

Science

What are the Key features of 'Knowledge-rich assessment for Science'?

At both key stages the sticky knowledge takes full account of the national curriculum's main characteristics of:

- Physics
 - Chemistry
 - Biology
 - Working scientifically
- There are more assessments in science because the national curriculum specifies on a year-by-year basis what has to be taught. In addition, science is a core subject and should have more time devoted to it than non-core subjects
 - The working scientifically part does not conform with the knowledge-rich system as it is checking on pupils' ability to, amongst other things, carry out research, ask questions and carry out tests.
 - The working scientifically statements should be assessed as an on-going feature of the science lessons, whilst the scientific knowledge should be assessed away from the point of teaching.
 - When considering pupils' improvement in science specific vocabulary, provide pupils with a vocabulary mat which contains all words used for art for their age group.

Science: Key Stage 1

Year 1

Working Scientifically

Observing Closely	Performing Tests	Identifying and Classifying	Recording Findings
<ul style="list-style-type: none"> • <i>observing closely, using simple equipment</i> 	<ul style="list-style-type: none"> • <i>performing simple tests</i> 	<ul style="list-style-type: none"> • <i>identifying and classifying</i> • <i>using their observations and ideas to suggest answers to questions</i> 	<ul style="list-style-type: none"> • <i>asking simple questions and recognising that they can be answered in different ways</i> • <i>gathering and recording data to help in answering questions.</i>
<p>Can they talk about what they see, touch, smell, hear or taste?</p> <p>Can they use simple equipment to help them make observations?</p>	<p>Can they perform a simple test?</p> <p>Can they tell other people about what they have done?</p>	<p>Can they identify and classify things they observe?</p> <p>Can they think of some questions to ask?</p> <p>Can they answer some scientific questions?</p> <p>Can they give a simple reason for their answers?</p>	<p>Can they show their work using pictures, labels and captions?</p> <p>Can they record their findings using standard units?</p> <p>Can they put some information in a chart or table?</p>

				Can they explain what they have found out?	
Biology			Chemistry	Physics	
Animals, including humans	Animals, including humans	Plants	Everyday Materials	Seasonal Change	
<ul style="list-style-type: none"> •identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals •identify and name a variety of common animals that are carnivores, herbivores and omnivores <p>(Year 1 Spring 2)</p>	<ul style="list-style-type: none"> •describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) •identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense <p>(Year 1 Summer 1)</p>	<ul style="list-style-type: none"> •identify and name a variety of common wild and garden plants, including deciduous and evergreen trees •identify and describe the basic structure of a variety of common flowering plants, including trees <p>(Year 1 Summer 2)</p>	<ul style="list-style-type: none"> •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 •describe the simple physical properties of a variety of everyday materials •compare and group together a variety of everyday materials on the basis of their simple physical properties <p>(Year 1 Autumn 1) (Year 1 Autumn 2)</p>	<ul style="list-style-type: none"> •observe changes across the 4 seasons •observe and describe weather associated with the seasons and how day length varies <p>(Year 1 Spring 1)</p>	
<p>Can they point out some of the differences between different animals?</p> <p>Can they sort photographs of living and non-living things?</p> <p>Can they classify common animals such as birds, fish, amphibians, reptiles, mammals and invertebrates?</p> <p>Can they describe how an animal is suited to its environment?</p> <p>Can they sort some animals by body covering, e.g. scales, fur and skin?</p>	<p>Can they name the parts of the human body that they can see?</p> <p>Can they identify the main parts of the human body and link them to their senses?</p> <p>Can they name the parts of an animal's body?</p> <p>Can they name a range of domestic animals?</p> <p>Can they classify animals by what they eat using the terms carnivore, herbivore, omnivore?</p>	<p>Can they name the petals, stem, leaf and root of a plant?</p> <p>Can they identify and name a range of common plants and trees?</p> <p>Can they recognise deciduous and evergreen trees?</p> <p>Can they describe the parts of a plant including the roots, stem, leaves and flowers?</p> <p>Can they sort some plants by size?</p>	<p>Can they describe materials using their senses?</p> <p>Can they describe materials using their senses, using specific scientific words?</p> <p>Can they explain what material objects are made from?</p> <p>Can they explain why a material might be useful for a specific job.</p> <p>Can they name some different materials?</p> <p>Can they sort materials into groups by a given criterion?</p>	<p>Can they identify and name the sources of light that we can see?</p> <p>Can they explain what darkness is?</p> <p>Can they observe and describe shadows during the day?</p> <p>Can they describe characteristics of the different seasons and how they change through the year?</p>	

	Can they compare the bodies of different animals?		Can they explain how solid shapes can be changed by squashing, bending, twisting and stretching?	
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Year 2

Working Scientifically

Observing Closely	Performing Tests	Identifying and Classifying	Recording Findings
<ul style="list-style-type: none"> observing closely, using simple equipment 	<ul style="list-style-type: none"> performing simple tests 	<ul style="list-style-type: none"> identifying and classifying using their observations and ideas to suggest answers to questions 	<ul style="list-style-type: none"> asking simple questions and recognising that they can be answered in different ways gathering and recording data to help in answering questions.
<p>Can they use touch, smell, hear or taste to help them answer questions?</p> <p>Can they use some science words to describe what they have seen and measured?</p> <p>Can they compare several things?</p>	<p>Can they carry out a simple fair test?</p> <p>Can they explain why it might not be fair to compare two things?</p> <p>Can they say whether things happened as they expected?</p> <p>Can they suggest how to find things out?</p> <p>Can they use prompts to find things out?</p>	<p>Can they organise things into groups?</p> <p>Can they find simple patterns or associations?</p> <p>Can they identify animals and plants by a specific criteria, e.g. lay eggs or not, have feathers or not?</p>	<p>Can they use text, diagrams, pictures, charts, tables to record their observations?</p> <p>Can they measure using simple equipment?</p>

Biology			Chemistry	Physics
Living things and their habitats	Animals, including humans	Plants	Uses of everyday materials	
<ul style="list-style-type: none"> explore and compare the differences between things that are living, dead, and things that have never been alive identify that most living things live in habitats to which they are suited and describe how different 	<ul style="list-style-type: none"> notice that animals, including humans, have offspring which grow into adults find out about and describe the basic needs of animals, including humans, for survival (water, food and air) 	<ul style="list-style-type: none"> observe and describe 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 	<ul style="list-style-type: none"> identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses find out how the shapes of solid objects made from some materials 	

<p><i>habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other</i></p> <ul style="list-style-type: none"> <i>•identify and name a variety of plants and animals in their habitats, including microhabitats</i> <i>•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</i> <p>(Year 2 Summer 1)</p>	<ul style="list-style-type: none"> <i>•describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</i> <p>(Year 2 Spring 1) (Year 2 Spring 2)</p>	<p>(Year 2 Summer 2)</p>	<p><i>can be changed by squashing, bending, twisting and stretching</i></p> <p>(Year 2 Autumn 2)</p>	
<p>Can they match certain living things to the habitats they are found in?</p> <p>Can they explain the differences between living and non-living things?</p> <p>Can they sort living things into groups and say why they sorted them in that way?</p> <p>Can they describe some of the life processes common to plants and animals, including humans?</p> <p>Can they decide whether something is living, dead or non-living?</p> <p>Can they describe how a habitat provides for the basic needs of things living there?</p>	<p>Can they describe what animals needs to survive?</p> <p>Can they explain that animals grow and reproduce?</p> <p>Can they explain why animals have offspring?</p> <p>Can they describe the lifecycle of some living things? e.g. egg, chick, chicken.</p> <p>Can they explain the basic needs of animals, including humans?</p> <p>Can they describe why exercise and a balanced diet are important for humans?</p> <p>Can they explain how animals get their food and draw a simple food chain?</p>	<p>Can they describe what plants need to survive?</p> <p>Can they describe how seeds and bulbs grow into plants?</p> <p>Can they describe what a plant needs to grow and stay healthy?</p> <p>Can they explain that plants grow and reproduce?</p> <p>Can they compare how plants grow in different conditions by making measurements?</p>	<p>Can they distinguish between an object and the material from which it is made?</p> <p>Can they identify and name a range of everyday materials such as wood, plastic, metal, water and rock?</p> <p>Can they describe the simple the simple physical properties of a variety of everyday materials?</p> <p>Can they compare and classify a variety of materials based on their simple physical properties?</p> <p>Can they explore how the shapes of solid objects can be changed through squashing, bending, twisting and stretching?</p> <p>Can they find out about people who developed new materials like John Boyd Dunlop, Charles</p>	

<p>Can they describe a range of different habitats?</p> <p>Can they describe how plants and animals are suited to their habitat?</p> <p>Can they identify and compare a variety of plants and animals found in different habitats and microhabitats?</p> <p>Can they collect weather data about a local habitat and use it to explain the plants and animals they will find there?</p>			<p>Macintosh and John Loudon McAdam?</p> <p>Can they identify and compare the uses of a range of everyday materials such as: Wood, metal, plastic, glass, brick, rock, paper, cardboard.</p> <p>Can they explain how things move on different surfaces?</p>	
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Science: Key Stage 2

Year 3

Working Scientifically

Planning	Obtaining and Presenting Evidence	Considering Evidence and Evaluating
<ul style="list-style-type: none"> •asking relevant questions and using different types of scientific enquiries to answer them •setting up simple practical enquiries, comparative and fair tests 	<ul style="list-style-type: none"> •making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers •gathering, recording, classifying and presenting data in a variety of ways to help in answering questions •recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables 	<ul style="list-style-type: none"> •reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions •using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions •identifying differences, similarities or changes related to simple scientific ideas and processes

					<ul style="list-style-type: none"> •using straightforward scientific evidence to answer questions or to support their findings.
<p>Can they use different ideas and suggest how to find something out?</p> <p>Can they make and record a prediction before testing?</p> <p>Can they plan a fair test and explain why it was fair?</p> <p>Can they set up a simple fair test to make comparisons?</p> <p>Can they explain why they need to collect information to answer a question?</p>	<p>Can they measure using different equipment and units of measure?</p> <p>Can they record their observations in different ways? (labelled diagrams, charts etc).</p> <p>Can they describe what they have found using scientific words?</p> <p>Can they make accurate measurements using standard units?</p>				<p>Can they explain what they have found out and use their measurements to say whether it helps to answer their question?</p> <p>Can they use a range of equipment (including a data logger) in a simple test?</p>
Biology			Physics		
Rocks	Animals, including humans	Plants	Forces & Magnets	Light	
<ul style="list-style-type: none"> •compare and group together different kinds of rocks on the basis of their appearance and simple physical properties •describe in simple terms how fossils are formed when things that have lived are trapped within rock •recognise that soils are made from rocks and organic matter <p>(Year 3 Autumn 2) (Year 3 Spring 1)</p>	<ul style="list-style-type: none"> •identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat •identify that humans and some other animals have skeletons and muscles for support, protection and movement <p>(Year 3 Autumn 1)</p>	<ul style="list-style-type: none"> •identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers •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 •investigate the way in which water is transported within plants •explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal <p>(Year 3 Summer 2)</p>	<ul style="list-style-type: none"> •compare how things move on different surfaces •notice that some forces need contact between 2 objects, but magnetic forces can act at a distance •observe how magnets attract or repel each other and attract some materials and not others •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 •describe magnets as having 2 poles 	<ul style="list-style-type: none"> •recognise that they need light in order to see things and that dark is the absence of light notice that light is reflected from surfaces •recognise that light from the sun can be dangerous and that there are ways to protect their eyes •recognise that shadows are formed when the light from a light source is blocked by an opaque object •find patterns in the way that the size of shadows change <p>(Year 3 Summer 1)</p>	

			<ul style="list-style-type: none"> •predict whether 2 magnets will attract or repel each other, depending on which poles are facing <p>(Year 3 Spring 2)</p>	
<p>Can they compare and group together different rocks based on their simple physical properties?</p> <p>Can they describe and explain how different rocks can be useful to us?</p> <p>Can they describe and explain the differences between sedimentary and igneous rocks, considering the way they are formed?</p> <p>Can they describe how fossils are formed within sedimentary rocks?</p>	<p>Can they explain the importance of a nutritious balanced diet?</p> <p>Can they describe how nutrients, water and oxygen are transported within animals and humans?</p> <p>Can they describe and explain the skeletal system of a human?</p> <p>Can they describe and explain the muscular system of a human?</p>	<p>Can they identify and describe the functions of different parts of plants including the roots, stem, leaves and flowers?</p> <p>Can they identify what plants need for life and growth?</p> <p>Can they describe the ways in which nutrients, water and oxygen are transported within plants?</p> <p>Can they explain how the needs and functions of plant parts vary from plant to plant e.g. insect and wind pollinated plant?</p> <p>Can they investigate the way in which water is transported within plants?</p>	<p>Can they observe that magnetic forces can be transmitted without direct contact?</p> <p>Can they talk about how some magnets attract or repel each other?</p> <p>Can they classify which materials are attracted to magnets?</p> <p>Can they describe the speed and direction of moving objects?</p>	<p>Can they explain the difference between transparent, translucent and opaque?</p> <p>Can they compare the brightness and colour of lights?</p> <p>Can they explain how bulbs work in an electrical circuit?</p> <p>Can they explain how shadows are formed?</p>

Year 4

Working Scientifically

Planning	Obtaining and Presenting Evidence	Considering Evidence and Evaluating
<ul style="list-style-type: none"> •asking relevant questions and using different types of scientific enquiries to answer them •setting up simple practical enquiries, comparative and fair tests 	<ul style="list-style-type: none"> •making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers •gathering, recording, classifying and presenting data in a variety of ways to help in answering questions •recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables 	<ul style="list-style-type: none"> •reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions •using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

				<ul style="list-style-type: none"> • <i>identifying differences, similarities or changes related to simple scientific ideas and processes</i> • <i>using straightforward scientific evidence to answer questions or to support their findings.</i>
<p>Can they set up a simple fair test to make comparisons?</p> <p>Can they plan a fair test and isolate variables and explain why it was fair and explain which variables have been isolated?</p> <p>Can they suggest improvements and predictions?</p> <p>Can they decide which information needs to be collected and decide which is the best way for collecting it?</p> <p>Can they use their findings to draw a simple conclusion?</p>	<p>Can they make measurements using different equipment and units of measure and record what they have found in a range of ways?</p> <p>Can they make accurate measurements using standard units?</p> <p>Can they explain their findings in different ways (display, presentation, writing)?</p>	<p>Can they find any patterns in their evidence or measurements?</p> <p>Can they make a prediction based on something they have found out?</p> <p>Can they record and present what they have found using scientific language, drawings, labelled diagrams, bar charts and tables?</p>		
Biology		Chemistry		Physics
Living things & their habitats	Animals, including humans	States of Matter	Electricity	Sound
<ul style="list-style-type: none"> • <i>recognise that living things can be grouped in a variety of ways</i> • <i>explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</i> • <i>recognise that environments can change and that this can sometimes pose dangers to living things</i> <p>(Year 4 Summer 1)</p>	<ul style="list-style-type: none"> • <i>describe the simple functions of the basic parts of the digestive system in humans</i> • <i>identify the different types of teeth in humans and their simple functions</i> • <i>construct and interpret a variety of food chains, identifying producers, predators and prey</i> <p>(Year 4 Spring 2)</p>	<ul style="list-style-type: none"> • <i>compare and group materials together, according to whether they are solids, liquids or gases</i> • <i>observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)</i> • <i>identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</i> <p>(Year 4 Autumn 1) (Year 4 Autumn 2)</p>	<ul style="list-style-type: none"> • <i>identify common appliances that run on electricity</i> • <i>construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</i> • <i>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</i> • <i>recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</i> 	<ul style="list-style-type: none"> • <i>identify how sounds are made, associating some of them with something vibrating</i> • <i>recognise that vibrations from sounds travel through a medium to the ear</i> • <i>find patterns between the pitch of a sound and features of the object that produced it</i> • <i>find patterns between the volume of a sound and the strength of the vibrations that produced it</i> • <i>recognise that sounds get fainter as the distance from the sound source increases</i> <p>(Year 4 Spring 1)</p>

			<p>•recognise some common conductors and insulators, and associate metals with being good conductors</p> <p>(Year 4 Summer 2)</p>	
<p>Can they use a classification key to group a variety of living things? (plants, vertebrates, invertebrates?)</p> <p>Can they compare the classification of common plants and animals to living things found in other places? (under the sea, prehistoric)</p> <p>Can they name and group a variety of living things based on feeding patterns? (producer, consumer, predator, prey, herbivore, carnivore, omnivore).</p> <p>Do they recognise that environments can change and this can sometimes pose a danger to living things?</p>	<p>Can they identify and name the basic parts of the human digestive system?</p> <p>Can they describe the function of the organs of the human digestive system?</p> <p>Can they identify the simple function of different types of human teeth?</p> <p>Can they compare the teeth of herbivores and carnivores?</p> <p>Can they explain what a simple food chain shows?</p>	<p>Can they compare and group materials based on their states of matter, i.e. liquid, solid or gas?</p> <p>Can they explain what happens to materials when they are heated or cooled?</p> <p>Can they measure the temperature at which different materials change state?</p> <p>Can they use measurements to explain changes to the state of water?</p> <p>Can they explain the part that evaporation and condensation has in the water cycle?</p>	<p>Can they explain how electricity is useful to us?</p> <p>Can they construct a simple circuit?</p> <p>Can they explain what a conductor is and test materials for conductivity?</p> <p>Can they explain closed and open circuits?</p> <p>Can they construct a circuit with a switch?</p> <p>Can they recognise some common conductors and insulators?</p>	<p>Can they describe a range of sounds and explain how they are made?</p> <p>Can they compare sources of sound and explain how the sounds differ?</p> <p>Can they explain how to change a sound (louder/softer)?</p> <p>Can they describe and explain how a sound travels from a source to our ears?</p> <p>Can they explain what happens to sound as it travels away from its source?</p> <p>Can they explain how you could change the pitch of a sound?</p> <p>Can they investigate how different materials can affect the pitch and volume of sounds?</p>
Year 5				
Working Scientifically				
Planning	Obtaining and Presenting Evidence		Considering Evidence and Evaluating	

<ul style="list-style-type: none"> •planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary 	<ul style="list-style-type: none"> •taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate •recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs 	<ul style="list-style-type: none"> •using test results to make predictions to set up further comparative and fair tests •reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations •identifying scientific evidence that has been used to support or refute ideas or arguments. 			
<p>Can they plan and carry out an investigation by controlling variables fairly and accurately?</p> <p>Can they make a prediction with reasons?</p> <p>Can they use test results to make further predictions and set up further comparative tests?</p> <p>Can they present a report of their findings through writing, display and presentation?</p>	<p>Can they take measurements using a range of scientific equipment with increasing accuracy and precision?</p> <p>Can they record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models?</p>	<p>Can they report findings from investigations through written explanations and conclusions?</p> <p>Can they use a graph to answer scientific questions?</p>			
Biology		Chemistry		Physics	
Living things & their habitats	Animals (including humans)	Properties & changes of materials	Earth & Space	Forces	
<ul style="list-style-type: none"> •describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird •describe the life process of reproduction in some plants and animals <p>(Year 5 Autumn 1)</p>	<ul style="list-style-type: none"> •describe the changes as humans develop to old age <p>(Year 5 Summer 1)</p>	<ul style="list-style-type: none"> •compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets •know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution •use knowledge of solids, liquids and gases 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 	<ul style="list-style-type: none"> •describe the movement of the Earth and other planets relative to the sun in the solar system •describe the movement of the moon relative to the Earth •describe the sun, Earth and moon as approximately spherical bodies •use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky <p>(Year 5 Autumn 2)</p>	<ul style="list-style-type: none"> •explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object •identify the effects of air resistance, water resistance and friction, that act between moving surfaces •recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect <p>(Year 5 Summer 2)</p>	

		<ul style="list-style-type: none"> •demonstrate that dissolving, mixing and changes of state are reversible changes •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 and the action of acid on bicarbonate of soda <p>(Year 5 Spring 1) (Year 5 Spring 2)</p>		
<p>Can they describe and compare the lifecycles of a range of animals, including humans, amphibians, insects and birds?</p> <p>Can they describe the lifecycles of common plants?</p> <p>Can they describe and explain the process of respiration in humans and plants?</p> <p>Can they talk with knowledge about birth, reproduction and death of familiar animals or plants?</p> <p>Can they explore the work of well know naturalists? (David Attenborough and Jane Goodall)</p>	<p>Can they create a timeline to indicate stages of growth in humans?</p> <p>Can they explain what puberty is?</p>	<p>Can they test and group materials based on scientific evidence? (hardness, solubility, transparency, conductivity, insulation, magnetism)</p> <p>Can they explain the process of dissolving?</p> <p>Can they recover a substance from a solution?</p> <p>Can they decide how a mixture would best be separated? (filtering, sieving, evaporating)</p> <p>Can they give reasons for the uses of everyday materials based on scientific evidence?</p> <p>Can they show what they know about the properties of different materials?</p> <p>Can they use their knowledge of materials to suggest ways to classify? (solids, liquids, gasses)</p>	<p>Can they identify and explain the movement of Earth relative to the sun?</p> <p>Can they explain how seasons and the associated weather is created?</p> <p>Can they identify and explain the movement of the moon relative to the Earth?</p> <p>Can they explain the size, shape and position of the Earth, sun and moon?</p> <p>Can they explain how night and day are created and use diagrams to show this?</p> <p>Can they explain how planets are linked to stars?</p>	<p>Can they explain what gravity is and its impact on our lives?</p> <p>Can they explain why a wheeled object that is initially pushed will slow down and stop?</p> <p>Can they explain the impact of friction on a moving object?</p> <p>Can they explain the effect of drag force on moving objects?</p> <p>Can they explain how force and motion can be transferred through gears, pulleys, levers and springs?</p>

		Can they describe changes using scientific words? (evaporation, condensation)		
		Can they use the terms 'reversible' and 'irreversible'?		

Year 6

Working Scientifically

Planning	Obtaining and Presenting Evidence	Considering Evidence and Evaluating
<ul style="list-style-type: none"> •planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary 	<ul style="list-style-type: none"> •taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate •recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs 	<ul style="list-style-type: none"> •using test results to make predictions to set up further comparative and fair tests •reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations •identifying scientific evidence that has been used to support or refute ideas or arguments.
<p>Can they explore different ways to test an idea and choose the best way, and give reasons?</p> <p>Can they vary one factor whilst keeping the others the same in an experiment? Can they explain why they do this?</p> <p>Can they plan and carry out an investigation by controlling variables fairly and accurately?</p> <p>Can they make a prediction with reasons?</p> <p>Can they use information to help make a prediction?</p> <p>Can they use test results to make further predictions and set up further comparative tests?</p> <p>Can they explain (in simple terms) a scientific idea and what evidence supports it?</p>	<p>Can they explain why they have chosen specific equipment? (incl ICT based equipment).</p> <p>Can they decide which units of measurement they need to use?</p> <p>Can they explain why a measurement needs to be repeated?</p> <p>Can they record their measurements in different ways? (incl bar charts, tables and line graphs).</p> <p>Can they take measurements using a range of scientific equipment with increasing accuracy and precision?</p>	<p>Can they find a pattern from their data and explain what it shows?</p> <p>Can they use a graph to answer scientific questions?</p> <p>Can they link what they have found out to other science?</p> <p>Can they suggest how to improve their work and say why they think this?</p> <p>Can they record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models?</p> <p>Can they report findings from investigations through written explanations and conclusions?</p>

Can they present a report of their findings through writing, display and presentation?				
Biology			Physics	
Living things & their habitats	Animals, including humans	Evolution & Inheritance	Light	Electricity
<ul style="list-style-type: none"> describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals give reasons for classifying plants and animals based on specific characteristics <p>(Year 6 Spring 1)</p>	<ul style="list-style-type: none"> identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans <p>(Year 6 Spring 2)</p>	<ul style="list-style-type: none"> recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution <p>(Year 6 Summer 1) (Year 6 Summer 2)</p>	<ul style="list-style-type: none"> recognise 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 eye explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them <p>(Year 6 Autumn 1)</p>	<ul style="list-style-type: none"> associate the brightness of a lamp or the volume of a buzzer 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 use recognised symbols when representing a simple circuit in a diagram <p>(Year 6 Autumn 2)</p>
<p>Can they explain the classification of living things into broad groups based on common observable characteristics? (five kingdoms of all living things, vertebrates, mammals, marsupials).</p> <p>Can they subdivide their original groupings and explain their divisions?</p>	<p>Can they identify and explain the function of the organs of the human circulatory system? (heart, blood vessels, blood, blood pressure, clotting).</p> <p>Can they identify and explain the function of the organs of the human gaseous exchange system? (lungs, nose, throat,</p>	<p>Can they give reasons for why living things produce offspring of the same kind?</p> <p>Can they give reasons for why offspring are not identical with each other or with their parents?</p>	<p>Can they explain how light travels?</p> <p>Can they explain how the human eye sees objects?</p> <p>Can they explain how different colours of light can be created?</p>	<p>Can they identify and name the basic parts of a simple electric series circuit? (cells, wires, bulbs, switches, buzzers).</p> <p>Can they compare and give reasons for variation in how components function, including bulb brightness, buzzer volume and on/off position of switches?</p>

<p>Can they group animals into vertebrates, and invertebrates?</p>	<p>bronchi, bronchial tubes, diaphragm, ribs, breathing).</p> <p>Can they name the major organs in the human body?</p> <p>Can they locate the major human organs?</p> <p>Can they make a diagram that outlines the main parts of a body?</p>	<p>Can they explain the process of evolution and describe the evidence for this?</p> <p>Can they begin to appreciate that variation in offspring over time can make animals more or less able to survive in particular environments?</p> <p>Can they talk about the life of Charles Darwin?</p>	<p>Can they use and explain how simple optical instruments work? (periscope, telescope, binoculars, mirror, magnifying glass, Newton's first reflecting telescope).</p> <p>Can they explain changes linked to light (and sound)?</p>	<p>Can they explain how to make changes in a circuit?</p> <p>Can they explain the impact of changes in a circuit?</p> <p>Can they explain the effect of changing the voltage of a battery?</p>
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