Curriculum End Points - Science

Charnock Hall Primary Academy
A L.E.A.D. Academy

 Life (Biology) - The condition that distinguishes animals and plants from inorganic matter	 Matter (Chemisty) – Physical substance which occupies space and possesses mass	 Energy (Physics)- Power derived from the use of physical or chemical resources

	Autumn Term	Spring Term	Summer Term
EYFS	Me and my Community Stories and Rhymes Shows curiosity in the environment around them inside and outdoors. Comments on unknown objects, based on their own exploration. Says what they can hear, see, and feel whilst outside. An immediate change, feeling the wind pick up, getting sunny. Observes and talks about the changes in nature they notice.	Cold Places Growing Takes part in simple experiments led by an adult (floating and sinking) discussing the differences in the objects. Observes and talks about the changes in objects over a period (melting). Makes simple predictions with support. Carries out simple set up experiment (sorting materials) that enables them to talk about similarities –classifying. Answers and asks “why” questions. Names the four seasons and talks about their differences and the impact on their lives. Pupils use new knowledge to classify animals therefore highlighting their similarities. For example, carnivore dinosaurs all have sharp claws and teeth. Understands animals have similar features to live in specific habitat. Camouflage, fur to protect from the cold etc.	Minibeasts At the Seaside Selects equipment to help them follow their own enquiry of interest, for example, which mini beasts live in the playground? Records observations in a number of ways; drawings, written work, photographs. Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawings on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. Records observations to enable changes to be observed. Shows an understanding of the passing of time through the life cycle of plants, animals, and mini beasts. Sequences the basic stages of human life cycle.

Year 1	Seasonal Changes + plus one lesson done every season. I can name all four seasons I can talk about what changes over Spring in the environment I can explain how the weather changes over Spring I can say how the length of day changes over Spring I can talk about my findings and what I have found out. Animals Including Humans (Humans Senses) I can name the parts of the human body that I can see. I can identify the main parts of the human body and link them to my senses. I can use simple scientific words to answer questions. I can complete simple test. I can explain what we have found out (findings).	Everyday Materials I can describe materials using my senses I can describe materials using my senses, using specific scientific words I can explain what material objects are made from I can explain why a material might be useful for a specific job I can name some different materials I can sort materials into groups by a given criteria I can explain how solid shapes I be changed by squashing, bending, twisting and stretching I can use simple scientific words to answer questions. I can complete simple test. I can sort and groups objects, materials and living things. I can use scientific language to ask and answer a question. I can observe and record the daily weather on a chart or in a table I can describe how day length changes over a year. Animals Including Humans (Animal Parts) I can name the parts of an animal's body I can classify animals by what they eat (carnivore, herbivore, omnivore) I can compare the bodies of different animals	Plants/Seasonal changes I can name the petals, stem, leaf and root of a plant I can identify and name a range of common plants and trees I can recognise deciduous and evergreen trees I can describe the parts of a plant (roots, stem, leaves, flowers). I can care for a growing seedling. I can describe how plants change over time. I can name a range of different types of weather from pictures or sounds. I can talk about what changes over Summer in the environment I can explain how the weather changes over Summer I can say how the length of day changes over Summer I can use simple scientific words to answer questions. I can observe living things and describe what they use. I can talk about my findings and what I have found out.

		I can point out some of the differences between different animals I can sort photographs of living things and non-living things I can classify common animals (birds, fish, amphibians, reptiles, mammals, invertebrates) I can describe how an animal is suited to its environment I can sort and groups objects, materials and living things. I can use scientific language to ask and answer a question.	
Year 2	Living things and their habitats I can match certain living things to the habitats I are found in. I can explain the differences between living and non-living things I can describe some of the life processes common to plants and animals, including humans. I can decide whether something is living, dead or non- living. I can describe how a habitat provides for the basic needs of things living there. I can describe a range of different habitats. I can describe how plants and animals are suited to their habitat. I can explain how animals get food from plants and other animals and use a simple food chain I can group materials and living things and notice patterns. I can construct simple food chains.	Everyday Materials I can distinguish between an object and the material from which it is made I can identify and name a range of everyday materials (wood, plastic, metal, water, rock) I can describe the simple physical properties of a variety of everyday materials I can compare and classify a variety of materials based on their simple physical properties I can explore how the shapes of solid objects can be changed (squashing, bending, twisting, stretching) I can identify and compare the uses of a range of everyday materials (wood, metal, plastic, glass, brick/rock, paper/cardboard) I can suggest and ask questions that can be answered in different ways. I can do things in the correct order when performing a simple test.	Animals I can describe what animals need to survive I can explain that animals grow and reproduce I can explain why animals have offspring I can describe the life cycle of some living things (e.g. egg, chick, chicken) I can explain the basic needs of animals, including humans I can suggest and ask questions that can be answered in different ways. I can group materials and living things and notice patterns. I can gather data in a range of ways (tables, bar charts and venn diagrams).

	Humans I can explain the basic needs of animals, including humans. I can describe why exercise and a balanced diet are important for humans. I can suggest and ask questions that can be answered in different ways. I can do things in the correct order when performing a simple test.	I can use simple hand lenses and timers to take measurements, make observations. I can gather data in a range of ways (tables, bar charts and venn diagrams). I can use simple scientific language to explain what they have found out. Plants I can describe what plants need to survive I can describe how seeds and bulbs grow into plants I can sort seeds and bulbs into groups according to physical features. I can describe the different plant parts and give examples of which foods that we eat are derived from these parts. I can describe what a plant needs to grow and stay healthy I can explain that plants grow and reproduce I can do things in the correct order when performing a simple test. I can observe something closely and describe changes over time. I can identify simple patterns of relationships.	
Year 3	Animals including Humans I can explain the importance of a nutritious balanced diet I can describe how nutrients, water and oxygen are transported within animals and humans I can describe and explain the skeletal system of a human	Rocks, Fossils and Soils I can compare and group together different rocks based on my simple physical properties I can describe and explain how different rocks can be useful to us I can describe and explain the differences between sedimentary and igneous rocks, considering the way I are formed	Plants I can identify and describe the functions of different parts of plants (roots, stem, leaves and flowers) I can identify what a plants needs for life and growth

	I can describe and explain the muscular system of a human I can use ideas to pose questions independently.	I can describe how fossils are formed within sedimentary rock I can identify a range of fossilised animals and plants from pictures. I can suggest what fossils of the future may be. I can describe and carry out a fair test and make predictions. Forces and Magnets I can observe that magnetic forces can be transmitted without direct contact I can talk about how some magnets attract or repel each other I can explain that magnets have two poles I can classify which materials are attracted to magnets I can describe the speed and direction of moving objects I can describe forces in action (pushing and pulling). I can sort and groups materials into materials that are magnetic and those that are not. I can describe and carry out a fair test and make a prediction. I can draw a simple conclusion based on evidence. I can record my findings using scientific language and present them in different ways (diagrams, tables and charts). I can decide what to observe during an investigation.	I can describe the ways in which nutrients, water and oxygen are transported within plants I can explain how the needs and functions of plant parts vary from plant to plant e.g. insect and wind pollinated plants I can investigate the way in which water is transported within plants I can sort and classify a range of seeds in broad dispersal methods. I can allocate different stages of plant's life cycle's to different seasons, suggesting reasons why stages occur when they do. I can decide what to observe during an investigation. I can take measurements using standard units. I can record my findings using scientific language and present them in different ways (diagrams, tables and charts). I can gather, record and use data in a variety of ways to answer questions. I can draw a simple conclusion based on evidence. Light I can explain the difference between transparent, translucent and opaque I can compare the brightness and colour of lights I can explain how bulbs work in an electrical circuit I can explain how shadows are formed I can identify how light is reflected from surfaces, using equipment such as mirrors.

		I can talk about criteria for grouping, sorting and begin to see patterns and relationships. I can record my findings using scientific language and present them in different ways (diagrams, tables and charts). I can gather, record and use data in a variety of ways to answer questions. I can draw a simple conclusion based on evidence.	I can classify a range of objects as either light sources or light reflectors. I can describe and carry out a fair test and make a prediction. I can record my findings using scientific language and present them in different ways (diagrams, tables and charts).
Year 4	Electricity I can explain how electricity is useful to us I can explain what a conductor is and test materials for conductivity I can explain closed and open circuits I can construct a circuit with a switch I can identify whether or not a lamp will light in a simple series circuit I can recognise some common conductors and insulators I can draw simple circuits using symbols. I can sort and classify materials into conductors and insulators. I can suggest relevant questions and know they can be answered in a variety of ways including secondary sources. I can choose appropriate ways to record and present information, findings and conclusions for different audiences. Animals including Humans I can identify and name the basic parts of the human digestive system	Sound I can describe a range of sounds I can compare sources of sound and explain how the sounds differ I can explain how to change a sound (louder/softer) I can describe and explain how a sound travels from a source to our ears I can explain what happens to sound as it travels away from its source I can explain how you could change the pitch of a sound I can investigate how different materials can affect the pitch and volume of sounds I can listen to and identify a variety of sounds. I can investigate and classify materials for their ability to insulate against sound. I can make decisions about different enquires including understanding when a fair test is necessary. I can choose appropriate ways to record and present information, findings and conclusions for different audiences.	Living things and their Habitats I can use a classification key to group a variety of living things (plants, vertebrates, invertebrates) I can compare the classification of common plants and animals to living things found in other places (under the sea, prehistoric) I can name and group a variety of living things based on feeding patterns (producer, consumer, predator, prey, herbivore, carnivore, omnivore) I can recognise that environments can change and this can sometimes pose a danger to living things I can identify similarities and differences/changes when talking about scientific processes. I can begin to use simple keys. I can use a food chain and explain what would happen if a part was missing.

	I can describe the function of the organs of the human digestive system I can identify the simple function of different types of human teeth I can compare the teeth of herbivores and carnivores I can explain what a simple food chain shows I can identify similarities and differences/changes when talking about scientific processes. I can begin to use simple keys.	States of Matter I can compare and group materials based on their states of matter, ie, liquid, solid or gas I can explain what happens to materials when they are heated or cooled I can measure the temperature at which different materials change state I can use measurements to explain changes to the state of water I can explain the part that evaporation and condensation has in the water cycle I can make decisions about different enquires including understanding when a fair test is necessary. I can make systematic and careful observations. I can take accurate measurements using standard units and a range of equipment including thermometers and data loggers. I can choose appropriate ways to record and present information, findings and conclusions for different audiences. I can identify with help, changes, patterns, similarities and differences in data to help form conclusions. I can use recorded data to make predictions.	
Year 5	Living things and their Habitats I can describe and compare the life cycles of a range of animals, including humans, amphibians, insects and birds I can compare the gestation period of a range of animals. I can describe the life cycles of common plants	Earth and Space I can name the 8 planets in the solar system. I can identify and explain the movement of the Earth relative to the sun I can explain how seasons and the associated weather is created I can identify and explain the movement of the moon relative to the Earth	Animals including humans (Reproduction) I can describe physical changes in the male and female human body during puberty. I can explore the work of well know naturalists (David Attenborough and Jane Goodall). I can describe how we define a mammal and how this relates to classification.

	I can describe and explain the process of respiration in humans and plants I can describe the process of plant reproduction. I can talk with knowledge about birth, reproduction and death of familiar animals or plants I can develop simple keys to identify, classify and describe living things and materials. I can record data and results of increasing complexity using scientific diagrams, labels, classification keys, tables, bar and line graphs Properties and changes of materials I can test and group materials based on scientific evidence (hardness, solubility, transparency, conductivity, insulation, magnetism) I can explain the process of dissolving I can recover a substance from a solution I can decide how a mixture would best be separated (filtering, sieving, evaporating) I can give reasons for the uses of everyday materials based on scientific evidence I can show what I know about the properties of different materials I can use my knowledge of materials to suggest ways to classify (solids, liquids, gasses) I can describe changes using scientific words (evaporation, condensation) I can use the terms 'reversible' and 'irreversible' I can raise different scientific questions and hypothesis.	I can explain the size, shape and position of the earth, sun and moon I can explain how night and day are created and use diagrams to show this I can explain how planets are linked to stars. I can investigate shadows in relations to times of the day and explain why the sun appears to move across the sky. I can describe the Earths rotation to explain day and night. I can raise different scientific questions and hypothesis. I can use scientific language and diagrams to justify my ideas. Forces I can explain what gravity is and its impact on our lives I can study the word of Galileo and Newton. I can explain why a wheeled object that is initially pushed will slow down and stop I can explain the impact of friction on a moving object I can explain the effect of drag force on moving objects I can explain how force and motion can be transferred through gears, pulleys, levers and springs I can classify and group forces based on their actions or whether they act directly, at a distance.	I can describe the process of sexual reproduction in a familiar animal and why it is important for species survival. .

	I can plan and carry out a comparative and fair test. 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, labels, classification keys, tables, bar and line graphs. I can justify simple conclusions on a hypothesis. I can begin to recognise how scientific ideas can change over time. I can spell and pronounce scientific vocabulary accurately.	I can plan and carry out a comparative and fair test. I can take measurements using a range of scientific equipment with increasing accuracy and precision. I can use scientific language and diagrams to justify my ideas. I can spell and pronounce scientific vocabulary accurately.	
Year 6	Animals including humans I can identify and explain the function of the organs of the human circulatory system (heart, blood vessels, blood, blood pressure, clotting) I can identify and explain the function of the organs of the human gaseous exchange system (lungs, nose, throat, bronchi, bronchial tubes, diaphragm, ribs, breathing) I can name the major organs in the human body I can locate the major human organs I can make a diagram that outlines the main parts of a body I can recognise the impact of diet, exercise, drugs and lifestyle on the way our bodies function I can describe the ways in which nutrients and water are transported within the human body I can describe how the life cycles of bacteria and viruses differ.	Electricity I can identify and name the basic parts of a simple electric series circuit (cells, wires, bulbs, switches, buzzers) I can compare and give reasons for variation in how components function, including bulb brightness, buzzer volume and on/off position of switches I can explain how to make changes in a circuit I can explain the impact of changes in a circuit I can explain the effect of changing the voltage of a battery I can use recognized symbols when representing a circuit in a diagram I can select and plan the most suitable line of enquiry, explaining which variables need to be controlled and why, in a variety of comparative and fair tests. I can decide which observations to make using test results.	Light I can explain how light travels I can explain how the human eye sees objects I can explain how different colours of light can be created I can explain why shadows have the same shape as the objects that cast them I can identify different parts of the eye. I can classify a range of objects based on their reflective qualities. I can select and plan the most suitable line of enquiry, explaining which variables need to be controlled and why, in a variety of comparative and fair tests.

	Evolution and inheritance I can give reasons for why living things produce offspring of the same kind I can give reasons for why offspring are not identical with each other or with my parents I can explain the process of evolution and describe the evidence for this I can explain that fossils provide information about living things that inhabited the Earth millions of years ago I can begin to appreciate that variation in offspring over time can make animals more or less able to survive in particular environments I can talk about the life of Charles Darwin I can explain how fossils are formed and how fossil discoveries have helped develop the theory of evolution. I can pose and select the most appropriate line of enquiry to investigate scientific questions. I can identify and explain patterns seen in the natural environment. I can identify and explain casual relationships in data and identify evidence that supports or refutes findings, selecting fact from opinion. I can discuss how scientific ideas develop over time. I can read, spell and pronounce scientific vocabulary.	Living things and their Habitats I can 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. I can give reasons for classifying plants and animals based on specific characteristics. I can investigate whether yeast is a living organism. I can explain how microorganisms are grouped and classified. I can classify plants using diagrams and labels. I can make a key to classify plants. I can use scientific evidence to support or refute ideas or arguments. I can sort and classify. I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree.	