

| Science   | Autumn Term CLJ<br><i>Science Investigations</i>   | Spring Term CLJ<br><i>Science Investigations</i>   | Summer Term CLJ<br><i>Science Investigations</i>   |
|---|--|--|--|
| EYFS  | Explore different surfaces, sights, sounds, smells observations on walk<br>Weather-water, ice and snow   | Animals and their Habitats<br>Mixing colours<br>Sand exploration<br>Cooking Light  | The growth of our planted bulbs and seeds<br>Mud kitchen, Caterpillar life cycle<br>Wormery - what will happen?<br>Our world   |
| Year 1  | <p align="center"><b>Heroes</b></p> <p><u>Everyday materials - Properties - What are objects made from?</u></p> <ul style="list-style-type: none"> <li>➤ I can distinguish between an object and material from which it is made</li> <li>➤ I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock</li> <li>➤ I can describe the simple physical properties of a variety of everyday materials</li> <li>➤ I can compare and group together a variety of everyday materials on the basis of their simple physical properties.</li> </ul> <p><u>Seasonal changes - What changes take place through the Seasons?</u></p> <ul style="list-style-type: none"> <li>➤ I can observe changes across the four seasons</li> <li>➤ I can observe and describe weather associated with the seasons and how day length varies</li> </ul>                                     | <p align="center"><b>Scales, Fur &amp; Feathers</b></p> <p><u>Animals including humans - Are humans animals? How are humans different from other animals?</u></p> <ul style="list-style-type: none"> <li>➤ I can identify and name a variety of common animals including, fish, amphibians, reptiles, birds and mammals</li> <li>➤ I can identify and name a variety of common animals that are carnivores, herbivores and omnivores</li> <li>➤ I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)</li> </ul> <p><u>Animals including humans - Are humans animals? How are humans different from other animals?</u></p> <ul style="list-style-type: none"> <li>➤ I can identify, name, draw and label the basic parts of the human body<br/>I can say which part of the body is associated with each sense.</li> </ul> | <p align="center"><b>Towers, Tunnels &amp; Turrets</b></p> <p>Plants - <u>What do plants and trees have in common?</u></p> <ul style="list-style-type: none"> <li>➤ I can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</li> <li>➤ I can identify and describe the basic structure of a variety of common flowering plants, including trees.</li> </ul>  |
| Year 1<br><small>Working Scientifically Progression</small> | Ask simple questions. Observe closely using senses, use findings to answer questions. Use simple equipment provided; hand lenses, egg timers. Do simple tests suggested to them. Identify key features and classify. Make simple comparisons. Talk about findings. Draw & label simple pictures/diagrams about what they see and do. Say what has happened. Say whether what has happened was what they expected   |  |  |
| Year 2  | <p align="center"><b>Animals, Astronaut &amp; Aliens</b></p> <p><u>Living things and their habitats - Animal Habitats, Food Chains, Life Processes</u></p> <p><u>Alive, Dead or Never Lived?</u></p> <ul style="list-style-type: none"> <li>➤ I can explore and compare the difference between things that are living, dead and things that have never been alive</li> <li>➤ I can identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of the different kinds of animals and plants, and how they depend on each other</li> <li>➤ I can identify and name a variety of plants and animals in their habitats, including micro habitats</li> <li>➤ I can 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.</li> </ul> | <p align="center"><b>Engineering Excellence</b></p> <p><u>Uses of everyday materials - Testing Materials, Building Bridges</u></p> <p><u>- What is the best material to build a bridge?</u></p> <ul style="list-style-type: none"> <li>➤ I can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for different uses</li> <li>➤ I can compare how things move on different surfaces</li> <li>➤ I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</li> </ul>  | <p align="center"><b>Around the World in 80 Days</b></p> <p><u>Plants - Habitats, Changes, Identification - What do plants need to survive?</u></p> <ul style="list-style-type: none"> <li>➤ I can observe and describe how seeds grow into mature plants</li> <li>➤ I can find out and describe how plants need water. Light and a suitable temperature to grow and stay healthy</li> </ul> <p><u>Animals including Humans - Healthy eating &amp; Personal Hygiene - What do animals (including humans) need to survive?</u></p> <ul style="list-style-type: none"> <li>➤ I know that animals, including humans, have offspring which grow into adults</li> <li>➤ I can find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>➤ I can describe the importance for humans of exercise, eating and right amounts of different types of food, and hygiene</li> <li>➤ I can explain the facts and science relating to immunisation and vaccination (PSHE Link)</li> </ul> |
| Year 2<br><small>Working Scientifically Progression</small> | Use first- hand experience to ask & answer simple questions. Make relevant observations and use to answer questions. Collect data with support. Simple, hand lenses, egg timers<br>Begin to select own equipment. Suggest how to find things out. Do simple tests. Begin to recognise if a test is fair/unfair. Identify key features and classify. Compare objects, living things and events. Describe observations using simple scientific vocabulary. Complete simple charts. Say what has happened and what their observations show. Explain their findings. Say whether what has happened was what they expected. Begin to suggest improvements   |  |  |

|   |   |  |  |
|---|---|--|--|
| Year 3  | <p style="text-align: center;"><b>Tomb Raiders</b></p> <p>Animals including humans - <a href="#">How do we keep our teeth and bodies healthy?</a><br/> <a href="#">What is a food chain?</a></p> <ul style="list-style-type: none"> <li>➤ I can identify that animals including humans, need the right types and amounts of nutrition, and that they cannot make their own food; they get nutrition from what they eat</li> <li>➤ I can construct and interpret a variety of food chains identify producers, predators and prey</li> <li>➤ I can identify the different types of teeth in humans and their simple functions</li> </ul>  | <p style="text-align: center;"><b>Through the Ages</b></p> <p><u>Rocks - <a href="#">Are all rocks the same?</a></u></p> <ul style="list-style-type: none"> <li>➤ I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>➤ I can describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>➤ I can recognise that soils are made from rocks and organic matter</li> </ul> <p><u>Plants - <a href="#">How is water transported within plants? / How are new plants made?</a></u></p> <ul style="list-style-type: none"> <li>➤ I can identify and describe the functions of different parts of flowering plants: root, stem/trunk, leaves and flowers</li> <li>➤ I can 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</li> <li>➤ I can investigate the way in which water is transported within plants</li> <li>➤ I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</li> </ul>   | <p style="text-align: center;"><b>Flash! Bang! What a Picture</b></p> <p>Sound - <a href="#">How do we hear?</a></p> <ul style="list-style-type: none"> <li>➤ I can identify how sounds are made, associating some of them with something vibrating</li> <li>➤ I can recognise that vibrations from sound travels through a medium to the ear</li> <li>➤ I can find patterns between the pitch of sound and features of the object that produced it</li> <li>➤ I can find patterns between the volume of a sound and the strength of the vibrations that produced it</li> <li>➤ I can recognise that sounds get fainter as the distance from the sound source increases</li> </ul> <p>Light - <a href="#">Do we need light to make shadows?</a></p> <ul style="list-style-type: none"> <li>➤ I recognise that I need light in order to see things and that dark is the absence of light</li> <li>➤ I know that light is reflected from surfaces</li> <li>➤ I recognise that light from the sun can be dangerous and that there are ways to protect my eyes</li> <li>➤ I recognise that shadows are formed when the light from a light source is blocked by a solid object</li> <li>➤ I can find patterns in the way that the size of the shadow changes</li> </ul> |
| Year 3<br><small>Working Scientifically Progression</small> | <p>Ask relevant questions. Carry out simple research. Make relevant observations, take measurements. Measuring devices, thermometers, stopwatches etc. Select own equipment. Design simple tests using own ideas. Carry out a fair test and understand why it is fair. Identify differences and similarities. Oral and written explanations in pictures and diagrams, displays and presentations, selecting own format. Suggest improvements and predict further tests. Offer scientific explanations for their findings. Identify patterns. Evaluate their findings. To answer questions by using findings to support their opinions.</p>  |  |  |
| Year 4  | <p style="text-align: center;"><b>Eureka</b></p> <p><u>States of Matter - Solids, Liquids &amp; Gases - <a href="#">What are different states of materials?</a></u></p> <ul style="list-style-type: none"> <li>➤ I can compare and group materials together, according to whether they are solids, liquids or gases</li> <li>➤ I can 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)</li> <li>➤ I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</li> </ul>  | <p style="text-align: center;"><b>Bright Sparks</b></p> <p><u>Electricity - <a href="#">What is electricity and how does it work?</a></u></p> <ul style="list-style-type: none"> <li>• I can identify common appliances that run on electricity</li> <li>➤ I can construct a simple series electrical circuit, identifying and naming its basic parts including cells, wires, bulbs, switches and buzzers</li> <li>➤ I can 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</li> <li>➤ I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> <li>➤ I can recognise some common conductors and insulators, and associate metals with being good conductors</li> <li>➤ I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>➤ I can compare and give reason for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches</li> <li>➤ I can use recognised symbols when representing a simple circuit in a diagram</li> </ul> | <p style="text-align: center;"><b>Empire Strikes Back</b></p> <p>Animals including humans - <a href="#">Where does our food go? How do we move?</a></p> <ul style="list-style-type: none"> <li>➤ I can describe the simple functions of the basic parts of the digestive system in humans</li> <li>➤ I can identify that humans and some other animals have skeletons and muscles for support, protection and movement</li> </ul> <p><u>All Living Things - <a href="#">How can we group organisms?</a></u></p> <ul style="list-style-type: none"> <li>➤ I can recognise that living things can be grouped in a variety of ways</li> <li>➤ I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>➤ I can recognise that environments can change and that this can sometimes pose dangers to living things</li> </ul> <p style="background-color: yellow;">I can recognise early signs of physical illness, such as weight loss or unexplained changes to the body (put in from new PSHE link)</p>  |
| Year 4<br><small>Working Scientifically Progression</small> | <p>Ask relevant questions based around previous science experiences. Select information from different sources. Make a series of relevant observations including taking measurements. Analyse data. Select and use measuring devices, thermometers, stopwatches with increasing accuracy. Design their own simple tests to answer question-varying one factor and keeping the other factor the same. Identify differences and similarities. Compare predictions with actual results. Oral and written explanations, including measurements, tables and bar charts. Predict outcomes, suggest improvements and predict further tests. Relate conclusions to scientific understanding. Use graphs to answer questions and support findings, using their own evidence.</p> |  |  |

|  |  |  |  |
|--|--|--|--|
| <p>Year 5</p>  | <p style="text-align: center;"><b>All Change</b></p> <p><u>Materials – Properties and Changes - Can we make and change materials?</u></p> <ul style="list-style-type: none"> <li>➤ I can 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</li> <li>➤ I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials including metals, wood and plastics</li> <li>➤ I can 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.</li> </ul> | <p style="text-align: center;"><b>Central Force</b></p> <p><u>Forces and Magnets - How do forces work all around us?</u></p> <ul style="list-style-type: none"> <li>➤ I can compare how things move on different surfaces</li> <li>➤ I understand that some forces need contact between two objects, but magnetic forces can act at a distance</li> <li>➤ I can observe how magnets attract or repel each other and attracts some materials and not others</li> <li>➤ I can compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic material</li> <li>➤ I can describe magnets as having 2 poles</li> <li>➤ I can predict whether 2 magnets will attract or repel each other, depending on which poles are facing</li> </ul> <p><u>Forces - How do forces work all around us?</u></p> <ul style="list-style-type: none"> <li>➤ I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li> <li>➤ I can identify the effects of air resistance, water resistance and friction that act between moving surfaces</li> <li>➤ I can recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect</li> </ul> | <p style="text-align: center;"><b>Our Place in Space</b></p> <p><u>Earth and Space - Where is the earth in space?</u></p> <ul style="list-style-type: none"> <li>➤ I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system</li> <li>➤ I can describe the movement of the Moon relative to the Earth</li> <li>➤ I can describe the Sun, Earth and Moon as approximately spherical bodies</li> <li>➤ I can use the idea of the Earth's rotation to explain day and night, and the apparent movement of the sun across the sky</li> </ul> <p><u>Living Things and their habitats - What is reproduction?</u></p> <ul style="list-style-type: none"> <li>➤ I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>➤ I can describe the life process of reproduction in some plants and animals</li> </ul> <p><u>Animals including humans - How do change from babies to adults?</u></p> <ul style="list-style-type: none"> <li>➤ I can describe the changes as humans develop to old age</li> </ul>   |
| <p>Year 5<br/>Working Scientifically Progression</p> | <p>Ask questions which can be investigated – plan investigations from the question. Take systematic measurements with increasing accuracy. Take a series of measurements. Plan for, use and select a range of scientific equipment- stop watches, scales, spring balances... Plan enquiries, recognise and control variables. Recognise key features of fair testing. Use classification tables. Produce oral and written reports, tables, diagrams &amp; labels, bar and line graphs, models. Use previous experience and experimental evidence to explain casual relationships. Discuss any unexpected or different evidence. Utilise qualitative and quantitative information to discuss findings. Make predictions, discuss improvements and set up further fair tests.</p>                                  |  |  |
| <p>Year 6</p>  | <p style="text-align: center;"><b>Go with the Flow</b></p> <p><u>Rivers and water cycle - Is water essential to life?</u><br/><u>What can we find out about water?</u></p> <ul style="list-style-type: none"> <li>➤ I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</li> <li>➤ I know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</li> <li>➤ I can demonstrate that dissolving, mixing and changes of state are reversible changes</li> </ul>   | <p style="text-align: center;"><b>Conflict &amp; Combat</b></p> <p><u>Light - How can we prove that light travels in straight lines?</u></p> <ul style="list-style-type: none"> <li>➤ I can recognise that light appears to travel in straight lines</li> <li>➤ I can 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</li> <li>➤ I can explain that we see things because light travels from light source to our eyes or from light sources to objects and then to our eyes</li> <li>➤ I can use the idea that light travels in straight lines to explain why shadows have the same shape as the object that cast them</li> </ul>   | <p style="text-align: center;"><b>Survival of the Fittest</b></p> <p><u>Human Body &amp; circulation, Reproduction &amp; human life-cycle Evolution - Adaptations - Where have we come from?</u></p> <ul style="list-style-type: none"> <li>➤ I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth Millions of year ago</li> <li>➤ I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>➤ I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</li> </ul> <p><u>Animals including humans - How do our organs keep us alive?</u><br/><u>What changes can we expect during Puberty?</u></p> <ul style="list-style-type: none"> <li>➤ I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>➤ I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>➤ I can describe the ways in which nutrients and water are transported within animals including humans</li> <li>➤ I can explain the facts and science relating to immunisation and vaccination (put in from new PSHE/RSE guidance)</li> </ul> |
| <p>Year 6<br/>Working Scientifically Progression</p> | <p>Using scientific knowledge ask questions which can be investigated, based on prior learning. Take fine measurements with increasing accuracy. A range of scientific equipment- stop watches, scales, spring balance, measuring beakers. Using previous findings and conclusions plan enquiries (and further enquiries). Recognise and control variables. Use classification tables. Oral and written reports, (using scientific vocabulary), diagrams &amp; labels, bar and line graphs, models. (selecting own scales for range of graphs). Explain casual relationships. Discuss conclusions. Make further predictions, discuss improvements. Utilise qualitative and quantitative information to discuss findings. Discuss how the interpretation of evidence leads to new ideas.</p>                      |  |  |

## Lower Key Stage 2 - NC

### Working scientifically

- I can ask relevant questions and use different types of scientific enquiries to answer them
- I can set up simple practical enquiries, comparative and fair tests
- I can make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- I can gather, record, classify and present data in a variety of ways to help in answering questions
- I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables
- I can report on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions
- I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- I can identify differences, similarities or changes related to simple scientific ideas and processes
- I can use straightforward scientific evidence to answer questions or to support my findings

## Upper Key Stage 2 - NC

### Working Scientifically

- I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- I can take measurements, using a range of scientific equipment, with increasing accuracy and precision
- I can record data and results of increasing complexity using scientific diagrams and tables, classification keys, tables, and bar and line graphs
- I can use test results to make predictions to set up further comparative and fair tests
- I can report and present findings from enquiries, including conclusions, casual relationships and explanations of results, in oral and written forms such as displays and their presentations
- I can identify scientific evidence that has been used to support or refute ideas or arguments