Curriculum Progression Map

Subject: Science

Intent:
At CSPA, our Science curriculum is designed to give every child the knowledge and understanding they need to make sense of the world around them. We want pupils to build a strong foundation in biology, chemistry and physics through a carefully sequenced curriculum that helps them remember more, understand more deeply and make connections over time.

We make sure that knowledge is taught in small, connected steps so that children can build secure understanding rather than superficial recall. As pupils move through the school, they revisit and build on what they have learned before, strengthening both their understanding and confidence in scientific ideas.

Alongside this knowledge, pupils are taught how to work scientifically. They learn to ask questions, make predictions, plan and carry out investigations, observe carefully and draw conclusions from evidence. We explicitly teach them how scientists think and work, so they can begin to explain the world in a logical and evidence-based way.

We also help pupils understand that science is built on the work of many different scientists over time. By learning about key figures and their discoveries, children begin to see science as a developing body of knowledge that continues to change and improve.

Science is taught as a distinct subject so that pupils gain depth and clarity in each discipline, but where links naturally occur, we help children make them explicit so their understanding becomes more joined up.

Above all, we want children to enjoy science. We want them to be curious about the world, to ask questions, and to feel excited by discovering how things work. By the time they leave CSPA, they should be well prepared for the next stage of their science education and confident in using scientific thinking in everyday life.

Autumn	Year 3	Year 4	Year 5	Year 6
Knowledge	**Animals Including Humans** Voluntary vs involuntary muscles - muscles enable our bodies to move. Humans have endoskeletons that support and protect our body. A joint is a place where bones join, connected by ligaments	**Sound** Sound is caused by vibrations (back-and-forth movement). Vibrations travel through particles in a medium (solid, liquid, gas). Sound can travel through solids, liquids and gases. Sound becomes fainter the further it travels from the source.	**Forces** A force is a push or a pull (recap yr 3) Forces can cause an object to speed up, slow down, change direction, or change shape. Gravity is a force that pulls objects towards the centre of the Earth. Friction occurs when two surfaces	**Classification of Living Things** Living things are classified into five kingdoms: plants, animals, fungi, protists and prokaryotes. Each kingdom has distinct features that define it. Cells are the basic building blocks of all living things.

	The brain is the centre of the nervous system. Animals, including humans, get nutrition from what they eat. A balanced diet means eating the right amount of food from each group. The digestive system is made up of many parts, each with a role. Nervous system includes brain, spinal cord & nerves Reflexes help protect the body from danger. The digestive system breaks food down. Some muscles (like the heart) work without conscious control. **Magnets and Forces** A force is a push or a pull. Gravity is a force that makes objects fall to the ground. Forces can make objects move, change speed, change direction or change shape. Friction is a force between two surfaces. Rough surfaces create more friction & smooth create less Magnetic force is an invisible push or pull. Magnets can attract (pull together) or repel (push apart). Like poles repel and opposites poles attract. A magnetic field is the area around a magnet where the force can be felt. Some materials are magnetic and some are not. Larger magnets are often stronger, but not always. Gravity is a non-contact force, friction is a contact force Scientists (e.g. New ton) developed ideas about	Volume is how loud or quiet a sound is. Pitch is how high or low a sound is. Louder sounds are made by larger vibrations, and smaller by smaller vibrations. Faster vibrations create higher-pitched sounds, while slower vibrations create lower-pitched sounds. Sound is heard when vibrations travel into the ear and signals are sent to the brain. The ear is part of the human hearing system. Sound travels through different materials, including air and solids. **States of Matter (The Water Cycle)** There are three states of matter: solids, liquids, and gases. Water can exist as a solid (ice), liquid (water), and gas (water vapour). Water changes state through processes in the water cycle. Evaporation is when liquid water turns into water vapour. Water evaporates from seas, rivers, lakes, and puddles. Condensation is when water vapour cools and turns back into liquid water. Precipitation is water falling back to Earth as rain, snow, sleet, or hail. The water cycle is continuous and has no beginning or end. Humidity is the amount of water vapour in the air. Different cloud types can indicate different weather conditions. Water can move between states in both directions (reversible	move against each other. Air resistance is a type of friction acting on objects moving through air. Water resistance is a type of friction acting on objects moving through water. Upthrust is a force that can make objects float in water. The effect of air resistance increases when surface area increases. Changing the shape of an object can change the forces acting on it. Fair tests require controlling variables. A lever uses a pivot (fulcrum) to multiply force. A pulley uses a wheel and rope to change the direction of a force. Gears use interlocking cogs to transfer and increase force. Forces such as gravity and friction act on all moving objects. Scientists such as Isaac Newton developed ideas about forces. **Astronomy** The universe began with the Big Bang around 14 billion years ago and is still expanding today. A galaxy is a group of stars held together by gravity. Our galaxy is the Milky Way. Andromeda is our nearest neighbouring galaxy. Our home supercluster is called Laniakea. Gravity is stronger when objects have more mass. The Earth's gravity keeps us on its surface. The Sun's gravity keeps the planets in orbit. The Sun is at the centre of our solar system, and there are 8 planets in our solar system.	There are two main types of cells: plant cells and animal cells. Plant cells contain chlorophyll for photosynthesis. Taxonomy is the system used to classify living things. Organisms are classified in a hierarchy: kingdom, phylum, class, order, family, genus, species. The binomial naming system uses genus and species names for each organism. Vertebrates are grouped into fish, amphibians, reptiles, birds and mammals. Invertebrates include insects, arachnids, molluscs and cnidarians. Carl Linnaeus developed a system for classifying living things. Classification is based on observable and biological characteristics. Scientific names are universal and help scientists communicate clearly. Living things can be grouped by similarities and differences in structure and function. Micro-organisms exist within some of the classification kingdoms. **Evolution** Fossils are the preserved remains or traces of living organisms. Most organisms do not become fossils because they decompose. Fossils provide evidence for evolution over time. Inheritance is the passing of characteristics from parents to

	gravity using observation & reasoning.	changes). Solid, liquid, and gas are different forms of the same material (water).	The inner planets are rocky (terrestrial), and the outer planets are gas/ice giants (Jovian). The Moon is Earth's natural satellite. The Moon does not produce its own light; it reflects sunlight. The Moon has phases depending on its position relative to the Earth and Sun. Asteroids and dwarf planets also exist in the solar system. Neil Armstrong and Buzz Aldrin were the first humans on the Moon. Scientific ideas about space have developed over time through observation and theory.	offspring. Variation describes differences within a species. Evolution is the gradual change in inherited characteristics over time. Adaptation is when organisms develop features that help them survive in their environment. Natural selection is the process where organisms best suited to their environment are more likely to survive and reproduce. Charles Darwin studied organisms to develop ideas about evolution and natural selection. Alfred Wallace independently developed similar ideas about evolution. Species adapt over time due to environmental pressures. Organisms in different environments show different adaptations. Fossils of plants and animals help scientists understand life in the past. Humans share common ancestors with other species, but did not evolve directly from chimpanzees.
Skills	**<u>Animals Including Humans</u>** Ask relevant scientific questions - *"what happens to food after we eat it? What does our spinal cord do?"* Create labelled diagrams of digestive system Use scientific evidence to answer questions	**<u>Sound</u>** Ask relevant scientific questions about sound and vibrations. Carry out investigations using musical instruments and objects that vibrate. Observe how different objects produce different sounds. Compare and classify sounds based on pitch and volume. Identify patterns between vibration	**<u>Forces</u>** Ask relevant scientific questions about forces and motion. Plan and carry out fair tests with controlled variables. Measure time and motion using scientific equipment accurately. Investigate the effects of air and water resistance. Identify and change variables in comparative investigations.	**<u>Classification of living things</u>** Ask scientific questions about classification of living things. Classify organisms using keys and structured systems. Compare and contrast different groups of living things. Use classification keys to identify organisms. Record and organise data using tables, diagrams and charts.

	Explain and describe body systems using correct scientific vocabulary Sort information (e.g. voluntary vs involuntary muscles) Label diagrams of systems accurately Identify differences, similarities or changes in scientific processes E.g. comparing different body systems, observing change of food through digestive process) Compare and sequence processes **Magnets and Forces** Ask relevant scientific questions about forces and magnets. Notice that some forces need contact between two objects, but magnetic forces can act at a distance. 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. Predict whether two magnets will attract or repel each other, depending on which poles are facing. Investigate and test magnetic strength in different magnets. Set up simple fair and comparative tests (e.g. ramp tests for friction). Use results to draw simple conclusions (e.g. which surface creates more friction). Use scientific evidence to explain observations (e.g. why a car slows down). Report findings using oral and written explanations. Make predictions based on results (e.g. which magnet will be strongest).	speed and pitch. Record results using tables, diagrams, and labelled drawings. Measure and describe changes in sound (e.g. louder/quieter, higher/lower). Use fair testing when changing variables in sound investigations. Use scientific vocabulary accurately (vibration, pitch, volume, frequency). Explain how sound travels using models (e.g. particles in air). Use evidence from investigations to answer questions. Report findings using oral explanations, written work, and diagrams. Draw conclusions about how sound is made and changes. Make predictions about how changing vibrations will affect sound. **States of Matter (The Water Cycle)** Ask relevant scientific questions about states of matter and the water cycle. Set up simple practical investigations (e.g. evaporation and condensation). Observe and record changes in water over time. Measure temperature using scientific equipment (e.g. thermometers). Identify and classify materials as solids, liquids, or gases. Record findings using diagrams, tables, and labelled drawings. Explain processes such as evaporation, condensation, and precipitation. Use scientific vocabulary accurately (evaporation,	Record results using tables, diagrams, and graphs. Interpret results to identify patterns and relationships. Use scientific evidence to explain observations. Draw diagrams showing forces acting on objects. Make predictions based on prior knowledge and results. Compare how different surfaces and shapes affect movement. Explain how simple machines change the size or direction of forces. Evaluate investigations and suggest improvements. Identify relationships between variables (e.g. surface area and air resistance). Report findings clearly using scientific language and explanations. **Astronomy** Ask relevant scientific questions about space and the universe. Record observations about the Moon over time (e.g. moon diary). Identify patterns in lunar phases. Use scientific evidence to support explanations about space. Sequence astronomical structures (Moon → Earth → Solar System → Galaxy → Universe). Compare celestial bodies based on size, type, and position. Explain phenomena such as gravity and orbits using scientific reasoning. Use scientific vocabulary accurately (galaxy, orbit, gravity, universe). Draw conclusions from observations and research. Identify and correct	Interpret classification systems such as taxonomy hierarchies. Use scientific vocabulary accurately (kingdom, species, genus, etc.). Explain reasons for classification decisions using evidence. Research and present information about Carl Linnaeus. Identify patterns in biological features across groups. Use evidence to justify grouping of organisms. Communicate scientific ideas using structured explanations. Recognise and correct common misconceptions about living things. Use diagrams and models to represent classification systems. Evaluate similarities and differences between organisms scientifically. **Evolution** Ask scientific questions about fossils and evolution. Interpret fossil evidence to explain changes over time. Identify patterns in variation within species. Use evidence to explain inheritance and adaptation. Compare organisms and their adaptations in different environments. Use scientific vocabulary accurately (inheritance, variation, evolution, adaptation). Explain natural selection using examples. Analyse information from Darwin's and Wallace's observations. Evaluate scientific ideas and

	Suggest improvements to investigations (e.g. how to make tests fairer).	condensation, humidity). Identify patterns in how temperature affects state changes. Compare different states of matter and their properties. Draw conclusions from observations (e.g. how clouds form or water evaporates). Identify and correct misconceptions using evidence. Sequence the stages of the water cycle accurately. Produce extended scientific writing explaining the water cycle.	misconceptions about space and astronomy. Use models to explain complex ideas such as the solar system and universe. Make predictions based on observed patterns (e.g. Moon phases).	evidence about evolution. Communicate scientific explanations in written and diagram form. Draw conclusions from fossil and species data. Recognise and correct misconceptions about evolution. Explain how environmental factors influence survival. Use reasoning to link adaptations to survival advantages. Present scientific ideas clearly using structured arguments.
Spring	Year 3	Year 4	Year 5	Year 6
Knowledge	**<u>Magnets and Forces (continued)</u>** **<u>Rocks, Soil and Fossils</u>** Rocks have different names and can be grouped by their properties. 3 main types: sedimentary, igneous and metamorphic. Sedimentary are formed from layers of sediment. Igneous are formed from volcanic activity. Metamorphic are formed by heat and pressure. Permeable rocks allow water through, impermeable do not. Fossils form when rocks form around living things, and are usually found in sedimentary rocks. A paleontologist is a scientist who studies fossils. A geologist is a scientist who studies rocks. Soil is made from rocks and organic matter.	**<u>Electricity</u>** Electricity can be dangerous and must be used safely. Safety rules include: dry hands, no fingers in sockets, no frayed wires. An electrical circuit is a loop that allows electricity to flow. A circuit must include a power source (battery) and wires. Electricity only flows when a circuit is complete - a break in a circuit stops the flow of electricity. A switch opens and closes a circuit. Batteries store electrical energy. Some materials allow electricity to pass through them (conductors). Some materials do not allow electricity to pass through them (insulators). Many metals are good electrical conductors. Thomas Edison developed an early electric lightbulb for homes. Lewis Latimer improved lightbulbs using a carbon filament. **<u>Classification of Plants and Animals</u>**	**<u>Astronomy (continued)</u>** **<u>Materials</u>** Materials can be grouped according to their properties. Some properties are visible; others must be tested. Thermal conductivity describes how well heat passes through a material. Some materials conduct heat well; others are thermal insulators. Materials are chosen for specific uses based on their properties. A solution is formed when a solid dissolves in a liquid. Dissolving is when a substance mixes evenly within a liquid. A solvent is a liquid that dissolves another substance. Some substances are soluble; others are insoluble. Mixtures can be separated using methods such as sieving, filtering, and evaporation. Changes in materials can be reversible or irreversible.	**<u>Evolution and inheritance (continued)</u>** **<u>The Human Body (circulatory system)</u>** The heart pumps blood around the body. The circulatory system transports oxygen and nutrients to cells. The left side of the heart carries oxygenated blood, while the right side of the heart carries deoxygenated blood. Arteries carry oxygenated blood away from the heart, veins carry deoxygenated blood back to the heart. Capillaries allow exchange of oxygen and nutrients with cells. All body cells need oxygen to function. The heart rate increases during exercise as the body needs more oxygen. The circulatory system works closely with the respiratory system.

	Organic matter comes from decayed plants, animals and insects.	Living things are grouped using a process called classification, which helps scientists organise and understand living things. A vertebrate is an animal with a backbone. An invertebrate is an animal without a backbone. Fish are cold-blooded vertebrates that live in water and have gills. Amphibians are cold-blooded vertebrates that live in water and on land. Reptiles are cold-blooded vertebrates with dry, scaly skin. Birds are warm-blooded vertebrates with feathers and wings. Mammals are warm-blooded vertebrates with hair/fur and breathe air. Insects are invertebrates with six legs and three body parts. Arachnids are invertebrates with eight legs and two body parts. Molluscs are invertebrates with soft bodies, sometimes with shells. Plants are classified into flowering and non-flowering groups. Non-flowering plants reproduce using spores instead of seeds. Scientists such as Carl Linnaeus developed systems for classifying living things.	Dissolving is a physical change that can often be reversed. Scientists such as Jabir ibn Hayyan contributed to separation techniques.	Blood contains different components including plasma, red blood cells, white blood cells and platelets. Red blood cells carry oxygen using haemoglobin. White blood cells help defend against infection. Platelets help blood clot to prevent bleeding. Exercise, lifestyle and drugs can affect heart health. William Harvey contributed to early understanding of blood circulation.
Skills	**Magnets and Forces (continued)** **Rocks, Soil and Fossils** Ask relevant scientific questions Observe rocks closely using magnifying glasses or microscopes Identify and describe physical properties of rocks Sort and classify rocks	**Electricity** Ask relevant scientific questions about electricity and circuits. Build simple electrical circuits using batteries, wires, and bulbs. Test whether circuits are complete or broken. Identify how switches affect electrical circuits. Observe and explain what happens when a circuit is opened or closed.	**Astronomy (continued)** **Materials** Ask relevant scientific questions about materials and their properties. Group materials based on observable and testable properties. Plan and carry out fair tests (e.g. testing thermal conductivity). Measure and record results using	**Evolution and inheritance (continued)** **The Human Body (circulatory system)** Ask scientific questions about the circulatory system and heart rate. Plan and carry out fair tests investigating heart rate and exercise.

	Set up and carry out fair tests (e.g. testing permeability) Make careful observations and record systematically Use tables, drawings and labelled diagrams to present findings. Identify similarities and differences between rock types and soil Explain processes such as rock formation and fossilisation. Use scientific vocabulary accurately (e.g. sedimentary, permeable) Produce extended writing (e.g. explaining what rocks tell us about Earth)	Carry out fair tests to compare conductors and insulators. Classify materials based on whether they conduct electricity. Make predictions about which materials will conduct electricity. Record results using tables, diagrams, and labelled drawings. Use scientific vocabulary accurately (circuit, conductor, insulator). Use evidence from investigations to explain findings. Identify patterns in results from testing materials. Draw conclusions about how electricity flows in circuits. Identify and correct misconceptions about how electricity works. **<u>Classification of Plants and Animals</u>** Ask relevant scientific questions about living things and classification. Classify animals into vertebrates and invertebrates. Further classify vertebrates into fish, amphibians, reptiles, birds, and mammals. Classify invertebrates into insects, arachnids, and molluscs. Classify plants into flowering and non-flowering groups. Use classification keys to identify and group organisms. Create simple classification keys. Observe and compare physical features of living things. Identify similarities and differences between groups of animals. Record findings using tables, diagrams, and labelled drawings. Use scientific vocabulary accurately (vertebrate, invertebrate, classification).	tables, diagrams, and charts. Investigate solubility of different substances. Identify variables and control them in investigations. Use scientific equipment safely and accurately. Separate mixtures using methods such as filtering, sieving, and evaporation. Observe and describe changes in materials during investigations. Use scientific vocabulary accurately (solute, solvent, solution). Explain reversible and irreversible changes using evidence. Interpret results and draw conclusions from investigations. Compare materials based on their suitability for different uses. Use evidence to support explanations about material behaviour.	Identify and control variables in investigations. Measure pulse rate accurately and record results. Record data using tables, charts and graphs. Interpret data to identify patterns and relationships. Explain how exercise affects heart rate using evidence. Use scientific vocabulary correctly (artery, vein, oxygenated, etc.). Draw and label diagrams of the heart and circulatory system. Compare oxygenated and deoxygenated blood pathways. Use evidence to explain how the body responds to exercise. Draw conclusions from investigation results. Evaluate investigations and suggest improvements. Communicate scientific findings clearly in written and oral forms. Recognise and explain cause-and-effect relationships in body systems.

		Use evidence to justify classification choices. Report findings through discussion, writing, and presentations. Correct common misconceptions using scientific reasoning. Identify patterns in animal and plant characteristics.		
Summer	Year 3	Year 4	Year 5	Year 6
Knowledge	**<u>Light and shadow</u>** Light enables us to see things Darkness is the absence of light. The Sun is a primary source of light and is vital for life on Earth. There are natural and artificial sources of light. Light travels in straight lines Transparent materials allow light to pass through them Opaque materials block light Some materials reflect light, including mirrors Different shaped mirrors (plane, concave, convex) reflect light differently. A shadow is formed when light is blocked by an object. The Earth rotates on its axis, making the sun appear to move across the sky The position of the sun affects the size and direction of shadows The moon and mirrors are not light sources (they reflect light). **<u>Plants</u>** Flowering plants have roots, stems/trunks, leaves, and flowers. Plants vary in appearance but share common structures. A botanist is a scientist who studies plants.	**<u>Classification of Plants and Animals (continued)</u>** **<u>The Human Body</u>** All living things are made up of cells. They are the basic building blocks of life. Cells form tissues, tissues form organs, and organs form systems. The human body needs nutrients to stay healthy. These are found in the food we eat. Humans have different types of teeth with different functions. Incisors cut food, canines tear food, and molars grind food. The digestive system breaks food down so nutrients can be absorbed through the bloodstream and cells. A balanced diet provides the correct amounts of nutrients, vitamins and minerals. Humans are omnivores, meaning they eat both plants and animals. Saliva, enzymes, and stomach acid help break down food. The small and large intestines absorb nutrients and water. Waste is removed from the body as faeces. Scientists use microscopes to study things too small to see with the eye.	**<u>Life Cycles of Living Things</u>** Plants and animals in local environments change throughout the year. Living things are interconnected within ecosystems. All animals go through life cycles: birth, growth, reproduction and death. Mammals are born alive and grow into adults. Amphibians often hatch from eggs and undergo metamorphosis (a major change in body form during development). Insects and amphibians often have distinct life cycle stages. Birds lay eggs which hatch into chicks. Some animals (e.g. cuckoos) behave differently in how they raise young. Flowering plants reproduce through pollination and fertilisation. Pollination transfers pollen from the anther to the stigma. Fertilised plants produce seeds containing embryos. Plants and animals depend on each other in ecosystems. Scientists such as David Attenborough and Jane Goodall study and communicate about living things. Life cycles vary between species	**<u>Light</u>** Light enables us to see by travelling from a source into the eye. Light travels in straight lines. We see objects because light reflects off them into our eyes. There are natural and artificial light sources. Some materials reflect light, some allow it to pass through, and some block it. Shadows are formed when an object blocks light. Shadows always match the shape of the object that creates them. The size of a shadow changes depending on the position of the light source. The human eye allows us to see by detecting light. The iris controls the size of the pupil to regulate light entering the eye. The retina converts light into electrical signals sent to the brain. White light is made up of a spectrum of colours. A prism refracts light and splits it into different colours. Different colours of light refract by different amounts. A periscope uses mirrors to

	Plants need air, light, water, nutrients from soil, and space to grow. Water is absorbed from the soil through the root then travels up the plant through the stem. Pollination is necessary for reproduction in flowering plants. Pollen must transfer from the anther to the stigma for seeds to form. Insects (e.g. bees) play a key role in pollination. Seed dispersal happens in different ways (wind, animals, gravity). Germination is when a seed begins to grow into a plant. Plants and animals are interconnected (e.g. insects help plants reproduce). Plants grow in different environments depending on their needs.		but follow a similar pattern of growth and reproduction. Bees and other insects are important pollinators for plants. **<u>The Human Body (Human Growth & Development)</u>** Humans, like all living things, follow a life cycle: birth, growth, reproduction and death. Human development begins with gestation before birth. The human gestation period is around nine months. Humans go through stages: infancy, childhood, adolescence, adulthood and old age. Puberty is a stage of human development involving physical, emotional and mental changes. Hormones cause many of these changes. During puberty, bodies change (e.g. growth, hair growth, voice changes, menstruation). Aging is a natural process that cannot be stopped. Different animals have different gestation periods and life cycles. Growth and development vary between species but follow a similar overall cycle. A healthy lifestyle is important at all stages of life. Scientists study growth and development across humans and animals.	reflect light and allow viewing over or around objects. Mirrors must be positioned accurately for reflection to work effectively. **<u>Electricity</u>** Electricity flows around a circuit as an electrical current. Electricity can only flow when there is a complete circuit. Circuit components require electricity to function. Electrical energy can be transferred into other forms of energy such as light, sound and heat. Voltage is the “push” from a battery that drives current around a circuit. Increasing the number of batteries increases the voltage in a circuit. Higher voltage can increase the brightness of a bulb or the volume of a buzzer. Switches control the flow of electricity in a circuit. Switches work by completing or breaking a circuit. A broken circuit stops electrical current from flowing. Circuit diagrams use standard symbols to represent components such as cells, wires, bulbs and switches. Electricity must flow through components rather than being “used up” in a circuit. Energy is transferred and transformed as electricity moves through a circuit. Switches are important for safety and energy conservation. Alessandro Volta contributed to

				the development of batteries and electrical understanding.
Skills	**Light and shadow** Ask relevant scientific questions about light and shadows. Plan and carry out investigations (e.g. how shadows change during the day). Set up fair tests (e.g. testing materials for transparency) Use torches to test whether materials are transparent or opaque. Make careful & systematic observations of light and shadow. Measure and record changes in shadows over time Use tables, charts and diagrams to show findings Draw & label scientific drawing (e.g. how light travels from light source to your eye) Classify materials Identify patterns (e.g. how shadow length changes during the day) Use scientific vocabulary accurately (e.g. reflection, transparent) Report findings through discussion, presentations and writing. Suggest improvements to investigations. **Plants** Ask relevant scientific questions about plants and how they grow. Observe plants closely, including their structures and features. Identify and label parts of a plant and describe their functions.	**Classification of Plants and Animals (continued)** **The Human Body** Ask relevant scientific questions about the human body and nutrition. Identify and describe the functions of different types of teeth. Explain the journey of food through the digestive system. Use diagrams to label parts of the digestive system. Classify foods based on nutritional value and food groups. Design a balanced meal and justify choices scientifically. Record findings using diagrams, tables, and labelled illustrations. Use scientific vocabulary accurately (cells, nutrients, digestion, enzymes). Explain processes such as digestion using evidence. Identify patterns in healthy and unhealthy diets. Use prior knowledge to make predictions and explanations. Report findings through written explanations and presentations. Suggest improvements to diet or investigation outcomes. Make links between microscopic (cells) and macroscopic (body systems) ideas. Use evidence to explain the importance of nutrients and vitamins.	**Life cycles of plants and animals** Observe and describe seasonal changes in local plants and animals. Compare and contrast life cycles of different organisms. Record observations using diagrams, tables and labelled illustrations. Identify patterns in life cycles across different animal groups. Ask scientific questions about living things and habitats. Carry out simple scientific enquiries about plant reproduction. Use dissection or observation to explore flower structures. Explain life cycles using scientific vocabulary. Interpret and present data about living things. Use evidence to explain differences between species life cycles. Research and summarise the work of scientists such as Attenborough and Goodall. Draw conclusions about ecosystems and interdependence. Communicate findings through written explanations and diagrams. Use comparative thinking to identify similarities and differences in reproduction strategies. **The Human Body (Human Growth & Development)** Ask questions about human growth and development. Record information about life	**Light** Ask scientific questions about how light travels and how we see. Plan and carry out investigations into light, reflection and shadows. Identify and control variables in fair tests. Predict and test how light behaves in different situations. Record observations using tables, diagrams and labelled drawings. Present results using scientific vocabulary and explanations. Interpret results to identify patterns in shadow size and light behaviour. Use evidence to explain how shadows are formed and how their size changes. Explain how the eye works using scientific diagrams and language. Draw and label diagrams of the eye and light pathways. Investigate how prisms split light into a spectrum. Use measurement skills when constructing a periscope. Design and build a working periscope using mirrors at correct angles. Evaluate designs and suggest improvements based on testing. Communicate findings clearly using written and oral explanations. Use scientific reasoning to explain everyday optical phenomena.

	Compare different plants and their needs (e.g. cactus vs hydrangea). Set up and carry out simple investigations (e.g. celery water transport experiment). Make careful and systematic observations over time. Record findings using diagrams, labels, tables, and charts. Use scientific vocabulary accurately (e.g. pollination, nutrients). Identify similarities and differences between plants. Use evidence from investigations to answer questions (e.g. how water moves). Explain processes such as water transport, pollination, and seed dispersal. Recognise patterns (e.g. how the environment affects plant growth). Produce extended writing (e.g. explaining how plants reproduce). \Understand how scientists (botanists) work through observation and inquiry.		stages using diagrams, tables and charts. Compare human life cycles with those of other animals. Research and organise scientific information about human development. Identify patterns and changes across stages of life. Use scientific vocabulary accurately (gestation, puberty, adolescence, etc.). Present findings clearly in written and diagram form. Interpret data about growth and development. Draw conclusions from comparative studies of life cycles. Explain changes in the human body using scientific reasoning. Recognise and evaluate scientific evidence. Communicate findings in structured explanations and reports. Use comparisons to understand differences in development between species. Evaluate sources of information when researching scientific topics.	**<u>Electricity</u>** Ask scientific questions about how electrical circuits work. Plan and carry out investigations into circuit components and voltage. Recognise and control variables in fair tests. Build simple and more complex electrical circuits safely. Use circuit symbols to draw and interpret circuit diagrams. Predict and test how changes in voltage affect components in a circuit. Measure and record results accurately using scientific equipment. Record data in tables and present findings using scientific diagrams. Identify patterns in results and explain changes in brightness or volume. Use scientific vocabulary correctly (voltage, current, circuit, component). Explain how switches control the flow of electricity. Evaluate circuit designs and suggest improvements. Apply understanding of circuits to design and build a functional electrical device. Use evidence from investigations to support conclusions. Communicate findings clearly in written and oral explanations.
Impact: End Points				
	By the end of Year 3, CSPA pupils will understand how human body systems work and	By the end of Year 4, pupils at CSPA will understand how sound is produced, travels and is heard,	By the end of Year 5, our pupils can explain how forces act on objects in different contexts,	By the end of Year 6, CSPA pupils will understand how living things are classified and

	interact, including muscles, bones, the nervous system and digestion, and will recognise how these systems support movement, nutrition and survival. They will understand that the body is made up of interdependent systems that work together. Pupils will understand forces and magnetism, including gravity, friction and magnetic forces, and will be able to explain how forces affect movement, speed, direction and shape. They will investigate contact and non-contact forces and understand that invisible forces can be identified through their effects. Pupils will understand the properties and formation of rocks, soils and fossils, and will be able to describe and compare igneous, sedimentary and metamorphic rocks. They will understand how fossils are formed and what they can tell us about the past, as well as how soils are made from rock and organic matter. Pupils will understand light as a form of energy, including how it enables sight, how it travels, and how it interacts with different materials. They will be able to explain reflection, shadow formation and changes in shadows throughout the day in relation to the movement of the Earth. Pupils will understand how flowering plants grow, survive and reproduce, including plant	recognising that sound is caused by vibrations and can vary in pitch and volume depending on the properties of those vibrations. They will be able to explain how sound travels through different materials and how the ear enables hearing. Pupils will understand the states of matter and the water cycle, including evaporation, condensation, precipitation and collection. They will be able to describe how water changes state and recognise that the water cycle is a continuous process influenced by temperature and environmental conditions. Pupils will understand electricity and circuits, including how electrical energy flows in a complete circuit and how components such as switches, conductors and insulators control this flow. They will be able to construct and investigate simple circuits and understand key safety principles when using electricity. Pupils will understand how living things can be classified into groups based on shared characteristics, including vertebrates, invertebrates and plant groups. They will be able to describe key features of different animal groups and use classification systems to organise and identify living things. Pupils will understand how the human body functions at both a macroscopic and microscopic level, including the roles of cells, organs and systems. They will be	including gravity, friction, air resistance and water resistance, and how these forces affect movement, shape and speed. They can apply this understanding to explain real-world situations and simple machines, and recognise that fair testing requires careful control of variables. They are beginning to use scientific reasoning to interpret results and explain causal relationships. In chemistry, pupils understand that materials have properties that determine their use, and that these properties can be identified through observation and testing. They can describe thermal conductivity, solubility and separation techniques, and understand that changes in materials can be reversible or irreversible. Pupils recognise that scientific understanding of materials is built through systematic investigation and evidence. In biology, pupils understand that living things are organised into systems and life cycles. They can describe how plants and animals reproduce, grow and develop, and compare life cycles across different species. They understand the role of reproduction in plants, including pollination and fertilisation, and recognise the interdependence of organisms within ecosystems. Pupils also understand human growth and development, including gestation, puberty and aging, and can describe how humans change over time.	grouped, recognising that organisms are organised into kingdoms and further sub-groups based on shared characteristics. They will appreciate how scientists use classification systems, including the work of Carl Linnaeus, to organise and identify living things. Pupils will understand that all living things are made of cells and that organisms vary through inheritance, adaptation and evolution over time. They will be able to explain how fossils provide evidence for evolution and describe how scientists such as Charles Darwin and Alfred Wallace developed theories of natural selection. Pupils will have a secure understanding of the human body, including the circulatory system and how blood transports oxygen and nutrients around the body. They will understand how lifestyle choices can impact health and how the body responds to exercise. Pupils will understand the properties and behaviour of light, including how it travels, how we see, how shadows are formed and how light can be reflected, refracted and split into a spectrum. They will be able to apply this knowledge to explain everyday phenomena and design simple optical devices. Pupils will understand how electricity flows in circuits and how voltage, components and

	structures, water transport, pollination and seed dispersal. They will recognise the role of living things such as insects in plant reproduction and understand how plants adapt to different environments. Across all units, pupils will develop the ability to work scientifically by asking questions, planning and carrying out simple investigations, making observations, recording and presenting data, and using evidence to draw conclusions. They will use accurate scientific vocabulary and begin to think like scientists, understanding how knowledge is developed through observation and enquiry.	able to explain how digestion works, how nutrients are used by the body, and how a balanced diet and dental health contribute to overall wellbeing. Across all units, pupils will develop their ability to work scientifically by asking questions, planning and carrying out investigations, making careful observations, recording and presenting data, and using evidence to draw conclusions. They will use scientific vocabulary accurately, begin to explain cause and effect, and understand that scientific knowledge is developed through observation, testing and building on the work of other scientists.	In astronomy, pupils understand that the Earth is part of a larger solar system within a vast and expanding universe. They can describe the structure of the solar system, explain gravity's role in orbits, and recognise that the Moon's phases are caused by its position relative to the Earth and Sun. They can place Earth within a wider cosmic context, from galaxies to superclusters, and understand that scientific knowledge of space is continually developing. Across all units, pupils can use scientific evidence to support explanations, identify patterns in data, and communicate findings using diagrams, tables and written explanations. They can plan and carry out simple investigations, recognise variables in fair tests, and draw conclusions from results. They are beginning to think more like scientists—asking questions, making predictions, testing ideas, and refining their understanding based on evidence.	switches affect electrical systems. They will be able to apply this knowledge to design and build working circuits and simple electrical devices. Across all units, pupils will demonstrate the ability to work scientifically by planning investigations, controlling variables, collecting and presenting data, and drawing conclusions based on evidence. They will be able to evaluate scientific ideas, use evidence to support explanations, and communicate their findings clearly. By the end of Year 6, pupils will be well prepared for Key Stage 3 science, with a strong foundation in scientific knowledge, enquiry skills, and conceptual understanding of how science explains the world around them.