WROUGHTON ACADEMIES
Creative Education Trust

Science 2023-2024

Curriculum Intent Statement

At Wroughton Academies, Science is taught through our CUSP curriculum. CUSP curriculum precisely follows the units outlined in the National curriculum and pays close attention to guidance provided by the national curriculum sequence and content. Science units are organised into three distinct subject domains: biology, physics and chemistry. The units teach both substantive knowledge (the subject knowledge and vocabulary for each topic) and disciplinary knowledge (the knowledge of how to work scientifically). A guiding principle of CUSP Science is that each unit connects to prior learning, thus helping to accelerate new learning. Science vocabulary specific to each unit is taught to enhance and deepen understanding. Each unit details the topic's big idea and lessons are structured around a learning question which children are able to answer by the end. Through studying CUSP science, pupils become 'a little more expert' as they progress through the curriculum, accumulating, connecting and making sense of the rich substantive and disciplinary knowledge.

ELGs related to Subject and Topics

ELG: PSED Managing Self:
Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.
ELG: The Natural World
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, drawing 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.

		Topic	**Year 1**		**Topic**	**Year 2**	
Autumn	HT1	Seasonal Changes and Weather (3 weeks)	What children will learn: The names of the four seasons. What the weather is like in the different seasons. Why day becomes night.	What children will be able to do Observe changes across the 4 seasons Observe and describe weather associated with the seasons How day length varies	Introduce Living things and their habitats	What children will learn: The difference between alive and not alive and what living thigs have in common. Where plants and animals live and what plants and animals are in our local environment. What food chains are and how they are connected. Why plants and animals need each other.	What children will be able to do Explore and compare the differences between things that are living, dead, and things that have never been alive. Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants,

		Introduce Plants including Trees (trees) (4 weeks)	What children will learn: What makes a tree. What trees are in my local environment. What's the difference between trees (Deciduous and Evergreen)	What children will be able to do Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, including trees			and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including microhabitats Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.
	HT2	Introduce Animals including Humans	What children will learn: What an animal is. The different types of animals and similarities and differences. What food tells us about an animal. What makes us an animal What senses we have.	What children will be able to do Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of common animals (fish. Amphibians, reptiles, birds and mammals including pets) Identify, name, draw and label basic parts of the human body and say which part of the body is associated with each sense.	Introduce Animals including Humans	What children will learn: How animals change as they mature and how we change as we mature. What animals need to stay alive. The importance of keeping healthy, why we need to exercise and why we eat different types of food.	What children will be able to do Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.
Spring	HT3	Introduce Everyday materials	What children will learn: What the different materials are. What things are made of. How to describe different materials. Which materials are waterproof. Which are opaque and transparent. What material is best for the job and why.	What children will be able to do Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials, based on their simple physical properties	Uses of Everyday Materials	What children will learn: What different materials are used for (categorising and comparing) What happens when we squash, bend, twist or stretch a material. Which material is right for the job. What is the most absorbent material and who invented waterproofing.	What children will be able to do Identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

	HT4	Animals including Humans (revisit)	What children will learn: To revisit previous objectives consolidating knowledge and deepening understanding.	What children will be able to do Retrieve and elaborate on previously learnt knowledge through discussion, dialogue and recap of content.	Living things and their habitats (revisit)	What children will learn: To revisit previous objectives consolidating knowledge and deepening understanding.	What children will be able to do Retrieve and elaborate on previously learnt knowledge through discussion, dialogue and recap of content.
Summer	HT5	Introduce Plants, including trees (Plants):	What children will learn: What the parts of a plant are. What wild plants are and where to find them. Which plants are common and where to find them.	What children will be able to do Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, including trees	Introduce Plants:	What children will learn: How seeds germinate and what happens. What happens when a bulb sprouts. What plants need to thrive and be healthy and what happens when they don't get what they need. How healthy or unhealthy plans are in the school environment.	What children will be able to do Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy
	HT6	Plants + animals, including humans (revisit)	What children will learn: To revisit previous objectives consolidating knowledge and deepening understanding.	What children will be able to do Retrieve and elaborate on previously learnt knowledge through discussion, dialogue and recap of content.	Living things and their habitats/Animals including humans (revisits)	What children will learn: To revisit previous objectives consolidating knowledge and deepening understanding.	What children will be able to do Retrieve and elaborate on previously learnt knowledge through discussion, dialogue and recap of content.

		Topic	Year 3		Topic	Year 4	
Autumn	HT1	Rocks	What children will learn: How rocks are formed. The different types of rocks and if rocks can change. How to test a rock to see if it is chalk or limestone. What soil is and how fossils are formed.	What children will be able to do Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter.	Living things and their Habitats	What children will learn: The characteristics of living things. Which animals are vertebrates and invertebrates. What classification is and how to use a key. What groups plants are classified in. What happens if an environment in a habitat changes.	What children will be able to do Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things
	HT2	Animals including Humans 3 weeks Rocks (revisit) 3 weeks	What children will learn: How the food we eat affects us. Where my skeleton is and what it does. Where my muscles are and what they do. What children will learn: To revisit previous objectives consolidating knowledge and deepening understanding.	What children will be able to do Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. Identify that humans and some other animals have skeletons and muscles for support, protection and movement. What children will be able to do Retrieve and elaborate on previously learnt knowledge through discussion, dialogue and recap of content.	States of Matter	What children will learn: What solids, liquids and gasses are. What matter is and what 'state' means. How materials change state (melting, evaporating, condensing).	What children will be able to do Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Spring	HT3	Forces and Magnets	What children will learn: what contact forces and non-contact forces are and how they are different. How surfaces affect the motion of an object. How friction affects moving objects. How magnets attract and repel and which materials are magnetic.	What children will be able to do Compare how things move on different surfaces Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance Observe how magnets attract or repel each other and attract some materials and not others Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet. Identify some magnetic materials Describe magnets as having 2 poles Predict whether 2 magnets will attract or repel each other, depending on which poles are facing.	Animals including Humans	What children will learn: what types of teeth humans have. How our mouth and teeth help with digestion. That teeth can tell us what an animal eats. The parts of the digestive system and how the digestive system works.	What children will be able to do Identify the different types of teeth in humans and their simple functions. Describe the simple functions of the basic parts of the digestive system in humans.
	HT4	Plants	What children will learn: The parts of a flowering plant and what they do. If all plants need the same to thrive. How leaves make food.	What children will be able to do Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.	Animals including Humans	What children will learn: What food chains are and how to construct a food chain. How the teeth, digestion and food chains are connected.	What children will be able to do Construct and interpret a variety of food chains, identifying producers, predators and prey.

Summer	HT5	Plants (continued)	What children will learn: how water moves through a plant. What flowers do what pollination is.	What children will be able to do Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	Electricity	What children will learn: The appliances that use electricity and what sort of power makes them work. The components of a simple series circuit. The effects of changing circuit components and batteries.	What children will be able to do Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors.
	HT6	Light	What children will learn: That we need light to see things. How shadows are formed and what happens to the size of a shadow when the object moves closer to or further away from a light source.	What children will be able to do Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by an opaque object. Find patterns in the way that the size of shadows change.	Sound	What children will learn: What sound is and how it travels. What the pitch and loudness of sound is.	What children will be able to do Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. Find patterns between the pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source increases.

		Topic	Year 5		Topic	Year 6	
Autumn	HT1	Properties and Changes of materials	What children will learn: The properties materials have and how we use them. What solutions and mixtures are. How to separate materials from mixtures and solutions. Which changes are reversible and irreversible.	What children will be able to do Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes. Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	Electricity	What children will learn: What electricity is and how it works. How to build and represent a series circuit. The components of a series circuit. The effects and consequences of changing circuit components and batteries.	What children will be able to do Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches Use recognised symbols when representing a simple circuit in a diagram.
	HT2	Animals including Humans	What children will learn: what a human lifespan is. How we change into adults. How human and animal lifespans compare.	What children will be able to do **Describe the changes as humans develop to old age.** Draw a timeline to indicate stages in the growth and development of humans. (They should learn about the changes experienced in puberty). Compare the gestation periods of other animals with humans	Animals including Humans (circulatory system)	What children will learn: What blood is made of and why we need it. Why our bodies need nutrients and how they are transported. What the circulatory system is. What our heart is like inside and how it works. Who influenced what we know about our circulatory system. What we can do to keep healthy.	What children will be able to do Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood Recognise the impact of diet, exercise, drugs and lifestyle on the way their body's function Describe the ways in which nutrients and water are transported within animals, including humans Describe the ways in which nutrients and water are

							transported within animals, including humans
Spring	HT3	Forces	What children will learn: about gravity(retrieval). When friction is helpful and when it is not. The effect of water resistance and air resistance. Who Galileo Galilei was.	What children will be able to do Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.	Animals including Humans (Water Transportation)	What children will learn: How the circulatory and digestive systems are connected (retrieval). Where the kidneys are and what they do. How our kidneys keep us healthy.	What children will be able to do Describe the ways in which nutrients and water are transported within animals, including humans
	HT4	Earth and Space	What children will learn: the planets in our solar system. How our view of the Moon changes in a lunar month. Why the rotation of the Earth results in day and night. How the Earth's tilt (axis) is responsible for the seasons.	What children will be able to do Describe the movement of the Earth and other planets relative to the Sun in the solar system Describe the movement of the moon relative to the Earth Describe the Sun, the Earth and the Moon as approximately spherical bodies Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.	Light	What children will learn: How light travels and the colour it is made of. How light helps us see things (reflection) and which surfaces make the best reflectors. Why we see objects as a particular colour. What happens to the appearance of objects when placed in water.	What children will be able to do Recognise that light appears to travel in straight lines. Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Summer	HT5	Living things and their habitats	What children will learn: about lifecycle differences (mammal/amphibian and insect/bird). The similarities and differences between lifecycles of mammals, amphibians, insects, and birds. How living things reproduce and the life process of reproduction (plants and animals). Who Maria Merion was and what she did.	What children will be able to do Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals	Living things and their Habitats	What children will learn: Who Carl Linnaeus was and what he did. How to classify vertebrates and invertebrates know to us. How to classify invertebrate's unknown to us. Which animals I can classify. Which plants and animals exist in my local environment.	What children will be able to do Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics.
	HT6	Forces: (continued)	What children will learn: How levers, pulleys and gears help us.	What children will be able to do Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.	Evolution and Inheritance	What children will learn: how living things changed over time and how do we know. How life evolved over time. What DNA is and what it does. Whether all offspring are identical to their parents. Who Darwin and Wallace were and the evidence they shared to argue the case foe evolution. How animals have evolved to suit their environment (survival of the fittest).	What children will be able to do Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution