Science - Our school curriculum

Our aim is for all pupils to be prepared for the next stage of their education by having the confidence and aptitude to make their own valuable contribution to their community. We want to prepare our pupils to be ready to meet new challenges with resilience and strong mental well-being, and to develop student independence by ensuring that their 'love for learning' continues throughout their time at Broadlands. We have a core curriculum that engages and suits the needs of all our pupils and our wider curriculum creates a culture of participation, opportunity and ambition. We have broken down our curriculum into a 'Head, Hands and Heart' approach. Each of these is explained below.

The Head – this area of our curriculum focuses on a child's knowledge and understanding. We look at what the children already know and how we can build upon this. Our focus is that the children's knowledge and understanding is relevant to them, taking into consideration their background, cultural capital, the area they live and their own strengths and barriers to learning.

The Hands – this area of our curriculum focuses on a child's skills. We give opportunities for the children to use and apply the knowledge and understanding they have developed.

The Heart – this area of our curriculum focuses on a child's learning behaviour. We look at their enthusiasm and passion for learning, their ability to work collaboratively with others and their ability for reflection and self-improvement.

Some aspects of learning within our school will focus on one specific area although the majority will encompass all areas of the 'Head, Hands and heart approach' with a holistic learning experience. As a school we recognise that there is no 'right way' for a child to learn and each child's learning experience needs to be catered to meet their individual needs.

As well as creating a holistic learning experience where we can effectively meet the needs of our learners, we believe that our 'Head, Hands, Heart' curriculum also gives children the best opportunities to succeed and fulfil their potential. We feel it helps to prepare children for the challenges they are currently facing but also for the future both educational and as they move into their adult life.

Science - Intent, Implementation and Impact

Intent

Broadlands Primary School understands the need for all pupils to develop their Scientific ability as an essential component of all subjects and as a subject in its own right. A good understanding of scientific knowledge and conceptual understanding helps to support pupils work across the curriculum.

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

Science in our school is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying process skills. The staff at Broadlands ensure that all children are exposed to high quality teaching and learning experiences, which allow children to explore their outdoor environment and locality, thus developing their scientific enquiry and investigative skills. They are immersed in scientific vocabulary, which aids children's knowledge and understanding not only of the topic they are studying, but of the world around them. We intend to provide all children regardless of ethnic origin, gender, class, aptitude or disability, with a broad and balanced Science curriculum.

Implementation

In ensuring high standards of teaching and learning in science, we implement a curriculum that is progressive throughout the whole school.

Planning for science is a process in which all teachers are involved to ensure that the school gives full coverage of, 'The National Curriculum programmes of study for Science 2014' and, 'Understanding of the World' in the Early Years Foundation Stage. Science teaching at Broadlands Primary School involves adapting and extending the curriculum to match all pupils' needs. Where possible, Science is linked to class topics. Science is taught as discrete units and lessons where needed to ensure coverage. Due to one form year groups in our school, Science units are taught on a year rolling programme. This ensures progression between year groups and guarantees topics are covered. Teachers plan to suit their children's interests, current events, their own teaching style, the use of any support staff and the resources available.

We ensure that all children are provided with rich learning experiences that aim to:

- Prepare our children for life in an increasingly scientific and technological world today and in the future.
- Help our children acquire a growing understanding of the nature, processes and methods of scientific ideas.
- Help develop and extend our children's scientific concept of their world.
- Build on our children's natural curiosity and developing a scientific approach to problems.
- Encouraging open-mindedness, self-assessment, perseverance and developing the skills of investigation – including: observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating.
- Develop the use of scientific language, recording and techniques.
- Develop the use of computing in investigating and recording.
- Make links between science and other subjects.

Impact

The impact and measure of this is to ensure children not only acquire the appropriate age related knowledge linked to the Science curriculum, but also skills which equip them to progress from their starting points, and within their everyday lives.

All children will have:

- A wider variety of skills linked to both scientific knowledge and understanding, and scientific enquiry/investigative skills.
- A richer vocabulary which will enable them to articulate their understanding of taught concepts.
- High aspirations, which will see them through to further study, work and a successful adult life.

Science - National Curriculum

KS1 - **Working Scientifically**

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

Sc1/1.1 asking simple questions and recognising that they can be answered in different ways

Sc1/1.2 observing closely, using simple equipment

Sc1/1.3 performing simple tests

Sc1/1.4 identifying and classifying

Sc1/1.5 using their observations and ideas to suggest answers to questions

Sc1/1.6 gathering and recording data to help in answering questions.

Year 1

Plants

Sc1/2.1a identify and name a variety of common wild and garden plants, including deciduous and evergreen trees

Sc1/2.1b identify and describe the basic structure of a variety of common flowering plants, including trees

Animals including humans

Sc1/2.2a identify and name a variety of common animals including, fish, amphibians, reptiles, birds and mammals

Sc1/2.2b identify and name a variety of common animals that are carnivores, herbivores and omnivores

Sc1/2.2c describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)

Sc1/2.2d identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

Everyday materials

Sc1/3.1a distinguish between an object and the material from which it is made

Sc1/3.1b identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock

Sc1/3.1c describe the simple physical properties of a variety of everyday materials

Sc1/3.1d compare and group together a variety of everyday materials on the basis of their simple physical properties

Seasonal Changes

Sc1/4.1a observe changes across the 4 seasons

Sc1/4.1b observe and describe weather associated with the seasons and how day length varies.

Year 2

Living things and their habitats

Sc2/2.1a explore and compare the differences between things that are living, dead, and things that have never been alive

Sc2/2.1b 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

Sc2/2.1c identify and name a variety of plants and animals in their habitats, including microhabitats

Sc2/2.1d 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.

Plants

Sc2/2.2a observe and describe how seeds and bulbs grow into mature plants

Sc2/2.2b find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.

Animals including humans

Sc2/2.3a notice that animals, including humans, have offspring which grow into adults

Sc2/2.3b find out about and describe the basic needs of animals, including humans, for survival (water, food and air)

Sc2/2.3c describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.

Uses of everyday materials

Sc2/3.1a identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for different uses

Sc2/3.1b compare how things move on different surfaces.

Sc2/3.1c find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching

Years 3 and 4 - Working Scientifically

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them

Sc4/1.2 setting up simple practical enquiries, comparative and fair tests

Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers

Sc4/1.4 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions

Sc4/1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables

Sc4/1.6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions

Sc4/1.7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

Sc4/1.8 identifying differences, similarities or changes related to simple scientific ideas and processes

Sc4/1.9 using straightforward scientific evidence to answer questions or to support their findings.

Year 3

Plants

Sc3/2.1a identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers

Sc3/2.1b 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

Sc3/2.1c investigate the way in which water is transported within plants

Sc3/2.1d explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Animals including humans

Sc3/2.2a 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

Sc3/2.2b identify that humans and some other animals have skeletons and muscles for support, protection and movement.

Rocks

Sc3/3.1a compare and group together different kinds of rocks on the basis of their appearance and simple physical properties

Sc3/3.1b describe in simple terms how fossils are formed when things that have lived are trapped within rock

Sc3/3.1c recognise that soils are made from rocks and organic matter.

Light

Sc3/4.1a recognise that they need light in order to see things and that dark is the absence of light

Sc3/4.1b notice that light is reflected from surfaces

Sc3/4.1c recognise that light from the sun can be dangerous and that there are ways to protect their eyes

Sc3/4.1d recognise that shadows are formed when the light from a light source is blocked by a solid object

Sc3/4.1e find patterns in the way that the size of shadows change.

Forces and Magnets

Sc3/4.2a compare how things move on different surfaces

Sc3/4.2b notice that some forces need contact between 2 objects, but magnetic forces can act at a distance

Sc3/4.2c observe how magnets attract or repel each other and attract some materials and not others

Sc3/4.2d 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

Sc3/4.2e describe magnets as having 2 poles

Sc3/4.2f predict whether 2 magnets will attract or repel each other, depending on which poles are facing.

Year 4

All Living Things

Sc4/2.1a recognise that living things can be grouped in a variety of ways

Sc4/2.1b explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment

Sc4/2.1c recognise that environments can change and that this can sometimes pose dangers to living things.

Animals including humans

Sc4/2.2a describe the simple functions of the basic parts of the digestive system in humans

Sc4/2.2b identify the different types of teeth in humans and their simple functions

Sc4/2.2c construct and interpret a variety of food chains, identifying producers, predators and prey.

States of Matter

Sc4/3.1a compare and group materials together, according to whether they are solids, liquids or gases

Sc4/3.1b 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)

Sc4/3.1c identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Sound

Sc4/4.1a identify how sounds are made, associating some of them with something vibrating

Sc4/4.1b recognise that vibrations from sounds travel through a medium to the ear

Sc4/4.1c find patterns between the pitch of a sound and features of the object that produced it

Sc4/4.1d find patterns between the volume of a sound and the strength of the vibrations that produced it.

Sc4/4.1e recognise that sounds get fainter as the distance from the sound source increases

Electricity

Sc4/4.2a identify common appliances that run on electricity

Sc4/4.2b construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers

Sc4/4.2c 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

Sc4/4.2d recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit

Sc4/4.2e recognise some common conductors and insulators, and associate metals with being good conductors.

Year 5 and 6 - Working Scientifically

During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

Sc5/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary

Sc5/1.2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision

Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs

Sc5/1.4 using test results to make predictions to set up further comparative and fair tests

Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations

Sc5/1.6 identifying scientific evidence that has been used to support or refute ideas or arguments.

Year 5

Living Things and their habitats

Sc5/2.1a describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird

Sc5/2.1b describe the life process of reproduction in some plants and animals.

Animals, including humans

Sc5/2.2a describe the changes as humans develop to old age.

Properties and Changes of Materials

Sc5/3.1a 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

Sc5/3.1b know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution

Sc5/3.1c use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating

Sc5/3.1d give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic

Sc5/3.1e demonstrate that dissolving, mixing and changes of state are reversible changes

Sc5/3.1f 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.

Earth and Space

Sc5/4.1a describe the movement of the Earth, and other planets, relative to the Sun in the solar system

Sc5/4.1b describe the movement of the Moon relative to the Earth

Sc5/4.1c describe the Sun, Earth and Moon as approximately spherical bodies

Sc5/4.1d use the idea of the Earth's rotation to explain day and night, and the apparent movement of the sun across the sky.

Forces

Sc5/4.2a explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object

Sc5/4.2b identify the effects of air resistance, water resistance and friction, that act between moving surfaces

Sc5/4.2c recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.

Year 6

Living Things and their habitats

Sc6/2.1a 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

Sc6/2.1b give reasons for classifying plants and animals based on specific characteristics.

Animals including humans

Sc6/2.2a identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood

Sc6/2.2b recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function

Sc6/2.2c describe the ways in which nutrients and water are transported within animals, including humans.

Evolution

Sc6/2.3a recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago

Sc6/3.2b recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents

Sc6/2.3c identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Light

Sc6/4.1a recognise that light appears to travel in straight lines

Sc6/4.1b 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

Sc6/4.1c 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

Sc6/4.1d use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them

Electricity

Sc6/4.2a associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit

Sc6/4.2b 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

Sc6/4.2c use recognised symbols when representing a simple circuit in a diagram.

Science - Curriculum Map – Cycle A

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS						
Year 1 and 2	Everyday materials	Human senses	Seasonal changes		Plants parts	Animal parts
Year 3 and 4	Forces and mechanisms	Earth and Space	Human reproduction and Ageing?		Properties and changes of materials	
Year 4 and 5	Forces and mechanisms	Earth and Space	Human reproduction and Ageing		Properties and changes of materials	
Year 6	Circulatory System		Electrical circuits and components	Classification	Light	Evolution and inheritance

Science

Science – Year One

	Head	Hands
Uses of Everyday Materials Seasonal Changes Animals including Humans Plants	• Can they talk about what they see, touch, feel, hear or taste? (3) • Can they use simple equipment to help them make observations and perform a simple test? • Can they tell other people about what they have done? • Can they identify and classify things they observe? (1, 2, 3, 4) • Can they think of and answer some scientific questions? • Can they give a simple reason for their answers? (2, 5,) • Can they explain what they have found out? • Can they show their work and record their findings?	1. Can they identify and name plants and trees including their parts? 2. Can they point out some of the differences between different animals and group living and non-living things? 3. Can they identify the main parts of the human body and link them to their senses? 4. Can they distinguish between an object and the material from which it is made using scientific words? 5. Can they explain why a material might be useful for a specific job? 6. Can they observe changes across the four seasons? 7. Can they observe and describe weather associated with the seasons and describe how day length varies?
Greater Depth	•	

Heart
• Do they show an age appropriate desire to extend their own learning and find out more? • Do they actively share what they have found with others? • Do they show enthusiasm and commitment to the topic? • Do they show curiosity in the world around them?

Science – Year Two

	Head	Hands
Everyday Materials Animals including Humans	• Can they use their senses to help them answer questions? • Can they use some scientific words to describe what they have seen and measured? • Can they compare several things?	1. Can they describe how a habitat provides for the basic needs of things living there? 2. Can they describe some of the life processes common to plants and animals, including humans?

Plants Living things and their habitats	• Can they carry out a simple fair test and explain why it might not be fair to compare two things? • Can they say whether things happened as they expected? • Can they suggest how to find things out? • Can they organise things into groups? • Can they find simple patterns (or associations)? • Can they measure and record their observations?	3. Can they decide whether something is living, dead or non-living? 4. Can they describe why exercise, balanced diet and hygiene are important for humans? 5. Can they explore how the shapes of solid objects can be changed? (squashing, bending, twisting, stretching) 6. Can they find out about people who developed useful new materials? 7. Can they explain how things move on different surfaces?
Greater Depth	•	

Heart

- Do they show an age appropriate desire to extend their own learning and find out more?
- Do they actively share what they have found with others?
- Do they show enthusiasm and commitment to the topic?
- Do they show curiosity in the world around them?

Science – Year 3

	Head	Hands
Rocks Light Animals including Humans Plants	• Can they use different ideas and suggest how to find something out? • Can they make and record a prediction before testing? • Can they plan a fair test and explain why it was fair? • Can they set up a simple fair test to make comparisons? • Can they explain why they need to collect information to answer a question? • Can they measure using different equipment and units of measure? • Can they record their observations in different ways?	1. Can they compare and group together different rocks on the basis of their appearance and simple physical properties? 2. Can they describe and explain the differences between sedimentary and igneous rocks, considering the way they are formed? 3. Can they describe in simple terms how fossils are formed when things that have lived are trapped within rock? 4. Can they recognise that dark is the absence of light and that light is reflected from surfaces?

Forces and Magnets	• Can they describe what they have found using scientific language? • Can they make accurate measurements using standard units? • Can they explain what they have found out and use their measurements to say whether it helps to answer their question? • Can they use a range of equipment in a simple test?	5. Can they recognise that light from the sun can be dangerous and that there are ways to protect their eyes? 6. Can they explain the importance of a nutritionally balanced diet and how nutrients are transported within animals and humans? 7. Can they describe and explain the skeletal system / muscular system of a human? 8. Can they explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal? 9. Can they compare how things move on different surfaces? 10. Can they observe that magnetic forces can be transmitted without direct contact? 11. Can they compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet?
Greater Depth	•	

Heart

- Do they show an age appropriate desire to extend their own learning and find out more?
- Do they actively share what they have found with others?
- Do they show enthusiasm and commitment to the topic?
- Do they show curiosity in the world around them?

Science – Year Four

	Head	Hands
Animals including Humans Electricity States of Matter Sound All Living Things	• Can they plan a fair test and isolate variables, explaining why it was fair and which variables have been isolated? • Can they suggest improvements and predictions? • Can they decide which information needs to be collected and decide which is the best way for collecting it? • Can they use their findings to draw a simple conclusion? • Can they take measurements using different equipment and units of measure and record what they have found in a range of ways? • Can they explain their findings in different ways (display, presentation, writing)? • Can they find any patterns in their evidence or measurements? • Can they evaluate what they have found using scientific language, drawings, labelled diagrams, bar charts and tables?	1. Can they describe the simple functions of the basic parts of the digestive system in humans? 2. Can they identify the simple function of different types of teeth in humans and compare the teeth of herbivores and carnivores? 3. Can they construct and interpret a variety of food chains, identifying producers, predators and prey? 4. Can they identify common appliances that run on electricity and construct a simple series electric circuit? 5. Can they recognise that a switch opens and closes a circuit? 6. Can they recognise some common conductors and insulators and associate metals with being good conductors? 7. Can they compare and group materials together, according to whether they are solids, liquids or gases and explain what happens to materials when they are heated or cooled? 8. Can they measure or research the temperature at which different materials change state in degrees Celsius? 9. Can they identify the part that evaporation and condensation has in the water cycle? 10. Can they compare sources of sound and explain how the sounds differ and explain how to change a sound (louder/softer)? 11. Can they recognise how vibrations from sound travel through a medium to a ear? 12. Can they explore and use a classification key to group, identify and name a variety of living things? (plants, vertebrates, invertebrates) 13. Do they recognise that environments can change and this can sometimes pose a danger to living things?
Greater Depth	•	

Heart

- Do they show an age appropriate desire to extend their own learning and find out more?
- Do they actively share what they have found with others?
- Do they show enthusiasm and commitment to the topic?
- Do they show curiosity in the world around them?

Science – Year Five

	Head	Hands
Forces Properties and Changes of Materials	• Can they plan and carry out a scientific enquiry to answer questions, including recognising and controlling variables where necessary? • Can they use test results to make predictions to set up comparative and fair tests? • Can they present a report of their findings through writing, display and presentation?	1. Can they explain that unsupported objects fall towards the earth because of the force of gravity acting between the earth and the falling object? 2. Can they recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect?

Animals including Humans Living things and their habitats Earth and Space	• Can they take measurements using a range of scientific equipment with increasing accuracy and precision? • Can they record more complex data and results using scientific diagrams, labels, classification keys, tables, scatter graphs, bar and line graphs? • Can they report and present findings from enquiries through written explanations and conclusions? • Can they use a graph to answer scientific questions?	3. Can they explain how some materials dissolve in liquid to form a solution and describe how to recover a substance from a solution? 4. Can they use their knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving, evaporating? 5. Can they demonstrate that dissolving, mixing and changes of state are reversible changes and that some changes result in the formation of new materials. 6. Can they describe the changes as humans develop to old age? 7. Can they describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird? 8. Can they explore the work of well-known naturalists and animal behaviourists? (David Attenborough and Jane Goodall) 9. Can they identify and explain the movement of the Earth and other plants relative to the sun in the solar system?
Greater Depth	•	

Heart

- Do they show an age appropriate desire to extend their own learning and find out more?
- Do they actively share what they have found with others?
- Do they show enthusiasm and commitment to the topic?
- Do they show curiosity in the world around them?

Science – Year Six

	Head	Hands
Animals including Humans Living things and their habitats Evolution Light Electricity	• Can they plan and carry out an investigation by controlling variables fairly and accurately? • Can they make a prediction with reasons? • Can they explain, in simple terms, a scientific idea and what evidence supports it? • Can they present a report of their findings through writing, display and presentation? • Can they explain why they have chosen specific equipment? (incl ICT based equipment) • Can they decide which units of measurement they need to use? • Can they take measurements using a range of scientific equipment with increasing accuracy and precision? • Can they find a pattern from their data and explain what it shows? • Can they use a graph to answer scientific questions?	1. Can they identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood? 2. Can they recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function? 3. Can they describe the ways in which nutrients and water and transported within animals, including humans? 4. Can they give reasons for classifying plants and animals based on specific characteristics? 5. Can they recognise that living things have changed over time and that fossils provide information about living things that inhabited the earth millions of years ago? 6. Can they give reasons why offspring are not identical to each other or to their parents?

	• Can they suggest how to improve their work and say why they think this? • Can they identify scientific evidence that has been used to support to refute ideas or arguments? • Can they report and present 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?	7. Can they explain the process of evolution and describe the evidence for this? 8. Can they identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution? 9. Can they 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? 10. Can they compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers, the on/off position of switches? 11. Can they use recognised symbols when representing a simple circuit in a diagram?
Greater Depth	•	

Heart

- Do they show an age appropriate desire to extend their own learning and find out more?
- Do they actively share what they have found with others?
- Do they show enthusiasm and commitment to the topic?
- Do they show curiosity in the world around them?