Science Coverage through the Year

When area is taught			
Autumn Term – Chemistry Focus	Spring Term – Physics Focus	Summer Term – Biology Focus	Across all three terms

Y1
Working Scientifically
Talk about what they see, touch, smell, hear or taste
Use simple equipment to help make observations
Perform a simple test
Tell other people about what they have done
Identify and classify things they observe
Think of some questions to ask
Explain what has been found out
Show their work using pictures, labels and captions
Record findings using standard units
Put some information in a chart or table
Biology
Point out some of the differences between different animals
classify common animals (birds, fish, amphibians, reptiles, mammals)
Describe how an animal is suited to its environment
Name the parts of the human body that you can see
Classify animals by what they eat (carnivore, herbivore, omnivore)
Name the petals, stem, leaf and root of a plant
Identify and name a range of common wild and garden plants and trees
Sort some animals by body covering, for example: scales, fur and skin
Physics
Observe changes across the four seasons
Observe and describe weather associated with the seasons and how day length varies
Chemistry
Describe materials using senses using science specific words
Explain what material objects are made from
Explain why a material might be useful for a specific job
Sort materials into groups by a given criteria

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Y2
Working Scientifically
Use some science words to describe what they have seen and measured
Ask people questions and use secondary sources to find answers
Observe closely, using simple equipment
Say whether things happened as they expected
Organise things into groups
Find simple patterns (or associations)
Identify animals and plants by a specific criteria, for example, lay eggs or not; have feathers or not
Use text to record their observations
Use diagrams to record their observations
Use pictures to record their observations
Use charts to record their observations
Use tables to record their observations
Perform simple tests
Suggest how, and use prompts, to find things out
Biology
Identify that most living things live in habitats to which they are suited
Explain the differences between living and non- living things and things that have never been alive
Describe how different habitats provide for the basic needs of different kinds of animals and plants
Describe how plants and animals depend on each other
Identify and name a variety of plants and animals in their habitats, including micro- habitats
Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain
Identify and name different sources of food
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.
Describe the importance of exercise for humans
Describe the importance of eating the right amounts of food for humans
Describe the importance of hygiene for humans
Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
Notice that animals, including humans, have offspring which grow into adults
Chemistry
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.

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Y3
Working Scientifically
Use different ideas and suggest how to find something out
Plan a fair test and explain why it was fair
Set up simple practical enquiries
Set up simple comparative tests
Set up fair tests
Explain why they need to collect information to answer a question
Make systematic and careful observations and, where appropriate, take accurate measurements using standard units
Record their observations in different ways, for example, labelled diagrams, charts etc.
Explain what they have found out and use their measurements to say whether it helps to answer their question
Use a range of equipment, (including a thermometer and data- logger)
Biology
Identify and describe the functions of different parts of flowering plants, for example, 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)
Explore how the requirements of plants 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
Identify that animals, including humans, need the right types and amount of nutrition
Understand that humans 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
Physics
Recognise that they need light in order to see things
Recognise 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 a solid object
Find patterns in the way that the size of shadows change.
Compare how things move on different surfaces
Notice that some forces need contact between two 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 two poles
Predict whether two magnets will attract or repel each other, depending on which poles are facing
Chemistry
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

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Y4
Working Scientifically
Ask relevant questions and use different types of scientific enquiries to answer them
Set up simple practical enquiries
Set up comparative tests
Set up fair tests
Decide which information needs to be collected
Decide the best way for collecting this information
Take measurements using different equipment and units of measure
Record what they have found in a range of ways
Make accurate measurements using standard units
Explain their findings in different ways, for example, display
Explain their findings in different ways, for example, presentation,
Explain their findings in different ways, for example, writing
Using results to draw simple conclusions
Use results to make predictions for new values
Suggest improvements to their experiments
Raise further questions
Make predictions based on something they have found out
Record and present what they have found using scientific language,
Record and present what they have found using drawings
Record and present what they have found using labelled diagrams
Record and present what they have found using keys
Record and present what they have found using bar charts
Record and present what they have found using tables
Biology
Identify the basic parts of the human digestive system
Describe the simple functions of the organs of the human digestive system
Identify the different types of human teeth and their simple functions
Construct and interpret a variety of food chains, identifying producers, predators and prey
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 this can sometimes pose dangers to living things
Physics
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.
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
Chemistry
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
Associate the rate of evaporation in the water cycle with temperature.

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Y5
Working Scientifically
Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
Record data and results of increasing complexity using scientific diagrams and labels
Record data and results of increasing complexity using classification keys,
Record data and results of increasing complexity using tables
Record data and results of increasing complexity using scatter graphs
Record data and results of increasing complexity using bar graphs
Record data and results of increasing complexity using line graphs
Use test results to make predictions to set up further comparative and fair tests
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
Identify scientific evidence that has been used to support or refute ideas or arguments.
Biology
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 the changes as humans develop to old age.
Physics
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.
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 that acts between moving surfaces
Identify the effects of water resistance that acts between moving surfaces
Identify the effects of friction that acts between moving surfaces
Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
Chemistry
Compare and group together everyday materials on the basis of their properties:
hardness
solubility
transparency
conductivity (electrical)
conductivity (thermal)
response to magnets
Know that some materials will dissolve in liquid to form a solution
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.

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Y6
Working Scientifically
Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
Record data and results of increasing complexity using scientific diagrams and labels
Record data and results of increasing complexity using classification keys,
Record data and results of increasing complexity using tables
Record data and results of increasing complexity using scatter graphs
Record data and results of increasing complexity using bar graphs
Record data and results of increasing complexity using line graphs
Use test results to make predictions to set up further comparative and fair tests
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
Identify scientific evidence that has been used to support or refute ideas or arguments
Biology
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 and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
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
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
Physics
Recognise that light appears to travel in straight lines
Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye
Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them
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