that this kind of change is not usually reversible, including changes associated with burning, oxidisation and the action of acid on bicarbonate of soda. [16]	Changes are described as reversible or non-reversible. Without support, it is understood that some changes result in the formation of new materials and that this kind of change is not usually reversible, including changes associated with burning, oxidisation and the action of acid on bicarbonate of soda.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
Physics	**Magnets**				
	To understand movement, forces and magnets	Describe magnets as having two poles.	With the support of a teacher, magnets are described as having two poles.	Magnets are described as having two poles: north and south.	Without support, magnets are described as having two poles and there are the beginnings of an understanding of repulsion or attraction between two magnetic dipoles.
		Predict whether two magnets will attract or repel each other, depending on which poles are facing.	With the support of a teacher, discussions are beginning to take place about whether two magnets will attract or repel each other.	Generally, predictions are made as to whether two magnets will attract or repel each other.	Without support, predictions are made as to whether two magnets will attract or repel each other.
	Forces				
		Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.	Explanations are beginning to be given that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.	It is explained that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.	Without support, it is explained that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
		Identify the effect of drag forces, such as air resistance, water resistance and friction that acts between moving surfaces.	With the support of a teacher, the effect of drag forces is identified.	Generally, the effect of drag forces, such as air resistance, water resistance and friction that acts between moving surfaces, is identified. Falling objects begin to be explored and questions are raised about the effects of air resistance. Generally, the effects of air resistance are explored by observing how different objects such as parachutes and sycamore seeds fall.	Without support, the effect of drag forces, such as air resistance, water resistance and friction that acts between moving surfaces, is identified. Without support, falling objects are explored and questions are raised about the effects of air resistance. The effects of air resistance are explored by observing how different objects such as parachutes and sycamore seeds fall.
		Describe, in terms of drag forces, why moving objects that are not driven tend to slow down.	The reason why objects that are not driven tend to slow down is beginning to be described.	The reason why objects that are not driven tend to slow down is described.	The reason why objects that are not driven tend to slow down is described independently.
		Understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs. [21]	There are the beginnings of an understanding that forces and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs.	It is understood that forces and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs. [21]	Independently, it is understood that forces and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
		Understand that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	Through structured activities and experiments the effect of mechanisms is observed.	Generally, good explanations of the effects of mechanisms in terms of force and effort are given.	The terms forces, mechanisms and effort are used fluently to describe transference of energy.
	To understand light and seeing	Understand that light appears to travel in straight lines. [17]	With support, the fact that light appears to travel in straight lines is recognised.	Generally, it is recognised that light appears to travel in straight lines. [17]	Without support, it is recognised that light appears to travel in straight lines.
		Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eyes. [17]	With the support of a teacher, the idea that light travels in straight lines is used to explain that objects are seen because they give out or reflect light into the eyes.	The idea that light travels in straight lines is used to explain that objects are seen because they give out or reflect light into the eyes. [17]	Independently, the idea that light travels in straight lines is used to explain that objects are seen because they give out or reflect light into the eyes.
		Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them, and to predict the size of shadows when the position of the light source changes. [17]	With the support of a teacher, the idea that light travels in straight lines is used to explain why shadows have the same shape as the objects that cast them.	Generally, the idea that light travels in straight lines is used to explain why shadows have the same shape as the objects that cast them. [17] The size of shadows is predicted when the position of the light source changes. [17]	The idea that light travels in straight lines is used to explain why shadows have the same shape as the objects that cast them. Without support, the size of shadows is predicted when the position of the light source changes. The experience of light is beginning to be extended by looking at a range of phenomena, including rainbows, colours on soap bubbles, objects looking bent in water, and coloured filters.
		Explain that we see things because light travels from light sources to our eyes or from objects and then to our eyes. [17]	With structured activities there is an awareness of how we see.	Generally, there is a good understanding of how we see. Explanations and diagrams are used to describe the process. [17]	Fluent, clear and concise explanations and diagrams describe the process of seeing.
	To investigate sound and hearing	Find patterns between the pitch of a sound and features of the object that produced it. [19]	With the support of a teacher, patterns are beginning to be found between the pitch of a sound and features of the object that produced it.	Generally, patterns are found between the pitch of a sound and features of the object that produced it. [19]	Independently, patterns are found between the pitch of a sound and features of the object that produced it.
		Find patterns between the volume of a sound and the strength of the vibrations that produced it. [19]	Patterns are beginning to be found between the volume of a sound and the strength of the vibrations that produced it.	Patterns are found between the volume of a sound and the strength of the vibrations that produced it. [19]	Without support, patterns are found between the volume of a sound and the strength of the vibrations that produced it. It is beginning to be understood that sound needs a medium through which to travel, and the speed of sound in air, water and solids is beginning to be looked at.

Learning Objective		Key Milestone Indicator(s)	Basic Some of the following features will be seen.	Advancing Most of the following features will be seen.	Deep All of the following features will be seen.
		Recognise that sounds get fainter as the distance from the sound source increases. [19]	With the support of a teacher, experiments show that the distance from a sound source affects our hearing of the sound.	Generally, the rule 'the greater the distance, the fainter the sound' is used and understood. [19]	The rule of distance and faintness is used fluently in explanations, along with other factors that may affect our hearing, such as the media through which the vibrations are travelling.
	To understand electrical circuits	Use recognised symbols when representing a simple circuit in a diagram. [22]	With the support of a teacher, recognised symbols are used.	Generally, most recognised symbols are used appropriately. [22]	Recognised symbols are known and used appropriately.
		Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. [22]	With support, the brightness of a lamp or the volume of a buzzer is associated with the number and voltage of cells used in the circuit.	Generally, the brightness of a lamp or the volume of a buzzer is associated with the number and voltage of cells used in the circuit. [22]	Independently, the brightness of a lamp or the volume of a buzzer is associated with the number and voltage of cells used in the circuit.
		Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. [22]	Reasons are beginning to be given for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.	With reminders, comparisons are made and reasons are given for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. [22]	Without support, comparisons are made and reasons are given for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.
	To understand the Earth's movement in space	Describe the Sun, Earth and Moon as approximately spherical bodies.	The Sun, Earth and Moon are described as approximately spherical bodies.	Generally, the Sun, Earth and Moon are described as approximately spherical bodies.	Independently, the Sun, Earth and Moon are described as approximately spherical bodies.
		Use the idea of the Earth's rotation to explain day and night. [23]	There are the beginnings of an understanding of how day and night are formed.	The idea of the Earth's rotation is used to explain day and night. [23]	Without support, the idea of the Earth's rotation is used to explain day and night.
	Note: Some aspects of the Earth's movement in space are covered in Milestone 2.				