

Cooper Perry Science Progression

Early Years

Understanding the World	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.
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Year 1

Topic	Links to National Curriculum	Prior learning	Key Questions	Looking forward
Plants	- 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.	Understanding The World Early Years	What do we know about trees? - How do seeds grow into plants? - What are the basic parts of a plant and tree? - Why can different plants grow in the same environment? - What is the difference between deciduous and evergreen trees? - Can you explain why trees and vegetables are variety of plants? - How can you record the growth of a plant?	Year 2 Year 3
Animals, including humans	- 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 a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) - Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Understanding The World Early Years	Big Question - How do senses help our body work? - What are the basic parts of the human body? - What is the eye? - How do our ears work? - How does the tongue allow us to taste? - What is the sense of touch? - How does your nose smell? Big Question – How are animals different? - What are the different animal groups? - What are the differences between mammals and birds? - What are the differences between amphibians, reptiles and fish? - What type of food do living things eat? - What are the difference between wild animals and pets? - What are the characteristics of an animal?	Year 2 Year 3 Year 4 Year 5 Year 6

Everyday Materials	- 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 on the basis of their simple physical properties.	Understanding The World Early Years	Big Question - What material is best for building a lunchbox? - Can you identify and name a variety of everyday materials? - What materials are objects made from? - What are the properties of everyday materials? - What is the difference between natural and manmade objects? - How do you know if an object will float or sink? - Which materials are best for different objects? Big Question - Why are materials used for different purposes? - Can you build a structure strong enough to withstand wind? - What materials can you use for a waterproof structure? - What are the properties and uses of glass? - Why are specific materials used to make furniture? - What are the properties of different fabrics? - Why are materials suitable for their uses?	Year 2
Seasonal Changes	- Observe changes across the four seasons - Observe and describe weather associated with the seasons and how day length varies.	Understanding The World Early Years	Big Question - How do seasons make our world change throughout the year? - What are the four seasons? - What changes take place in autumn? - What changes take place in the winter? - What changes take place in spring? - What changes take place in summer? - How can you measure rainfall?	N/A

Year 2

Topic	Links to National Curriculum	Prior learning	Key Questions	Looking forward
Plants	- 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.	<u>Year 1</u> Identify and name a variety of common and wild and garden plants, including deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, including trees	How do plants survive and grow? - What is the difference between seeds and bulbs? - How can we test what a plant needs to grow? - What do plants need to grow and stay healthy? - What is the life cycle of a plant? - Can you observe and record the growth of a plant overtime? - How do plants adapt to suit their environment?	Year 3
Living Things and Their Habitats	- 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, 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.	N/A	How do you know something is alive? - What are the differences between things that are living, dead and things that have never been alive? - Can you identify and name a variety of plants and animals in a microhabitat? - How can you design a suitable microhabitat where living things could survive? - What do animals eat to survive in their habitats? - How can you use food chains? - What is the journey of food from farm to the supermarket? How are habitats different across the world? - How are living things suited to live in habitats? - How can you protect our constantly changing environments? - Why are rainforests important? - What is an ocean habitat like? - What is the Arctic and Antarctic habitats like? - How can you create a model of a habitat?	Year 2 Year 4 Year 5 Year 6
Animals, including humans	- 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)	N/A	Big Question – How do we keep ourselves healthy? - What do animals need to survive? - What do humans need to survive? - Why is it important to eat the right food? - What does a healthy balanced diet look like? - What is the impact of exercise on our bodies? - Why is good hygiene important?	Year 3 Year 4 Year 5 Year 6

	Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.			
Using Everyday Materials	- 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.	<u>Year 1</u> 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 on the basis of their simple physical properties	Big Question –How are different materials suited to different purposes? - Can you identify different materials and their uses? - How can we decide the right materials to build a bridge? - How can you test the stretchiness of materials? - How can materials change their shape? - How are materials suitable for different purposes? - Can you explain what happens when materials are melted? (not using all of developing experts)	

Year 3

Topic	Links to National Curriculum	Prior learning	Key Questions	Looking forward
Plants	- 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 plants - 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.	Year 2 - Observe and describe how seeds and bulbs into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy Year 1 - Identify and name a variety of common and wild and garden plants, including deciduous and evergreen trees Identify and describe the basic structure of	Big Question – What would a plant put on its wish list and why? - How do different factors effect plant growth? - What are the functions of different parts of a flowering plant? How are they used in photosynthesis? - How is water transported within plants? - What part do flowers play in the lifecycle of flowering plants? - What is the process of pollination and seed dispersal?	N/A

		a variety of common flowering plants, including trees	6. Can you compare the effect of different factors on plant growth?	
Animals, including humans	- 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	Year 2 - 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 Year 1 - 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 a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	Big Question - How are animal and human skeletons different? - What are the five key food groups? - What is the nutrition in the food we eat? - What are the different types of skeletons? - What are the functions of the human skeleton? - How have animal skeletons adapted? - What are the role of muscles?	Year 4 Year 5 Year 6
Rocks	- 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	N/A	Big Question – How are rocks effected by the earth? - What is the formation and properties of igneous rocks? - What is the formation and properties of sedimentary rocks? - What are the different types of weathering and the effects they have on rocks? - How does water contribute to the weathering of rocks? - How are fossils formed? - What are the different types of soil?	N/A
Light	- 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.	N/A	Big Question – How can light help and harm us? - What is the differences between light sources and non-light sources? - What light comes from the sun and how can we protect ourselves from it? - What materials are reflective? - How are shadows formed? - How do shadows change throughout the day? - How can we change the size of a shadow?	Year 6

Forces and Magnets	• Compare how things move on different surfaces • Notice that some forces need contact between two objects, but magnetic forces can act at a distance • Observe how magnets attract or repel each other and attract some materials and not others • Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials • Describe magnets as having two poles • Predict whether two magnets will attract or repel each other, depending on which poles are facing.	N/A	Big Question – How do magnets work and what is attracted to them? 1. What are contact and non-contact forces? 2. How do things move on different surfaces? 3. What are the different types of magnets? 4. What are the properties of everyday objects that are magnetic? 5. How do magnetic forces work at a distance? 6. What are the everyday uses of magnets?	Year 5
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Year 4

Topic	Links to National Curriculum	Prior learning	Key Questions	Looking forward
Living Things and Their Habitats	- 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.	Year 2 - 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, 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	Big Question – How can we classify animals? - What are the habitats in my local area like? - What are our local habitats like? - How can animals be classified? - Can you create a classification key? - How do animals adapt to their environment? - How can you classify pond plants? Big Question – How are humans impacting the environment? - What are ecosystems and how are they affected by changes in the seasons? - What is the human impact on the environment through deforestation? - Can you explore air pollution? - What is water pollution? - How can we conserve water? - How do humans have a positive impact on nature?	Year 5 Year 6
Animals, Including Humans	- Describe the simple functions of the basic parts of the digestive system in humans - Identify the different types of teeth in humans and their simple functions - Construct and interpret a variety of food chains, identifying producers, predators and prey.	Year 1 – identifying and name animals Identify common animals (carnivores, Omnivores, herbivores) Describe and compare the structure of common animals. Basic body parts of a human. Year 2 – offspring, basic needs of animals, importance for humans to exercise and eating the right food. Year 3 – nutrition for humans and animals., animals and human skeletons and purpose of these.	Big Question – Where does our food go? - Can you identify the organs in the digestive system? - What are the functions of the main organs in the digestive system? - What are the types of human teeth and their functions? - How do different liquids effect the teeth? - Can you understand food chains? - Can you explore food webs?	Year 5 Year 6

States of Matter	• 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.		Big Question – Where do puddles go? 1. Can you compare and group the three states of matter? 2. How do particles behave in solids, liquids and gases? 3. Can you investigate melting points? 4. Can you explore freezing and boiling points? 5. Can you explore evaporation and condensation? 6. How does the water cycle work?	Year 5
Sound	• 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.		Big Question – How can we hear sounds? 1. How are sounds made? 2. How do vibrations from sounds travel through a medium to the ear? 3. What is sound insulation? 4. Can you explore volume? 5. Can you explore pitch? 6. How are sounds different from near and from far?	N/A
Electricity	• 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		Big Question – How could you make a light bulb brighter in a circuit? 1. Can you explore electrical appliances and electrical safety? 2. How can you construct a series circuit? 3. Can you investigate complete and incomplete circuits? 4. How are conductors and insulators used? 5. Can you explore electrical switches? 6. How can electrical components change within a circuit?	Year 6

Year 5

Topic	Links to National Curriculum	Prior learning	Key Questions	Looking forward
Living Things and Their Habitats	- 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	Year 2 - 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, 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. Year 4 - 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.	Do all animals have the same stages during their lifecycle? - Can you describe the life process of a plant? - Can you explain the life cycles of mammals? - How do the life cycles of insects and amphibians compare? - What is the lifecycle of birds and reptiles? - Can you investigate the life and work of Jane Goodall and David Attenborough? - What is the life cycle of a chosen creature? (own choice)	Year 6
Animals including Humans	Describe the changes as humans develop to old age	Year 1 – identifying and name animals Identify common animals (carnivores, Omnivores, herbivores) Describe and compare the structure of common animals. Basic body parts of a human. Year 2 – offspring, basic needs of animals, importance for humans to exercise and eating the right food.	How will I change as I get older? - Can you identify the key stages of a mammal’s life cycle? - What are the gestation periods of mammals? - Do you understand how a foetus develops? - How does the hand span of different aged children vary? - What changes are experienced during puberty? - How do humans change during adulthood and old age?	Year 6

		Year 3 – nutrition for humans and animals., animals and human skeletons and purpose of these. Year 4 - Describe the simple functions of the basic parts of the digestive system in humans Identify the different types of teeth in humans and their simple functions Construct and interpret a variety of food chains, identifying producers, predators and prey.		
Properties and Changes of Materials	- 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	Year 4 - 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.	Big Question - What happens when a solid disappears in a liquid? Why is this useful? - Can you explore the properties of different materials? - What are thermal conductors and thermal insulators? - Can you investigate the hardness of materials? - Which materials are soluble and insoluble? - Can you explore the solubility of a solute? - How can mixtures be separated by filtering, sieving, evaporating and magnets? Big Question - Can you explain reversible and irreversible changes? - Can you use evaporation to recover a solute from a solution? - How do you recognise and describe reversible changes? - How do you know rusting is an irreversible change? - What are burning reactions? - Can you observe chemical reactions and describe how we know a new material is made? - Can you investigate chemical reactions and observe the changes?	N/A
Earth and Space	- Describe the movement of the Earth, and other planets, relative to the Sun in the solar system - Describe the movement of the Moon relative to the Earth - Describe the Sun, Earth and Moon as approximately spherical bodies		Big Question – How does the Earth's movement affect us? - Can you explore the solar system and its planets? - How can you describe the movement of the Earth and other planets relative to the sun?	N/A

	Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky		- How can you describe the Sun, Earth and Moon as spherical bodies? - Can you explain the Earth's movement in space? - How does the Earth rotation explain day and night? - Can you describe the movement of the moon relative to Earth?	
Forces	- 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	Year 3 - Compare how things move on different surfaces Notice that some forces need contact between two objects, but magnetic forces can act at a distance Observe how magnets attract or repel each other and attract some materials and not others Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials Describe magnets as having two poles Predict whether two magnets will attract or repel each other, depending on which poles are facing.	Big Question - How could forces keep us safe? - Can you explore gravity and the life work of Isaac Newton? - What happens when you examine the connection between air resistance and parachutes? - Can you explore factors which affect an objects ability to resist water? - Can you investigate the effects of friction on different surfaces? - Can you investigate levers and pulleys (mechanisms)? - Can you investigate gears (mechanisms)?	N/A

Year 6

Topic	Links to National Curriculum	Prior learning	Key Questions	Looking forward
Living Things and Their Habitats	- 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 - Give reasons for classifying plants and animals based on specific characteristics	Year 2 - 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, 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. Year 4 - 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. Year 5 - 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	How are living things classified? - How can we classify living organisms? - What is a classification key? - Can I use a classification key to classify animals? - How can we classify plants into broad groups? microorganisms? - What are micro-organisms and are they helpful or harmful? - Who was Carolus Linnaeus?	KS3
Animals including Humans	- 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 bodies function	Year 1 – identifying and name animals Identify common animals (carnivores, Omnivores, herbivores) Describe and compare the structure of common animals.	How can we keep ourselves healthy? - What is the function of the heart and its role in the circulatory system? - Can you identify the main parts of the human circulatory system and describe their functions? - What are the functions of cells within blood? - How does the body transport water and nutrients?	KS3

	Describe the ways in which nutrients and water are transported within animals, including humans.	Basic body parts of a human. Year 2 – offspring, basic needs of animals, importance for humans to exercise and eating the right food. Year 3 – nutrition for humans and animals., animals and human skeletons and purpose of these. Year 4 - Describe the simple functions of the basic parts of the digestive system in humans Identify the different types of teeth in humans and their simple functions Construct and interpret a variety of food chains, identifying producers, predators and prey. Year 5 - Describe the changes as humans develop to old age	5. What affects your heart rate? 6. What are the impacts of drugs and alcohol on the body?	
Evolution and Inheritance	- 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.	N/A	How is a camel suited to its habitat? - How do offspring vary to their parents? - How do animals adapt to their surroundings? - How do plants adapt for their surroundings? - What can we learn from fossils? - What is the theory of evolution? - How have humans evolved over time?	KS3
Light	- 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.	Year 3 - 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	How can I see around corners? - How does light travel? - What is reflection? - How can reflection help us see? - How do shadows change over time? - Why do shadows have the same shape as the object that casts them? - How do we see objects?	KS3

		Find patterns in the way that the size of shadows change.		
Electricity	- 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.	Year 4 - 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	Can you turn the lights down? - What are the parts of an electrical circuit? - How does voltage effect an electrical circuit? - How can you identify and correct problems in a circuit? - What affects the output of a circuit? - Can you build a set of traffic lights? - Can you apply your knowledge of conductors and insulators?	KS3