

# Haresfield Science Curriculum

## KS1 Year A

### Knowledge Skills and Understanding

#### T1 Animals including Humans

- **identify**, name, draw and label the basic parts of the human body and
- **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)

#### T2 Animals including Humans

- **say** which part of the body is associated with each sense
- **identify** that most living things live in habitats to which they are suited
- **describe** how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other

#### T3 Animals including Humans

- **describe** the importance for humans of exercise, eating the right amounts of different types of food, and hygiene

### Working scientifically

- **observe and measure** to compare and contrast animals
- **ask questions** about what things animals need for survival
- **suggest** ways to find answers to their questions.

- **compare** different textures, sounds and smells
- **describe** the conditions in different habitats
- **find out** how the conditions affect the number and type(s) of plants and animals that live there.

- **ask questions** about what humans need to stay healthy
- **suggest** ways to find answers to their questions.

## Knowledge Skills and Understanding

T <sub>4</sub> Plants	T <sub>5</sub> Seasonal changes	T <sub>6</sub> Living things - Habitats
<ul style="list-style-type: none"> <li>▪ <b>identify</b> and <b>name</b> a variety of common wild and garden plants, including deciduous and evergreen trees</li> <li>▪ <b>identify</b> and <b>describe</b> the basic structure of a variety of common flowering plants, including trees</li> <li>▪ <b>observe</b> and <b>describe</b> how seeds and bulbs grow into mature plants</li> <li>▪ <b>find out</b> and <b>describe</b> how plants need water, light and a suitable temperature to grow and stay healthy</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>observe</b> changes across the 4 seasons</li> <li>▪ <b>observe</b> and <b>describe</b> weather associated with the seasons and how day length varies</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>identify</b> and <b>name</b> a variety of common animals including fish, amphibians, reptiles, birds and mammals</li> <li>▪ <b>identify</b> and <b>name</b> a variety of plants and animals in their habitats, including microhabitats</li> </ul>

## Working scientifically

<ul style="list-style-type: none"> <li>▪ <b>observe</b> closely</li> <li>▪ <b>compare</b> and <b>contrast</b> familiar plants</li> <li>▪ <b>describe</b> how to identify and group them,</li> <li>▪ <b>keep records</b> of how plants have changed over time</li> <li>▪ <b>compare</b> and <b>contrast</b> what they have found out about different plants.</li> <li>▪ <b>test</b> to show that plants need light and water to stay healthy.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>make</b> tables and charts about the weather;</li> <li>▪ <b>make</b> displays of what happens in the world around them, including day length, as the seasons change.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>observe</b> to compare and contrast animals</li> <li>▪ <b>describe</b> how they identify and group them</li> <li>▪ <b>describe</b> the conditions in different habitats and microhabitats</li> <li>▪ <b>find out</b> how the conditions affect the number and type(s) of plants and animals that live there.</li> </ul>
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## KS1 Key skills developed by the end of Year A

All children in both cohorts will be expected to achieve the key skills during the year.

Autumn	Spring	Summer
<ul style="list-style-type: none"><li>▪ Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</li><li>▪ That animals including humans have offspring which grow into adults.</li><li>▪ Explain that animals need water, food and air to survive.</li></ul>	<ul style="list-style-type: none"><li>▪ Say why exercise is important</li><li>▪ Understand that a balanced diet is important</li><li>▪ Name some common wild and common garden plants</li><li>▪ Label parts of a plant</li><li>▪ Know that plants grow from seeds or bulbs</li><li>▪ Know that plants need water light and soil to grow.</li></ul>	<ul style="list-style-type: none"><li>▪ Name the four seasons and say why they are different</li><li>▪ Identify animals that live in the woodland classroom.</li></ul>

# Haresfield Science Curriculum

## KS1 Year B

### Knowledge Skills and Understanding

#### T1 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

#### T2 Everyday materials

- 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

#### Animals and humans –

explore and compare the differences between things that are living, dead, and things that have never been alive

### Working scientifically

- **perform** simple tests
- **ask questions**
- **compare** and **contrast** what they have found out about materials

- **perform** simple tests
- **compare** the uses of everyday materials
- **observe** closely,
- **identify** and **classify** the uses of different materials
- **record** their observations.

- **sort and classify** things according to whether they are living, dead or were never alive
- **record** their findings using charts
- **describe** how they sorted
- **ask questions** and ways of answering their questions.

## Knowledge Skills and Understanding

T4 Food chains	T5 Materials	T6 Living things
<ul style="list-style-type: none"> <li>▪ <b>describe</b> how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>identify and compare</b> the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</li> <li>▪ <b>find out</b> how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>identify and name</b> a variety of common animals including fish, amphibians, reptiles, birds and mammals</li> <li>▪ <b>identify and name</b> a variety of common animals that are carnivores, herbivores and omnivores</li> <li>▪ <b>describe and compare</b> the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)</li> </ul>

## Working scientifically

<ul style="list-style-type: none"> <li>▪ <b>construct</b> a simple food chain</li> <li>▪ <b>describe</b> the conditions in different habitats and microhabitats</li> <li>▪ <b>find out</b> how the conditions affect the number and type(s) of plants and animals that live there.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>perform</b> simple tests</li> <li>▪ <b>compare</b> the uses of everyday materials</li> <li>▪ <b>observe</b> closely,</li> <li>▪ <b>identify</b> and <b>classify</b> the uses of different materials</li> <li>▪ <b>record</b> their observations.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>compare and contrast</b> animals</li> <li>▪ <b>group</b> animals according to what they eat</li> <li>▪</li> </ul>
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## KS1 Key skills developed by the end of Year B

All children in both cohorts will be expected to achieve the key skills during the year.

Autumn	Spring	Summer
<ul style="list-style-type: none"><li>▪ Name a variety of everyday common materials</li><li>▪ Describe the simple properties of everyday materials</li><li>▪ Group materials according to different criteria.</li></ul>	<ul style="list-style-type: none"><li>▪ Identify living things and things that have never lived</li><li>▪ Create a simple food chain.</li></ul>	<ul style="list-style-type: none"><li>▪ Say why a material is suitable for a particular purpose</li><li>▪ Explain how to change the shape of some solid materials</li><li>▪ Name a variety of common animals</li><li>▪ Use the terms herbivore, carnivore and omnivore.</li></ul>

# Haresfield Science Curriculum

## LKS2 Year A

### Knowledge Skills and Understanding

#### T1 Rocks

#### T2 Digestion / Skeleton

#### T3 Forces and Magnets

- **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

- **identify** that humans and some other animals have skeletons and muscles for support, protection and movement
- **describe** the simple functions of the basic parts of the digestive system in 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

- **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, and **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

### Working scientifically

- **observe and compare** rocks including those used in buildings and gravestones

- Identify and group animals with and without skeletons

- **raise questions** and **carry out tests** to find out how far things move on different surfaces,

<ul style="list-style-type: none"> <li>▪ <b>Explore</b> what happens when rocks are rubbed together or what changes occur when they are in water.</li> <li>▪ <b>identify</b> and <b>classify</b> rocks according to whether they have grains or crystals, and whether they have fossils in them.</li> <li>▪ <b>research</b> the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>observe</b> and <b>compare</b> the movement of different animals; exploring ideas about what would happen if humans did not have skeletons.</li> <li>▪ <b>compare</b> and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat.</li> <li>▪ <b>discuss</b> ideas about the digestive system and compare them with models or images</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>gather</b> and <b>record</b> data to find answers to their questions;</li> <li>▪ <b>explore</b> the strengths of different magnets and finding a fair way to compare them;</li> <li>▪ <b>sort</b> materials into those that are magnetic and those that are not</li> <li>▪ <b>identify</b> how magnets are useful in everyday items.</li> </ul>
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## Knowledge Skills and Understanding

T4 Light	T5 Plants	T6 Living things - Habitats
<ul style="list-style-type: none"> <li>▪ <b>recognise</b> that they need light in order to see things and that dark is the absence of light</li> <li>▪ <b>notice</b> that light is reflected from surfaces</li> <li>▪ <b>recognise</b> that light from the sun can be dangerous and that there are ways to protect their eyes</li> <li>▪ <b>recognise</b> that shadows are formed when the light from a light source is blocked by an opaque object</li> <li>▪ <b>find</b> patterns in the way that the size of shadows change</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>identify</b> and <b>describe</b> the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>▪ <b>explore</b> the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</li> <li>▪ <b>investigate</b> the way in which water is transported within plants</li> <li>▪ <b>explore</b> the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>recognise</b> that living things can be grouped in a variety of ways</li> <li>▪ <b>explore</b> and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>▪ <b>recognise</b> that environments can change and that this can sometimes pose dangers to living things</li> <li>▪</li> </ul>



## Working scientifically

- **look** for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.

- **compare** the effect of different factors on plant growth
- **discover** how seeds are formed by **observing** the different stages of plant life cycles over a period of time;
- **explain** how different seeds are dispersed.
- **observe** how water is transported in plants

- **use** and **make** simple guides or keys to **explore** and **identify** local plants and animals;
- **raise** and **answer** questions based on their observations of animals and what they have found out about other animals that they have researched.

# Haresfield Science Curriculum

## LKS2 Year B

### Knowledge Skills and Understanding

#### T1 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

#### T2

#### T3 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

### Working scientifically

- Find how the pitch and volume of sounds can be changed in a variety of ways.
- Investigate a variety of different materials to find out which the best insulation against sound.

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- group and classify a variety of different materials;
- exploring the effect of temperature on a variety of substances
- research the temperature at which materials change state,
- observe and record evaporation over a period of time,
- investigate the effect of temperature on washing drying or snowmen melting.

## Knowledge Skills and Understanding

T <sub>4</sub> - Electricity	T <sub>5</sub> Electricity	T <sub>6</sub> Animals and humans – food webs
<ul style="list-style-type: none"> <li>▪ identify common appliances that run on electricity</li> <li>▪ construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <li>▪ identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery</li> <li>▪ recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> </ul>	<ul style="list-style-type: none"> <li>▪ recognise some common conductors and insulators, and associate metals with being good conductors</li> </ul>	<ul style="list-style-type: none"> <li>▪ construct and interpret a variety of food chains, identifying producers, predators and prey</li> <li>▪ identify the different types of teeth in humans and their simple functions</li> </ul>

## Working scientifically

<ul style="list-style-type: none"> <li>▪ observe patterns, for example, that bulbs get brighter if more cells are added,</li> <li>▪ Draw a circuit as a pictorial representation</li> <li>▪ Some materials can and some cannot be used to connect across a gap in a circuit.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Present findings on investigation of what make a good conductor</li> </ul>	<ul style="list-style-type: none"> <li>▪ compare the teeth of carnivores and herbivores and suggesting reasons for differences;</li> <li>▪ investigate what damages teeth and how to look after them.</li> </ul>
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# Haresfield Science Curriculum

## UKS2 Year A

### Knowledge Skills and Understanding

Properties and changes of materials	Light	Living Things and their habitats	
		Life cycles & changes to old age	Classification
<ul style="list-style-type: none"> <li>▪ <b>compare</b> and group together everyday materials</li> <li>▪ know that some materials will dissolve in liquid to form a solution</li> <li>▪ <b>describe</b> how to recover a substance from a solution</li> <li>▪ use knowledge to decide how mixtures might be separated</li> <li>▪ give reasons, based on evidence, for the particular uses of everyday materials</li> <li>▪ <b>demonstrate</b> that dissolving, mixing and changes of state are reversible changes</li> <li>▪ <b>explain</b> that some changes result in the formation of new materials, and that this kind of change is not usually reversible,</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>recognise</b> that light appears to travel in straight lines</li> <li>▪ use the idea that light travels in straight lines to <b>explain</b> that objects are seen because they give out or reflect light into the eye</li> <li>▪ <b>explain</b> that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes</li> <li>▪ use the idea that light travels in straight lines to <b>explain</b> why shadows have the same shape as the objects that cast them.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>observe</b> and <b>compare</b> the life cycles of plants and animals in their local environment with other plants and animals around the world</li> <li>▪ <b>grow</b> new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs</li> <li>▪ <b>compare</b> how different animals reproduce and grow</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>describe</b> how living things are classified into broad groups including micro-organisms, plants and animals</li> <li>▪ <b>give reasons</b> for classifying plants and animals based on specific characteristics.</li> </ul>

## Working scientifically

- **carry out tests** to answer questions
- **compare** materials
- **observe and compare** the changes that take place, for example, when burning different materials or baking bread or cakes.

- **design and make** a periscope using the idea that light appears to travel in straight lines to explain how it works.
- **investigate** the relationship between light sources, objects and shadows by using shadow puppets

- **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.
- **research** the gestation periods of other animals and comparing them with humans
- **find out and record** the length and mass of a baby as it grows.

- use classification systems and keys to identify some animals and plants in the immediate environment
- **research** unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system.

# Haresfield Science Curriculum

## UKS2 Year B

### Knowledge Skills and Understanding

T1 Forces	T2 Evolution and Inheritance	T3 + 4 Animals including humans
<ul style="list-style-type: none"> <li>▪ <b>explain</b> that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li> <li>▪ <b>identify</b> the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>▪ <b>recognise</b> that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>recognise</b> that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> <li>▪ <b>recognise</b> that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>▪ <b>identify</b> how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>identify</b> and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>▪ <b>recognise</b> the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>▪ <b>describe</b> the ways in which nutrients and water are transported within animals, including humans</li> </ul>

### Working scientifically

<ul style="list-style-type: none"> <li>• <b>explore</b> falling paper cones or cup-cake cases</li> <li>• <b>design and make</b> a variety of parachutes and carry out fair tests to determine which designs are the most effective</li> <li>• <b>explore</b> resistance in water by making and testing boats of different shapes</li> <li>• <b>make</b> products that use levers, pulleys, gears and/or springs and explore their effects.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>observe</b> and <b>raise questions</b> about local animals and how they are adapted to their environment</li> <li>• <b>compare</b> how some living things are adapted to survive in extreme conditions</li> <li>• <b>analyse</b> the advantages and disadvantages of specific adaptations</li> </ul>	<ul style="list-style-type: none"> <li>• <b>explore</b> the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.</li> </ul>
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## Knowledge Skills and Understanding

T <sub>3</sub> + 4 Animals including humans	T <sub>5</sub> Earth and Space	T <sub>6</sub> Electricity
<ul style="list-style-type: none"> <li>▪ <b>identify</b> and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>▪ <b>recognise</b> the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>▪ <b>describe</b> the ways in which nutrients and water are transported within animals, including humans</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>describe</b> the movement of the Earth, and other planets, relative to the Sun in the solar system</li> <li>▪ <b>describe</b> the movement of the Moon relative to the Earth</li> <li>▪ <b>describe</b> the Sun, Earth and Moon as approximately spherical bodies</li> <li>▪ use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>associate</b> the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>▪ <b>compare and give reasons</b> for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches</li> <li>▪ <b>use recognised symbols</b> when representing a simple circuit in a diagram.</li> </ul>

## Working scientifically

<ul style="list-style-type: none"> <li>• <b>explore</b> the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>compare</b> the time of day at different places on the Earth</li> <li>• <b>create</b> simple models of the solar system</li> <li>• <b>construct</b> simple shadow clocks and sundials</li> </ul>	<ul style="list-style-type: none"> <li>• systematically <b>identify</b> the effect of changing one component at a time in a circuit</li> <li>• <b>design and make</b> a useful circuit.</li> </ul>
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