Our Science Curriculum at Harden Primary School

2025

OUR SCIENCE CURRICULUM INTENT

Introduction

At Harden Primary School we aim for the children to develop an enthusiasm for and enjoyment of Science. We strive to develop their knowledge and understanding of important scientific ideas, processes and skills and encourage them to relate these to their everyday experiences. We teach children different ways of thinking, how to find out things and how to communicate their ideas effectively. We strive to make the children confident learners, to explore values and ideas through Science.

Science Curriculum Aims

At Harden Primary School, we aim to develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life. To build on pupils' curiosity and sense of awe of the natural world by using a planned range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science. Introduce and absorb pupils in the language and vocabulary of science and to develop pupils' practical skills and their ability to make accurate and appropriate measurements. To use science as a tool to develop pupils' use of information and communication technology (ICT) in their science studies.

We have created an ever-changing curriculum which is ambitious for all our children and reflective of their needs, who all have unique interests, skills and talents.

To develop a knowledge and understanding of science and its processes

· to develop a knowledge and appreciation of the contribution made by famous scientists to our knowledge of the world including scientists from different cultures

· to encourage pupils to relate their scientific studies to applications and effects within the real world

· to develop a knowledge of the science contained within the programmes of study of the National Curriculum.

To build on pupils' curiosity and sense of awe of the natural world

· to develop in pupils a general sense of enquiry which encourages them to question and make suggestions

· to encourage pupils to predict the likely outcome of their investigations and practical activities

To use a planned range of investigations and practical activities to give pupils a greater understanding of scientific facts and concepts

· to provide pupils with a range of specific investigations and practical work which gives them a worth-while experience to develop their understanding of science

· to develop progressively pupils' ability to plan, carry out and evaluate simple scientific investigations and to appreciate the meaning of a "fair test".

To develop the ability to record results in an appropriate manner including the use of diagrams, graphs, tables and charts

· to use scientific and mathematical language including technical vocabulary and conventions and draw diagrams and charts to communicate scientific ideas.

· to give pupils regular opportunities to use the scientific terms necessary to communicate ideas about science

· to develop pupils' skills and their ability to make accurate and appropriate measurements

· within practical activities give pupils opportunities to use a range of simple scientific measuring instruments such as thermometers and force meters and develop their skills to read them.

· to give pupils the opportunities to use ICT to record their work and store results

SEQUENCE OF LEARNING

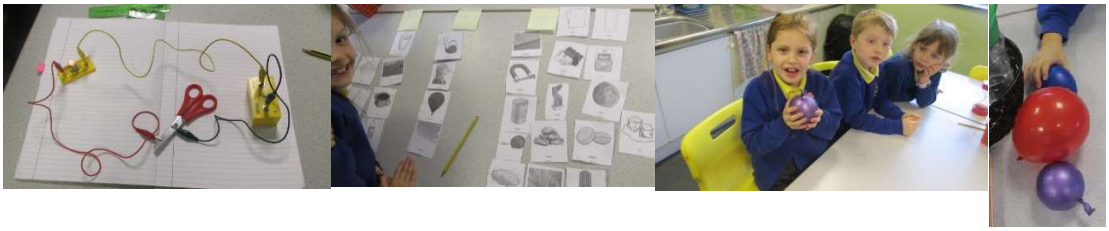
Step 1 - Starting with a 'Hook'!

Most Science topics will begin with a special trip, visitor or activity which aims inspire and enthuse the children about the area which they will be learning about that half term. We also use a pre-learning task/activity to provide a bespoke curriculum that meets the individual needs of each pupil.

This could involve a trip to a local museum or place of interest or it could involve special workshops/ activities which take place in school (pictured here is a Year 1 trip to Eureka and a Year 3 hook for states of matter).

Step 2 – Learning, research and skill development.

The main part of the topic is taken up with the children acquiring the scientific skills and knowledge needed to understand the key elements within the topic, including key vocabulary. We follow the White Rose scheme to ensure coverage and consistency across school. Wherever possible this will involve children completing practical activities, such as testing and sorting, as well as involving researching, predicting, collecting and analysing data and concluding.



Step 3 – Learning 'Outcome'

We want the children to show us that they have truly mastered the skills and knowledge covered by the topic. Therefore, during part of each science topic the children will produce an outcome that demonstrates their learning, both knowledge and skills based, which comes in different formats depending on the focus. The science units use a mixture of summative and formative assessment to track children's progress.
(In picture, Year 6 presenting work on the digestive system to year 3 and Year 4 showing their knowledge of electricity through producing a mask which lights up using a circuit).

WORKING SCIENTIFICALLY SKILLS PROGRESSION – YEAR 1 TO YEAR 6

Ask questions

White Rose SCIENCE

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• Ask simple questions.	• **Ask simple questions and recognise that they can be answered in different ways.**	• Ask questions and understand there are different enquiry types they could use to answer them.	• **Ask relevant questions and use different types of scientific enquiry to answer them.**	• Ask scientific questions and begin to understand which questions would be best suited to each enquiry type.	• Ask relevant scientific questions and choose which enquiry type would be best suited to answer them.

Plan

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Planning is not explicitly mentioned in the KS1 curriculum however, if appropriate, children can verbally state what they will investigate, what they will change and what they will keep the same.		• Make relevant predictions. • Identify what they will change, observe and keep the same. • With support, set up simple practical enquiries.	• Make predictions based on simple scientific knowledge. • Identify what they will change, observe or measure and keep the same. • **Set up simple practical enquiries, comparative and fair tests.**	• Make predictions based on scientific knowledge. • With support, plan different types of scientific enquiry. Where appropriate, identify the dependent, independent and controlled variables.	• Make predictions based on scientific knowledge. • **Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.**

Make observations

White Rose SCIENCE

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• Observe closely.	• **Observe closely, using simple equipment.**	• Make careful observations using scientific equipment.	• **Make systematic and careful observations** using scientific equipment.	• Use a range of scientific equipment to make systematic and careful observations.	• Use a range of scientific equipment to make systematic and careful observations with increased complexity.

Take measurements

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• Carry out simple tests using non-standard measurements when appropriate.	• **Perform simple tests** using standard units when appropriate.	• Perform tests and simple experiments and take measurements using standard units.	• **Take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.**	• Take accurate measurements using a range of scientific equipment. Start to take repeat readings when appropriate.	• **Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.**

Gather, record and classify data

White Rose SCIENCE

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• Gather and record simple data. • Sort objects and living things into groups based on simple properties.	• **Gather and record data to help in answering questions.** • **Identifying and classifying.**	• Recording findings using simple scientific language, drawings, labelled diagrams, bar charts, and tables.	• **Gather, record and classify data in a variety of ways to help in answering questions.** • **Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.**	• Record data using scientific diagrams and labels, classification keys, tables, bar and line graphs.	• **Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.**

Present findings

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• Explain what they found out to an adult or a partner.	• **Talk about what they have found out and how they found it out. (non-statutory)**	• Report on findings from enquiries, including oral and written explanations.	• **Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.**	• Report and present findings from enquiries, including conclusions and begin to identify causal relationships in oral and written forms such as displays and other presentations.	• **Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.**

Answer questions and make conclusions

White Rose SCIENCE

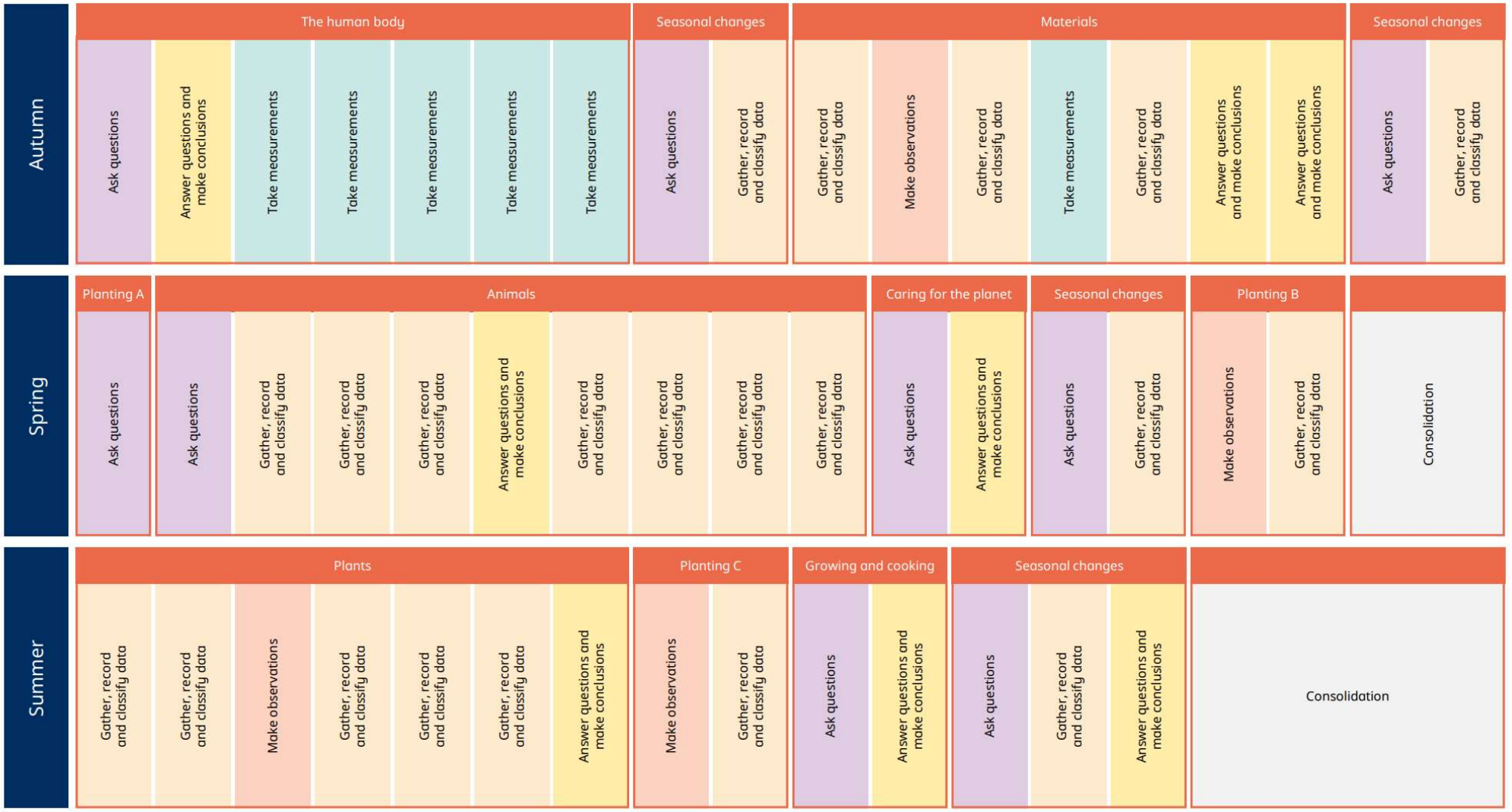
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• Answer simple questions.	• **Use their observations and ideas to suggest answers to questions.**	• Make simple conclusions. • Use results, findings or observations to answer questions.	• **Use straight-forward scientific evidence to answer questions or to support their findings.** • **Use results to draw simple conclusions.** • **Begin to identify differences, similarities or changes related to simple ideas or processes.**	• Make conclusions based on scientific evidence and from their own testing and findings. • Identify scientific evidence and use it to answer questions.	• Make conclusions based on scientific evidence and from their own testing and findings. • **Identify scientific evidence that has been used to support or refute ideas or arguments.**

Evaluate

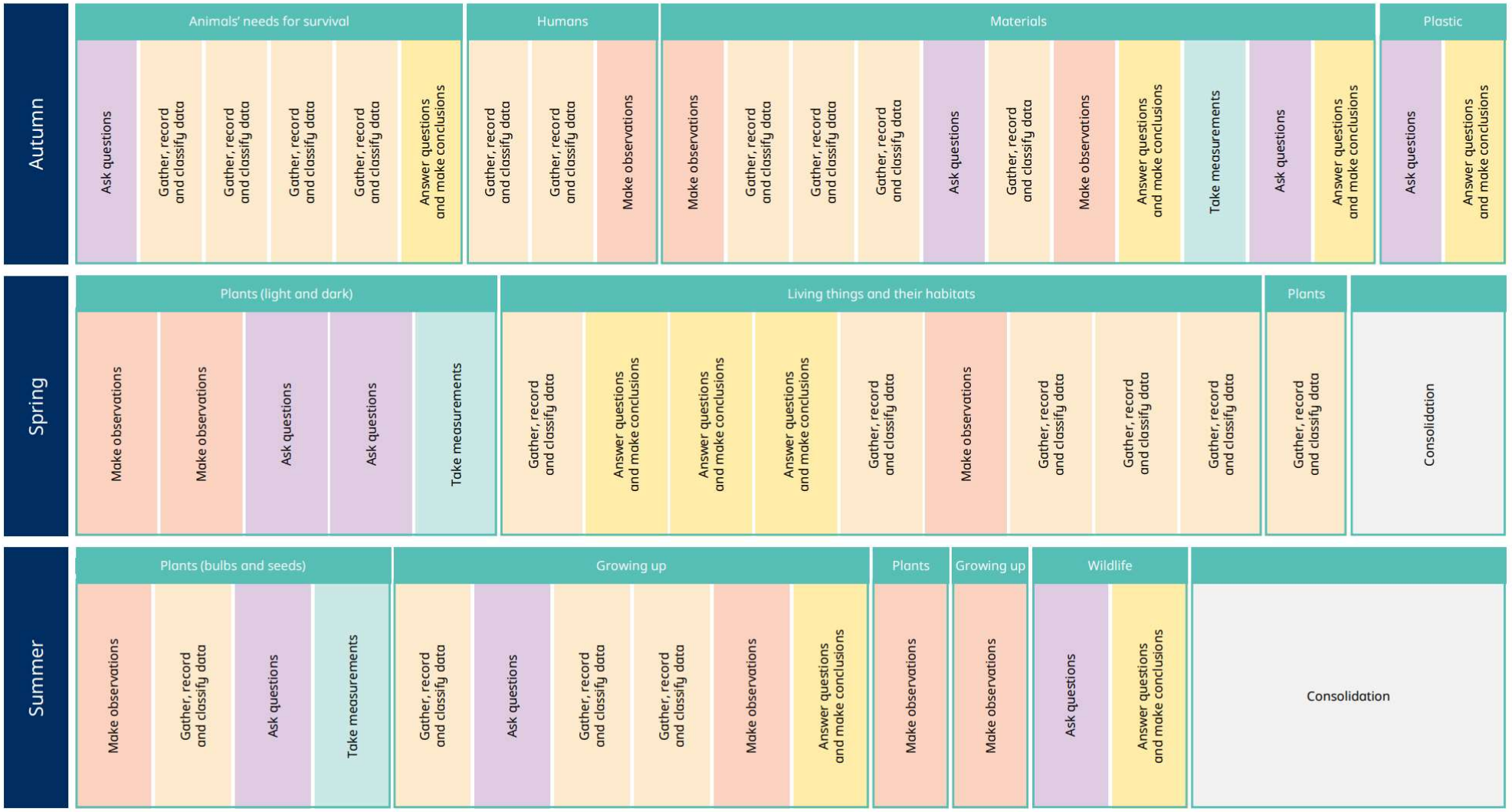
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Evaluating is not explicitly mentioned in the KS1 curriculum.		• Suggest questions for further investigation.	• **Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.**	• Continue to use results to draw simple conclusions, suggest improvements and raise further questions for possible testing.	• **Use test results to make predictions to set up further comparative and fair tests.** • Provide some simple examples of how to extend the investigation.

WORKING SCIENTIFICALLY SKILLS ACROSS THE YEAR

Year 1 | Working scientifically skills mapping



Year 2 | Working scientifically skills mapping



Year 3 | Working scientifically skills mapping

Summer

Plants A
- Answer questions and make conclusions
- Gather, record and classify data
- Ask questions
- Plan
- Plan
- Make observations
- Gather, record and classify data
- Present findings
- Make observations
- Answer questions and make conclusions

Forces
- Make observations
- Answer questions and make conclusions
- Plan
- Answer questions and make conclusions

Magnets
- Gather, record and classify data
- Make observations
- Plan
- Present findings

Plants B
- Answer questions and make conclusions

Biodiversity
- Ask questions
- Present findings

Spring

Fossils
- Ask questions
- Present findings

Soils
- Gather, record and classify data
- Answer questions and make conclusions
- Take measurements
- Take measurements
- Answer questions and make conclusions

Light
- Make observations
- Gather, record and classify data
- Gather, record and classify data
- Gather, record and classify data
- Ask questions
- Plan
- Gather, record and classify data
- Answer questions and make conclusions

Consolidation

Autumn

Skeletons
- Ask questions
- Gather, record and classify data
- Gather, record and classify data
- Gather, record and classify data
- Present findings

Movement
- Answer questions and make conclusions
- Present findings

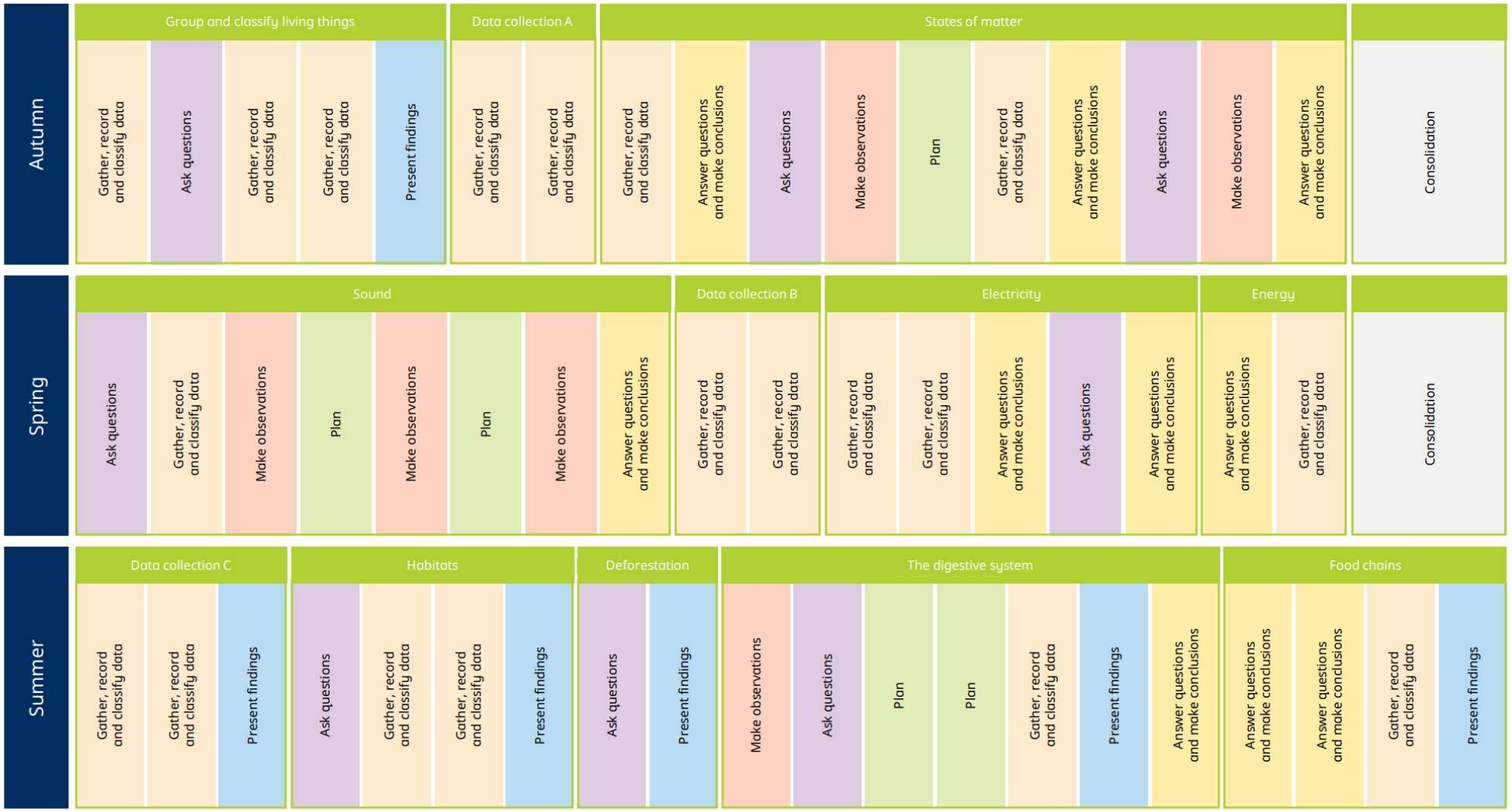
Nutrition and diet
- Gather, record and classify data
- Answer questions and make conclusions
- Present findings
- Answer questions and make conclusions
- Answer questions and make conclusions

Food waste
- Ask questions
- Present findings

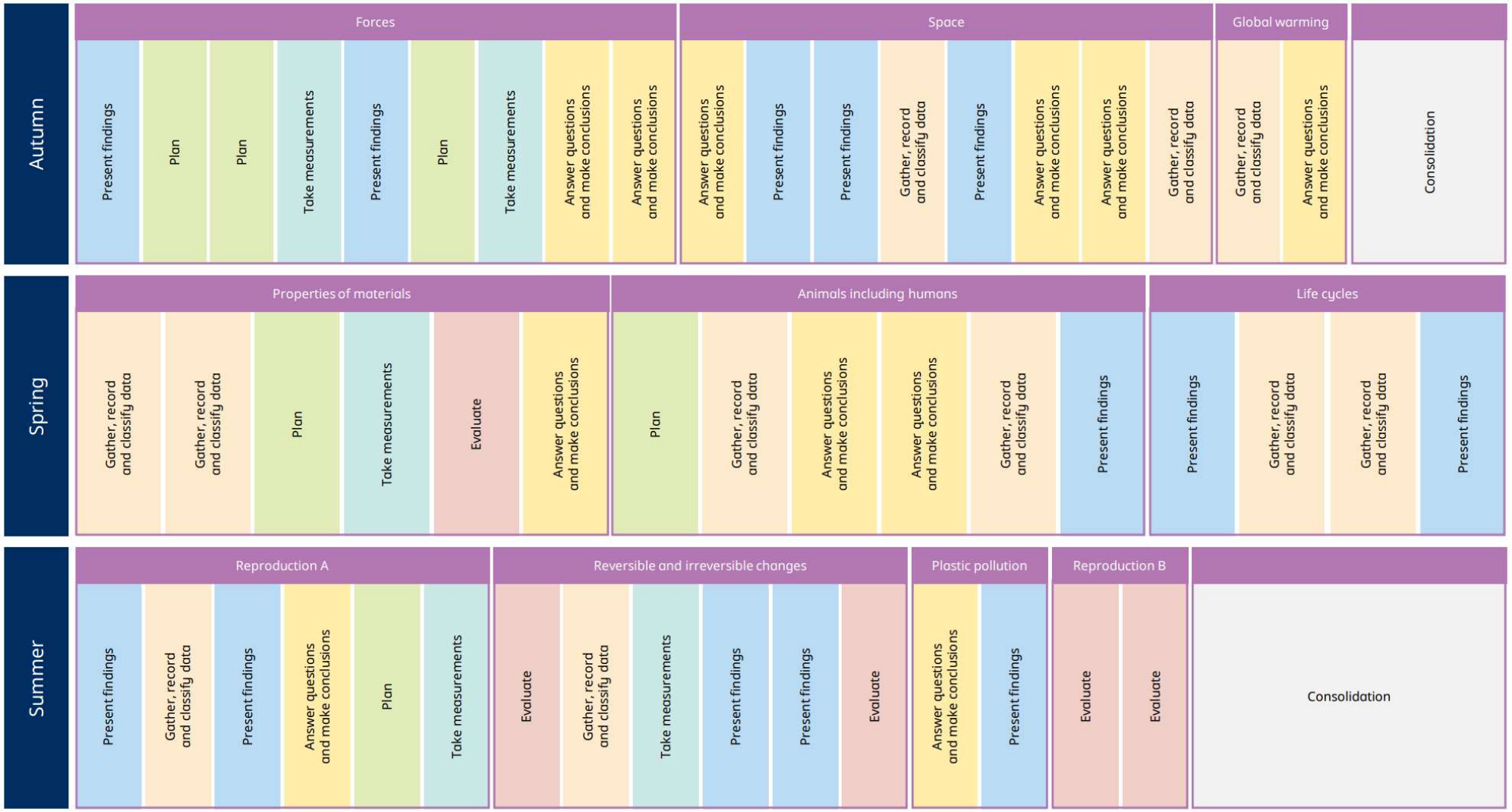
Rocks
- Make observations
- Gather, record and classify data
- Make observations
- Gather, record and classify data

Consolidation

Year 4 | Working scientifically skills mapping



Year 5 | Working scientifically skills mapping



Year 6 | Working scientifically skills mapping

Autumn

Living things and their habitats

- Answer questions and make conclusions
- Gather, record and classify data
- Gather, record and classify data
- Gather, record and classify data
- Answer questions and make conclusions
- Present findings
- Present findings

Electricity

- Gather, record and classify data
- Present findings
- Gather, record and classify data
- Plan
- Take measurements
- Evaluate

Renewable energy

- Answer questions and make conclusions
- Present findings

Spring

Light

- Answer questions and make conclusions
- Gather, record and classify data
- Gather, record and classify data
- Plan
- Take measurements
- Gather, record and classify data
- Answer questions and make conclusions
- Answer questions and make conclusions

Light pollution

- Answer questions and make conclusions
- Present findings

The circulatory system

- Ask questions
- Answer questions and make conclusions
- Make observations
- Ask questions
- Present findings
- Evaluate

Diet, drugs and lifestyle

- Answer questions and make conclusions
- Answer questions and make conclusions
- Answer questions and make conclusions
- Plan
- Take measurements
- Evaluate

Summer

Variation

- Gather, record and classify data
- Gather, record and classify data

Adaptations

- Answer questions and make conclusions
- Answer questions and make conclusions
- Plan
- Present findings
- Plan
- Present findings

Fossils

- Answer questions and make conclusions
- Present findings
- Present findings

Consolidation

Themed projects

- Ask questions
- Plan
- Make observations
- Take measurements
- Gather, record and classify data
- Answer questions and make conclusions
- Evaluate

WORKING SCIENTIFICALLY SKILLS PROGRESSION LOGOS.

During the lessons in KS1 and LKS2 the characters are used to help the pupils identify the working scientifically strand that they are focusing in. (It can be more than one strand per lesson.)

Observation Owl

Researching Rhino

Grouping Gorilla

Testing Tiger

Pattern Penguin

SKILLS PROGRESSION – KNOWLEDGE AND CONCEPTUAL UNDERSTANDING – RECEPTION TO YEAR 6

RECEPTION

Foundations for Year 1.

- Animals including humans. – Plants. – Materials. – Seasonal changes.

Autumn	**Me and my small world** **Maths link:** Match, sort and compare	**What's in my basket?** **Maths link:** Talk about measure and pattern	**Senses** **Maths link:** It's me 1, 2, 3	**Let's go outside** **Maths link:** Circles and triangles	**What's changed?** **Maths link:** 1, 2, 3, 4, 5	**Night and day** **Maths link:** Shapes with 4 sides
Spring	**Changes in Winter** **Maths link:** Alive in 5	**Let it flow** **Maths link:** Mass and capacity	**From desert to jungle** **Maths link:** Growing 6, 7, 8	**Watch it grow** **Maths link:** Length, height and time	**Animal detectives** **Maths link:** Building 9 and 10	**Pushes and pulls** **Maths link:** Explore 3-D shapes
Summer	**From city to sea** **Maths link:** To 20 and beyond	**Look all around** **Maths link:** How many now?	**Test it out!** **Maths link:** Manipulate, compose and decompose	**Happy and healthy** **Maths link:** Sharing and grouping	**Our wonderful world** **Maths link:** Visualise, build and map	**We're going on an animal hunt** **Maths link:** Make connections

Animals, including humans

White Rose SCIENCE

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• 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 • 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	• 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) • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	• 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	• Describe the simple functions of the basic parts of the digestive system in humans • Identify the different types of teeth in humans and their simple functions • Construct and interpret a variety of food chains, identifying producers, predators and prey	• Describe the changes as humans develop to old age	• 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
Autumn 1 Spring 2	Autumn 1, Autumn 2 Spring 2 Summer 2, Summer 4	Autumn 1, Autumn 2, Autumn 3	Summer 4, Summer 5	Spring 2	Summer 3, Summer 4

Living things and their habitats

White Rose SCIENCE

Year 2	Year 4	Year 5	Year 6
• 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 habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other • Identify and name a variety of plants and animals in their habitats, including microhabitats • 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	• Recognise that living things can be grouped in a variety of ways • explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment • Recognise that environments can change and that this can sometimes pose dangers to living things	• 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	• 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
Spring 2 Summer 2, Summer 4	Autumn 1, Autumn 2 Spring 2 Summer 1, Summer 2	Spring 3 Summer 1, Summer 4	Autumn 1

Plants

White Rose SCIENCE

Year 1	Year 2	Year 3
• 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	• 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	• 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
Spring 1, Spring 5 Summer 1, Summer 2	Spring 1, Spring 3 Summer 1, Summer 3	Summer 1, Summer 4

Materials

White Rose SCIENCE

Year 1	Year 2	Year 5
• 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	• 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 can be changed by squashing, bending, twisting and stretching	• 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 • 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
Autumn 3	Autumn 3	Spring 1 Summer 2

Electricity

White Rose SCIENCE

Year 4	Year 6
• Identify common appliances that run on electricity • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers • 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 • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit • Recognise some common conductors and insulators, and associate metals with being good conductors	• 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
Spring 3	Autumn 2

Rocks

White Rose SCIENCE

Year 3

- 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

Autumn 5
Spring 1, Spring 2

States of matter

Year 4

- Compare and group materials together, according to whether they are solids, liquids or gases
- 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)
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature

Autumn 3

Earth and space

White Rose SCIENCE

Year 5

- 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

Autumn 2

Seasonal change

Year 1

- Observe changes across the 4 seasons
- Observe and describe weather associated with the seasons and how day length varies

Autumn 2, Autumn 4
Spring 4
Summer 4

Sound

White Rose SCIENCE

Year 4
• Identify how sounds are made, associating some of them with something vibrating • Recognise that vibrations from sounds travel through a medium to the ear • Find patterns 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 • Recognise that sounds get fainter as the distance from the sound source increases
Spring 1

Light

Year 3	Year 6
• 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	• Recognise that light travels 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
Spring 3	Spring 1

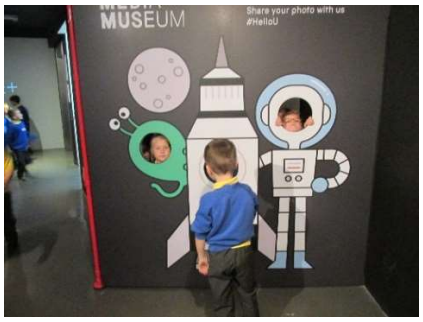
Forces and magnets

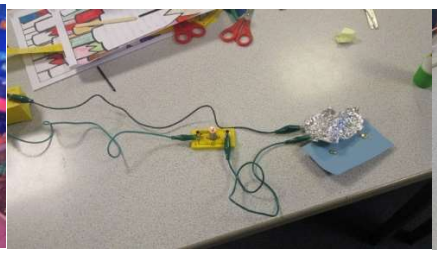
Year 3	Year 5
• Compare how things move on different surfaces • Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance • Observe how magnets attract or repel each other and attract some materials and not others • Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials • Describe magnets as having 2 poles • Predict whether 2 magnets will attract or repel each other, depending on which poles are facing	• 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
Summer 2, Summer 3	Autumn 1

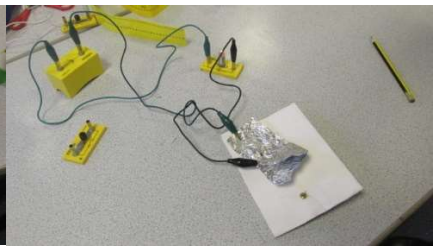
Evolution and inheritance

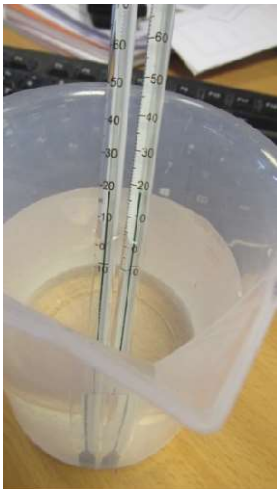
Year 6
• Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution
Summer 1, Summer 2, Summer 3

WHAT DOES SCIENCE AT HARDEN LOOK LIKE?









ASSESSMENT OF SCIENCE

For science, the children are assessed at the end of each unit on their skills and subject knowledge. We use a tracker, unit outcome and an end of unit quiz approach where the children are given planned activities to complete which demonstrates both skills and understanding at the end of each unit. These activities are carefully planned so that the children can evidence their understanding of a concept and use different working scientifically skills. We use the Science assessment criteria to identify the level children are working at.

Year 1 Assessment statements.

	Working towards	Working at ARE	Working at Greater depth
Plants			
Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	Identify and name a limited range of plants.	Identify a range of local plants.	Identify and notice similarities between various local plants.
Identify and describe the basic structure of a variety of common flowering plants, including trees	Identify and describe the basic structure of a common flowering plant.	Name parts of a range of familiar plants.	Identify and notice similarities in the structure of various local plants
1.4a.3 Explore and compare the differences between things that are living, dead, and things that have never been alive	Sort items into 'once living' and 'never lived'.	Compare and contrast a collection of items, sorting into categories: 'living', 'dead' and 'things that have never been alive'.	Research further examples to add to the categories: 'living', 'dead' and 'things that have never been alive'.
1.4b.1 Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals	Identify and name a limited number of common animals.	Name a variety of common animals.	Identify common features of the main groups of vertebrates.
1.4b.2 Identify and name a variety of common animals that are carnivores, herbivores and omnivores	Recognise the difference between carnivores, herbivores and omnivores.	Identify and group a range of familiar animals.	Suggest whether an unfamiliar animal might be a carnivore, herbivore or omnivore.
1.5.1 Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)	Identify key features of one or two common animals.	Identify key features of a range of common animals.	Compare key features of familiar and unfamiliar animals.

1.5.2 Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	Describe each of the human senses.	Relate each of the human senses to organs.	Suggest how the senses are used in an activity such as eating.
1.2.1 Observe changes across the four seasons	Recognise that there are seasonal changes.	Describe seasonal changes.	Recognise changes within seasons as well as between seasons.
1.2.2 Observe and describe weather associated with the seasons and how day length varies	Recognise that day length alters in different seasons.	Relate weather patterns and day length to seasons.	Make and test predictions relating to changing day length and weather patterns.
1.2.1 Distinguish between an object and the material from which it is made LINK 2.3.1	Identify the material from which an object has been made.	Correctly identify both object and material.	Compare the same object made from different materials in terms of its effectiveness
1.2.2 Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock	Identify and name a limited range of materials.	Identify and name a range of materials.	Identify typical uses of a range of materials.
1.2.3 Describe the simple physical properties of a variety of everyday materials	Recognise that a material has properties.	Describe a range of properties of a variety of materials.	Compare the physical properties of different everyday materials.
1.2.4 Compare and group together a variety of everyday materials on the basis of their simple physical properties	Compare and contrast two everyday materials.	Classify a variety of materials into groups based on physical properties.	Use simple physical properties to suggest classification of materials

Year 2 Assessment

	Working towards	Working at ARE	Working at Greater depth
2.2.1 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.	Identify that a habitat supplies living things with what they need.	Explain how, for a named animal or plant, it gets what it needs from its habitat and other living things that are there.	Explain why there may be a limit as to how many of a certain living thing can live in a particular area.
2.2.2 Identify and name a variety of plants and animals in their habitats, including micro-habitats.	Identify a limited range of living things in their habitats.	Identify a range of living things in habitats of various sizes.	Identify a range of living things and suggest why they may be found in that habitat.

2.2.3 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.	Identify a predator–prey relationship.	Construct a simple food chain and identify what is eating what.	Suggest, within a simple food chain, what might happen if one of the living things becomes scarce.
2.2.4 Find out and describe how plants need water, light and a suitable temperature to grow and stay health.	Find out one thing that plants need to grow and stay healthy.	Explore and identify what plants need to thrive.	Identify the effects of a shortage of each of the things that plants need to grow and stay healthy
2.4a.1 Observe and describe how seeds and bulbs grow into mature plants.	Identify that seeds and bulbs grow into mature plants.	Describe stages of development of a full grown plant.	Compare and contrast the growth patterns of different types of plants.
2.4b.1 Notice that animals, including humans, have offspring which grow into adults.	Recognise that all animals, including humans, have offspring.	Describe the relationship between adult animals and their offspring.	Compare and contrast adults and their offspring for different animals.
2.4b.2 Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). LINK 2.5.1	Identify the basic needs of animals, including humans, for survival (water, food and air).	Identify human's basic needs.	Suggest how the basic needs of different animals influences their choice of habitat.
2.5.1 Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. LINK 2.4b.2	Recognise the importance to humans of exercise, diet and hygiene.	Describe the importance of a healthy diet and exercise.	Suggest effects of poor diet and hygiene.
2.3.1 Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. LINKS 1.2.1; 2.2.1	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.	Select and justify a material for a particular use.	For particular materials in particular uses, identify limitations as well as suitability.

Year 3 Science

	Working towards	Working at ARE	Working at greater depth
3.2.1 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. LINK 4.1.2	Suggest how one of the requirements for plants to stay healthy could be explored.	Explain what all plants need to flourish and recognise how these requirements vary in amount.	Compare the requirements of different plants and link these to particular habitats.
3.4a.1 Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. LINK 5.5.1	Identify different parts of a flowering plant: roots, stem/trunk, leaves and flowers.	Describe what each part of a flowering plant does.	Suggest why parts may vary in size and shape from one species of flowering plant to another.
3.4a.2 Investigate the way in which water is transported within plants.	Identify that water is transported within plants.	Explain, with the aid of a diagram or plant, how water is carried up from the soil.	Suggest how this process might vary from one type of plant to another.
3.4a.3 Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. LINK 6.3.3	Describe the processes of pollination, seed formation and seed dispersal.	Explain how pollination, seed formation and seed dispersal play a role in the reproduction of flowering plants.	Suggest why pollination, seed formation and seed dispersal may vary from one type of plant to another.
3.4b.1 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. LINKS 4.5.1; 4.5.3; 6.3.3	Identify that animals, including humans, need the correct nutrition	Describe why animals depend on the correct nutrition.	Explain why a varied diet is important.
3.5.1 Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	Recognise that humans and some other animals have skeletons and muscle.	Explain which parts of the skeleton provide support and protection, and how they allow for movement.	Compare the ways that the skeletons of different animals provide support, protection and movement.

3.1.1 Describe in simple terms how fossils are formed when things that have lived are trapped within rock. LINK 3.2.1	Understand that fossils indicate the shape of previous life forms	Explain how fossils are formed.	Explain the importance of studying fossils.
3.1.2 Recognise that soils are made from rocks and organic matter.	Describe the appearance of soil, recognising that it is a mixture of materials.	Describe how soil is made.	Compare different soils in terms of composition.
3.2.1 Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. LINK 3.1.1	Identify that rocks vary in terms of appearance and physical properties.	Examine and test rocks, grouping them according to the results.	Suggest uses for different kinds of rocks based on their properties.
4.4.1 Identify common appliances that run on electricity.	Recognise that some appliances run on electricity.	List examples of appliances that run on electricity.	Compare and contrast appliances that run on mains electricity with those that run on batteries.
4.4.2 Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.	Construct a simple circuit.	Construct a simple circuit and name its components.	Identify the functions of components within a circuit.
4.4.3 Recognise some common conductors and insulators, and associate metals with being good conductors.	Identify metal as a conductor.	Sort materials into conductors and insulators, identifying metals as conductors.	Investigate graphite as a conductor and relate to other materials.
4.4.4 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.	Understand that a complete circuit is needed for a circuit to operate.	Predict whether a particular arrangement of components will result in a bulb lighting.	Explain why certain arrangements will not result in the bulb lighting.
4.4.5 Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.	Describe the function of a switch.	Predict how the operation of a switch will affect bulbs lighting.	Explain how altering the location of a switch affects the operation of the circuit.
3.3.1 Recognise that they need light in order to see things and that dark is the absence of light.	Identify that light is necessary for vision.	Relate being able to see to the presence of light.	Recognise that vision involves light travelling to the eyes.
3.3.2 Notice that light is reflected from surfaces.	Identify that mirrors reflect light.	Describe how some objects reflect light.	Recognise that some surfaces are better at reflecting light than others.

3.3.3 Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.	Recognise that light from the sun can be dangerous.	Describe how and why our eyes should be protected from sunlight.	Explain why sunlight can be dangerous and how types of protection works.
3.3.4 Recognise that shadows are formed when the light from a light source is blocked by a solid object.	Recognise that light cannot pass through some objects.	Explain how shadows are made.	Suggest how light is travelling to form a shadow.
3.3.5 Find patterns in the way that the size of shadows change. LINK 1.2.1	Identify that the size of shadows can be changed.	Describe how to change the size of a shadow.	Relate position of an object and position of a screen to the size of the shadow.

Year 4

	Working towards	Working at age related	Working at greater depth
4.1.1 Recognise that living things can be grouped in a variety of ways. LINK: 6.3.1	Suggest a way of grouping living things, e.g. sort shells by colour.	Suggest different ways of sorting the same group of living things, e.g. grouping birds according to where they live, what they eat and size of adults.	Suggest why some ways of grouping living things may be more useful than others, e.g. why grouping by number of legs is an easy aid to identification.
4.1.2 Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. LINK 3.2.1	Use classification keys to group and identify members from a small group of living things.	Use classification keys to group and identify members from a range of familiar and less familiar living things.	Devise own classification keys to group living things.
4.2.1 Recognise that environments can change and that this can sometimes pose dangers to living things. LINK 6.3.3	Describe how environments might change.	Describe examples of living things that are threatened by changes to environments, e.g. owls and habitat loss.	Describe examples of living things adapting to environmental change, e.g. urban foxes, and examples of extinction due to environmental change.
4.5.1 Describe the simple functions of the basic parts of the digestive system in humans. LINK 3.4b.1	Describe the purpose of the digestive system in humans.	Identify what each of the principal organs in the digestive system do.	Explain why the simple functions of the basic parts of the digestive system in humans are necessary.
4.5.2 Identify the different types of teeth in humans and their simple functions.	Recognise that humans have different types of teeth.	Describe the function of each type of tooth in the human skull.	Explain why humans have different types of teeth.

4.5.3 Construct and interpret a variety of food chains, identifying producers, predators and prey. LINK 3.4b.1	Understand the roles of producers, predators and prey.	Use a food chain to represent predator-prey relationships.	Suggest what might happen in a food chain if the population of one of the organisms changes.
4.2.1 Compare and group materials together, according to whether they are solids, liquids or gases.	Recognise the state of matter of different materials.	Group materials according to their state of matter.	Recognise that some materials (e.g. toothpaste) cannot be easily classified as solid. liquid or gas.
4.4.1 Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. LINK 5.2.4	Relate the terms 'evaporation' and 'condensation' to water.	Describe how temperature affects evaporation.	Apply the relationship between rate of evaporation with temperature to everyday contexts.
4.4.2 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). LINK 5.2.5	Recognise that materials may change state.	Identify changes of state and research values of degrees Celsius at which changes happen.	Suggest patterns in which kinds of materials change state at higher or lower temperatures.
4.3.1 Identify how sounds are made, associating some of them with something vibrating.	Identify how an object may vibrate.	Explain, with reference to vibrations, how an object makes a sound.	Group sound-making objects in terms of how they make sounds.
4.3.2 Recognise that vibrations from sounds travel through a medium to the ear.	Recognise that the ear detects vibration	Describe the role of a medium in the transmission of sound.	Compare the effectiveness of different media in terms of their ability to transmit sound.
4.3.3 Recognise that sounds get fainter as the distance from the sound source increases.	Suggest why some sounds are louder than others.	Describe the effect of moving further from the source of a sound.	Explain with reference to examples how sounds get fainter as the distance from the source increases.
4.3.4 Find patterns between the pitch of a sound and features of the object that produced it.	Recognise that the pitch of a sound can be varied.	Explain with reference to a particular object how the pitch of the sound can be changed.	Identify generic features that cause the pitch of a note to be changed.
4.3.5 Find patterns between the volume of a sound and the strength of the vibrations that produced it. LINK 5.2.4	Recognise that the volume of a sound can be varied.	Explain with reference to a particular object how the volume of the sound can be changed.	Identify generic features that cause the volume of a note to be changed.

Year 5

	Working towards	Working at age related	Working at greater depth
5.4b.1 Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. LINKS 6.3.2; 5.5.1	Explain what a life cycle is, e.g. that kittens grow into cats, have kittens and die.	Identify similarities and differences in two different life cycles, e.g. sparrow and butterfly, with reference to eggs and intermediate stages.	Suggest similarities in the life cycles of a number of vertebrates, e.g. comparison of dog, human and bird embryos.
5.4b.2 Describe the changes as humans develop to old age. LINK 6.3.2	Identify that people change as they age, e.g. recognise differences in appearance, abilities etc.	Describe the changes as humans develop to old age, e.g. trends in changes to size, weight, mobility etc.	Suggest why some of the changes that take place in humans happen, e.g. suggest why babies have disproportionately large heads compared to adults.
5.5.1 Describe the life process of reproduction in some plants and animals. LINKS 3.4a.1; 5.4b.1	Describe the life process of reproduction in humans.	Describe in sequence the stages of reproduction in some plants and animals, e.g. dog and a thistle.	Compare the process of reproduction in animals and plants, e.g. compare and contrast fertilisation.
5.2.1 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. LINK 5.3.1	Compare and group together everyday materials on the basis of their appearance and feel.	Test and sort a range of materials based on their physical properties.	Suggest why those properties might influence the selection of those materials for certain uses.
5.2.2 Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.	Know that some materials will dissolve in liquid to form a solution.	Describe how some materials, e.g. sugar, will dissolve and can be retrieved.	Identify that some soluble materials are more soluble than others.
5.2.3 Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.	Suggest how mixtures might be separated.	Justify separation techniques proposed, with reference to materials being separated.	Explain why a particular separation method might be more effective.
5.2.4 Demonstrate that dissolving, mixing and changes of state are reversible changes.	Understand that some processes are reversible.	Show how the original materials can be retrieved from each of these changes.	Classify various processes relating to materials as reversible or irreversible.

LINK 4.4.1			
5.2.5 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. LINK 4.4.2	Understand that burning is irreversible.	Identify reactants and products of chemical changes and recognise these as being irreversible.	Provide examples of when changes being irreversible are a good thing, e.g. making bricks, or not, e.g. non-biodegradable plastic bags.
5.3.1 Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. LINK 5.2.1	Give reasons for the particular uses of everyday materials, including metals, wood and plastic.	Use evidence to justify the selection of a material for a purpose.	Suggest limitations of the uses of selected materials based on test results.
4.4.1 Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. LINK 5.2.4	Relate the terms 'evaporation' and 'condensation' to the water cycle.	Describe how evaporation and condensation happen in the water cycle, and how temperature affects evaporation.	Apply the relationship between rate of evaporation with temperature to everyday contexts.
5.1.1 Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. LINK 5.2.1	Describe the effect of gravity on unsupported objects.	Explain that gravity causes objects to fall towards Earth.	Recognise that gravity acts between all masses, e.g. the Sun and the Earth.
5.1.2 Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.	Recognise that motion may be resisted by forces.	Describe how motion may be resisted by air resistance, water resistance or friction.	Identify ways in which forces that oppose motion may be useful (e.g. bicycle handlebar grips) or a nuisance (e.g. bicycle chain).
5.1.3 Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	Recognise that simple machines transfer force.	Describe how some devices may turn a smaller force into a larger one.	Explain, with reference to everyday contexts, why a force multiplier might be useful.
5.2.1 Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.	Recognise that the planets move, relative to the Sun.	Draw a diagram or use a model to describe planetary orbits.	Identify that the further out a planet is, the longer its orbit is around the Sun.

LINK 5.1.1			
5.2.2 Describe the movement of the Moon relative to the Earth.	Recognise that the Moon moves relative to the Earth.	Draw a diagram or use a model to describe the Moon's orbit around the Earth.	Relate the Moon's orbit of the Earth to the Earth's orbit of the Sun.
5.2.3 Describe the Sun, Earth and Moon as approximately spherical bodies.	Sketch the outlines of the Sun, Earth and Moon.	Describe the Sun, Earth & Moon as spheres.	Recognise that many heavenly bodies are approximately spherical.
5.2.4 Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. LINK 4.3.5	Relate day and night to the apparent position of the Sun.	Use a diagram or model to explain why the Sun seems to travel across the sky, and what causes day and night.	Explain the effect of a planet in the solar system rotating at a different rate to Earth.

Year 6

	Working towards	Working at age related expectations	Working at greater depth
6.1.1 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.	Identify the broad groups into which living things are classified, e.g. mammals.	Use similarities and differences in observable features to decide how living things should be grouped e.g. a cat is a mammal because it is warm blooded and gives birth to live young.	Explore why some living things, such as the duck billed platypus, don't neatly fit into one group.
6.1.2 Give reasons for classifying plants and animals based on specific characteristics.	State how plants and animals can be classified using specific characteristics.	Explain why certain features are useful in classifying living things, e.g. backbones in animals and flowers in plants.	Explain why other features are less useful as a basis for classification, such as size or colour.
6.3.1 Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. LINK 4.1.1	Recognise that fossils provide information about living things from millions of years ago, e.g. understand that they are preserved remains of extinct living things.	Use fossils as evidence that living things have changed over time, e.g. explain that these have died out and others have taken their place.	Suggest possible reasons for changes to living things over time, e.g. why penguins can't fly but are good at swimming.
6.3.2 Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. LINKS 5.4b.1; 5.4b.2	Recognise that living things produce offspring of the same kind, but normally offspring vary, e.g. that puppies have common features but are not identical.	Recognise that offspring normally vary from each other and from their parents, e.g. that puppies vary from each other and from their parents.	Recognise that selective breeding may result in offspring with certain features, e.g. pedigree dogs with a certain shape or colour.

6.3.3 Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. LINKS 3.4a.3; 3.4b.1; 4.2.1	Identify ways in which certain animals and plants are adapted to suit their environment in different ways.	Describe examples of a living thing that has adapted to live in a particular habitat and evolved as a result, e.g. a polar bear or cactus.	Give examples of living things that have evolved in different ways, e.g. different types of finch.
6.5.1 Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.	Name the main parts of the human circulatory system, e.g. heart, arteries, veins.	Describe what heart, blood vessels and blood do, e.g. carry oxygen to all parts of the body.	Explain some characteristics of the heart, blood vessels and blood, e.g. explain that the arteries are thicker because they carry blood at a higher pressure.
6.5.2 Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.	Recognise that diet, exercise, drugs and lifestyle impact on the way the body functions, e.g. knowing that exercise changes the body.	Suggest how their bodies are affected by substances and actions, e.g. that a high fat diet coupled with little exercise is likely to lead to obesity.	Explain how decisions about lifestyle can affect the quality of life, e.g. recognise that making excessive use of convenience foods may introduce more additives into the diet.
6.5.3 Describe the ways in which nutrients and water are transported within animals, including humans.	Describe that nutrients and water are transported within humans.	Describe with aid of diagrams the route that water takes within animals, e.g. through the human body.	Compare the ways in which nutrients and water are transported in two animals that are quite different.
6.3.1 Recognise that light appears to travel in straight lines.	Recognise that light travels from one point to another.	Represent light using straight line ray diagrams.	Recognise that even when light changes in direction, the path is still continuous.
6.3.2 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.	Recognise that some objects reflect light.	Draw diagrams using straight lines showing light travelling to the eye.	Draw diagrams using straight lines showing light reflecting off objects and into the eye.
6.3.3 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.	Describe how light travels from light sources to our eyes.	Explain how we can see an object by referring to light travelling into the eye.	Refer to the idea that some objects may be better reflectors than others.
6.3.4 Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	Relate the shape of shadows to the shape of the object that makes them.	Draw a diagram showing an object, shadow and light to relate object shape to shadow shape.	Use a diagram to explain that although a shadow is the same shape as the object, it may not be the same size.
6.4.1 Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in a circuit.	Recognise that changing the number and voltage of cells may alter the operation of a circuit.	Explain how number and voltage of cells affects the lamp or buzzer.	Relate the number or voltage of cells to the number and operation of bulbs or buzzers that can be run from them.

6.4.2 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.	Identify the function and operation of different components.	Explain the use of switches, how bulbs can be made brighter and buzzers made louder.	Explain the effect of changing the order of the components in a circuit.
6.4.3 Use recognised symbols when representing a simple circuit in a diagram.	Understand that components can be represented by symbols.	Represent a circuit that has been constructed using symbols.	Design circuits using symbols.

VOCABULARY PROGRESSION

Animals, including humans

White Rose SCIENCE

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
hair, eyes, face, nose, ears, teeth, mouth, head, neck, arm, elbow, hand, leg, knee, foot light, dark, blind, hear, loud, quiet, noisy, sweet, salty, sour, bitter, savoury, skin, rough, smooth, hard, soft, smell, scent, sniff, stench animal, mammal, fur, wild mammal, pet, bird, wings, beak, feathers, webbed feet, flippers, tail, fins, scales, gills, amphibian, frog, toad, newt, reptile, lizard, crocodile, turtle, carnivore, sharp teeth, herbivore, plants, vegetable, fruit, omnivore	shelter, heart, exercise, physical health, mental health, healthy diet, unhealthy diet, meat, sugar, germs, hygiene, doctor, disease, plaque, gums, filling offspring, egg, parent, baby, child, teenager, life cycle, adolescent, frogspawn, tadpole, froglet, caterpillar, pupa, butterfly, insect, adult	skeleton, skull, ribcage, pelvis, femur, spine, antennae, exoskeleton, joint, hinge joint, ball-and-socket joint, muscle, biceps, triceps, contract, relax carbohydrates, proteins, dairy products, fats, fruit and vegetables, balanced diet, balanced meal, nutrition, Eatwell Guide, vegan diet, vegetarian diet, omnivorous diet, pescatarian diet	incisors, canines, premolars, molars, enamel, root, decay, digestive system, mouth, oesophagus, stomach, small intestine, large intestine, rectum, saliva producer, consumer, prey, predator, farming, overfishing, hunting	foetus, elderly adult, milestone, womb, period, reproduce, hormone, puberty, life expectancy, gestation period, gestation	circulatory system, blood vessels, arteries, veins, capillaries, red blood cells, white blood cells, lungs, plasma, oxygen, atria, ventricles, right atrium, left atrium, right ventricle, left ventricle, oxygenated blood, deoxygenated blood calories, saturated fats, unsaturated fats, trans fats, drug, painkiller, depressant, stimulant, cigarette, tar, nicotine, vape, carbon monoxide, addiction, heart rate

Living things and their habitats

Year 2	Year 4	Year 5	Year 6
Arctic plants, hibernate, habitat, cactus, desert, rainfall, ocean, seagrass, woodland, fern, moss, microhabitat, spider, snail, diet, food chain, living, dead, never alive	vertebrate, invertebrate, soft-bodied invertebrate, flowering plant, non-flowering plant, seasonal changes, natural resources, rewilding, nature reserve	monotreme, mammary gland, metamorphosis, larva, chrysalis, hatchling, nestling, fledgling, fertilisation, embryo, sperm cells, egg cells, sexual reproduction, anther, stigma, style, filament, ovary, ovule, clone, runner, tuber, asexual reproduction, cutting, parent plant	organism, excretion, reproduction, mollusc, arachnid, classification, coniferous tree, microorganism, bacteria, virus, fungi, characteristics

Plants

Year 1	Year 2	Year 3
plant, flower, leaf, petals, stem, roots, branch, trunk, roots, wildflower, daisy, garden plant, sunflower, nettle, buttercup, dandelion, deciduous tree, horse chestnut, oak, sycamore, evergreen tree, pine, holly, needles, seed, soil, growth	sunlight, compost, herb, blossom, bulb, shoot	water transportation, seedling, seed coating, germination, stamen, pistil, pollen, reproductive organs, pollination, pollinators, wind dispersal, animal dispersal, water dispersal, explosion dispersal, seed dispersal

Materials

Year 1	Year 2	Year 5
material, shiny, dull, rock, heavy, light, object, wood, metal, plastic, glass, wool, solid, liquid, melt, freeze, ice, float, sink, absorb, transparent, opaque	natural material, human-made material, recycle, flexible, rigid, stone, pebble, brick, brittle, flexible, translucent, tough, lightweight, strong, breakable, waterproof	electrical conductor, electrical insulator, thermal insulator, properties, lifespan, dissolve, soluble, insoluble, solution, mixture, reversible changes, reverse, chemical reaction, irreversible change, burning, heating, vinegar, bicarbonate of soda

Rocks

Year 3
granite, pumice, sandstone, chalk, marble, gneiss, crystals, grains, layers, texture, hardness, weathering, fossil, shell, fossilisation, sediment, sandy soil, clay soil, peat soil, chalky soil, organic matter, nutrients, deforestation, habitat loss

States of matter

Year 4
solid, liquid, gas, states of matter, pouring solid, ooblek, flow, freezing, melting, boiling, condensation, evaporation, melting point, water cycle, precipitation, atmosphere, petri dish

Electricity

Year 4	Year 6
appliances, plug, socket, cell, electrocuted, circuit, switch, battery, buzzer, conductor, insulator	series circuit, voltage, current, complete circuit, incomplete circuit

Earth and space

Year 5
Solar System, orbit, Sun, planets, Pluto, celestial body, gravity, heliocentric model, geocentric model, rotate, axis, North Pole, South Pole, Earth, night, day, moon, gravitational force, satellite

Seasonal changes

Year 1
autumn, daylight, night, weather, season, rainfall, weather, rain gauge, winter, rainy, snowy, windy, cloudy, frosty, sunny, spring, summer

Sound

Year 4
vibration, sound, volume, pitch, outer ear, ear bones, cochlea, ear drum, ear canal, decibel, insulate, high-pitched, low-pitched, background noise

Light

Year 3	Year 6
light sources, natural light sources, artificial light sources, Sun, sunglasses, protect, reflection, shadow	retina, iris, pupil, lens, ray diagram, solar eclipse, refraction, medium, rainbow, prism, coloured filter, spectrum of light

Forces and magnets

Year 3	Year 5
push, pull, force, contact force, friction, magnet, magnetic, poles, magnetic force, non-metal, iron, aluminium, steel, attract, repel	frictional force, motion, air resistance, parachute, surface area, water resistance, streamlined, non-contact force, gravity, weight, lever, gear, pulley, machine

Evolution and inheritance

Year 6
variation, species, inheritance, desirable characteristics, polar habitat, desert habitat, adaptations, evolution, common ancestor, natural selection, finch, Galapagos Islands, decompose, Charles Darwin, palaeontologist, Mary Anning

WORKING SCIENTIFICALLY VOCABULARY PROGRESSION

Key vocabulary

White Rose SCIENCE

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
measure, observe, compare, measurement, growth, trowel, temperature, bend, squash, twist, stretch, absorb		hardness, reaction, bar chart, pictogram, data, increase, decrease, prediction, dissection, scales, filter paper, filter funnel, measuring cylinder, thermometer, conclusion, evaluation, data, volume, decibel meter, stopwatch, beaker, temperature, Petri dish, block chart, bar graph, classifying, classification key		line graph, microscope, anomaly, anomalous result, control, control beaker, sieve, filtering, repeatability, accuracy, correlation, precision, angle, periscope, line graph, scatter graph, independent variable, dependent variable, controlled variables, duration, theory	

Exposure words

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
draw, label, change, same, table, record, tally, pipette, size, predict, similar, different, sort, group, identify, pattern, height, number, amount, hand lens, ruler, counting cubes, centimetres, meters, suitable, unsuitable, match, test, scientific enquiry, comparative test, research, pattern seeking		fair test, identify, group and classify, model, modelling, investigate, changed, measured, stayed the same, millimetres, millilitres, data logger, tape measure, features, scientists, diagram, sorting diagram, block diagram, distance, results		causal relationships, decimals, analyse, interpret, conclude, capacity, mass, approximate, justify, secondary source, evidence, duration, mean, calculate, method	

SUSTAINABILITY VOCABULARY PROGRESSION

Sustainability

White Rose SCIENCE

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Earth, helpful, harmful, recycle, reuse, crops, farmer, cook	single-use plastic, wildlife, nature, local	food waste, landfill, food waste recycling, edible, inedible, biodiversity, rewilding, endangered, extinct	mains electricity, battery-powered, renewable energy, non-renewable energy, energy usage, habitat destruction, palm oil, sustainable	global warming, greenhouse gases, fossil fuels, climate change, glacier, carbon footprint, plastic pollution, pollution, microplastic	solar power, wind power, solar panels, wind turbine, migration, glare, light pollution, light trespass, skyglow, urban, rural, light emission