**Science Knowledge Curriculum Progression**

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| **Foundation Stage** |
| **Statements: 3 - 4 year olds** * To use my senses to explore natural materials
* To use my senses to explore living things
* To notice things in the natural world
* To talk about how things look, feel, sound and smell
* To ask questions and make comments about the world around me
* To talk about how things grow and change
* To notice and talk about changes that I notice
* To talk about different weathers and seasons
* To take care of living things

**Statements: Reception** * To describe the natural world using my senses
* To look closely at the natural world and record my observations through drawing
* To look closely and notice how some things are the same and some are different
* To describe the features of different environments
* To compare different environments
* To describe and compare the seasons
* To talk about ways to look after the natural world

**ELG**: * Children explore the natural world around them, making observations and drawing pictures of animals and plants.
* Children 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.
* Children understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. Children describe their immediate environment using knowledge from observation, discussion, stories and non-fiction texts
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|  | **Years 1 and 2 Cycle A** |
|  | **Terms 1/2** | **Terms 3/4** | **Terms 5/6** |
| **Year A**  | **Biology: Animals including humans -** *focus on animals in Cycle A and humans in cycle B, however, it is important to ensure that pupils understand that humans are animals. Explicit links need to be made.*Key Question: Where do I belong?  | **Chemistry: Everyday Materials–** *focus on comparing and changes in Cycle A and uses in Cycle B.*Key Question: Which material is best? | **Biology: Plants**Key Text ‘I really wonder what plant I’m growing’ by Lauren Child |
| **Y1*** I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
* I can identify and name a variety of common animals that are carnivores, herbivores and omnivores
* I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)

**Y2*** I can notice that animals, including humans, have offspring which grow into adults
* I can find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
 | **Y1*** I can describe the simple physical properties of a variety of everyday materials –*this objective needs to be taught in both cycles: Cycle A - focus on materials found inside.*
* I can compare and group together a variety of everyday materials on the basis of their simple physical properties.

**Y2*** I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
 | **Y1**I can identify and describe the basic structure of a variety of common flowering plants, including trees. *( make explicit links with ongoing seasonal change)***Y2*** I can identify and name a variety of plants in their habitats, including micro-habitats
* I can find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.
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| **To be taught throughout year** |
| **Y2*** I can observe and describe how seeds and bulbs grow into mature plants

*Children work with gardening club to plant crocus, daffodil and hyacinth bulbs and wildflower seeds. Once planted, they will be visited regularly make observations of growth.*  | **Y2*** I can observe and describe how seeds and bulbs grow into mature plants

*Children work with gardening club to plant vegetables in the allotment area. Once planted, they will be visited regularly make observations of growth.* | **Y2*** I can observe and describe how seeds and bulbs grow into mature plants

*Children work with gardening club to plant salad and herbs in the allotment area. Once planted, they will be visited regularly make observations of growth and then used to make their healthy salad as part of DT.**They will collect seeds from what they have grown throughout the year to plant again next year.* |
| **Physics: Y1 Seasonal Changes**• I can observe changes across the four seasons (*Pupils will be gathering data about seasonal change regularly throughout the year. As part of this, they will be making observations about the weather and how this affects living things )*• I can observe and describe weather associated with the seasons and how day length varies |
|  | **Years 1 and 2 Cycle B** |
|  | **Terms 1 / 2** | **Terms 3/4** | **Terms 5/6** |
| **Year B**  | **Biology: Animals including humans** *focus on humans in cycle B and animals in Cycle A, however, it is important to ensure that pupils understand that humans are animals. Explicit links need to be made.*Key Question: How can I (given character) become healthy? | **Chemistry: Everyday Materials** *focus on uses in Cycle B and comparing and changes in Cycle A.*Key Question: Is there a pattern in the types of materials used to make objects in a school?  | **Biology: All living things and their habitats**Key Question: Am I alive? (pictures)Key Question: Where do I live and why? |
|  **Y1*** I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense

**Y2*** I can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.
 | **Y1*** I can describe the simple physical properties of a variety of everyday materials –*this objective needs to be taught in both cycles: Cycle B - focus on materials found outside..*
* I can distinguish between an object and the material from which it is made
* I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock

**Y2*** I can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
 | **Y2*** I can explore and compare the differences between things that are living, dead, and things that have never been alive
* I can 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 *(Links with animals including humans so links need to be made explicit)*
* I can identify and name a variety of animals in their habitats, including micro-habitats
* I can 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.
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| **To be taught throughout year** |
| **Biology: All living things and their habitats: Yr2** * I can identify and name a variety of animals in their habitats, including micro-habitats

*Animals visible in a habitat will change depending on the weather on the day and the season. In order to build up a full picture of the animals in a habitat, the habitat is visited at different times throughout the year. Links made with Wild Colerne. This builds up a progressive picture for T3 work on all Livings Things and their habitats. Habitats to study: Pond area, bird boxes, wild grass area, compost heap, Franks Wood – explicit links are made to the seasons***Physics: Y1 Seasonal Changes**• I can observe changes across the four seasons *( focus on habitats)* |

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|  | **Years 3 and 4 Cycle A** |
|  | **Terms 1/2** | **Terms 3/4** | **Terms 5/6** |
| **Year A**  | **Chemistry: Y3 Rocks** *Curriculum links: History – pre- historic Britain/ English – link books on fossils and rocks/explanations and research on formation of fossils.*Key Question: How do rocks differ?**Physics: Y4 Electricity***Curriculum links: DT – designing/making a buzz wire game in T3*Key Question: How can we control electricity? | **Physics: Y3 Forces and magnets**Key Question: How do we know that forces exist if we can’t see them? | **Biology: Y3 Animals, including humans****Biology: Y4 Animals, including humans**Key Question: Are foods that are high in energy always high in sugar? |
| **Y3 Rocks*** I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
* I can describe in simple terms how fossils are formed when things that have lived are trapped within rock
* I can recognise that soils are made from rocks and organic matter.

 **Y4 Electricity*** I can identify common appliances that run on electricity
* I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
* I can 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
* I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
* I can recognise some common conductors and insulators, and associate metals with being good conductors.
 | **Y3 Forces and magnets*** I can compare how things move on different surfaces
* I can notice that some forces need contact between two objects, but magnetic forces can act at a distance
* I can observe how magnets attract or repel each other and attract some materials and not others describe magnets as having two poles
* I can predict whether two magnets will attract or repel each other, depending on which poles are facing.
* I can 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
 | **Y3 Animals, including humans****Nutrition:*** I can 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

**Movement*** I can identify that humans and some other animals have skeletons and muscles for support, protection and movement.

**Y4 Animals, including humans*** I can describe the simple functions of the basic parts of the digestive system in humans
* I can identify the different types of teeth in humans and their simple functions

I can construct and interpret a variety of food chains, identifying producers, predators and prey. |

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|  | **Years 3 and 4 Cycle B** |
|  | **Terms 1/2** | **Terms 3/4** | **Terms 5/6** |
| **Year B**  | **Biology: Y3 Plants *Curriculum links: English core texts –***  ***Plants v Animals to engage. Explicit links to be made with gardening club***Key Question: Plants vs Humans. What is the same, what is different?**Chemistry: Y4 States of matter -** Key Question: How can materials change? Is water always wet? | **Physics: Y3 Light -** links between light and plants to be made explicit.Key Question: Why can’t we see in the dark?**Physics: Y4 Sound**Key Question: How can sound be changed? | **Biology: Y3 Plants *Curriculum links: Theme – Window to the World – English core texts to engage.***Key Question: What would happen if there were no bees?**Biology: Y4 Living things and their habitats** *Evidence for this objective is collected throughout year (identify and name a variety of living things in their local and wider environment) Animals visible in a habitat will change depending on the weather on the day and the season so the habitat is visited at different times throughout the year.*Key Question: What poses a danger to living things? |
| **Y3 Plants*** I can 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 * I can investigate the way in which water is transported within plants

 **Y4 States of matter*** I can compare and group materials together, according to whether they are solids, liquids or gases
* I can 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)
* I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.
 | **Y3 Light*** I can recognise that they need light in order to see things and that dark is the absence of light
* I can notice that light is reflected from surfaces
* I can recognise that light from the sun can be dangerous and that there are ways to protect their eyes
* I can recognise that shadows are formed when the light from a light source is blocked by a solid object
* I can find patterns in the way that the size of shadows changes.

**Y4 Sound*** I can identify how sounds are made, associating some of them with something vibrating
* I can recognise that vibrations from sounds travel through a medium to the ear
* I can find patterns between the pitch of a sound and features of the object that produced it
* I can find patterns between the volume of a sound and the strength of the vibrations that produced it
* I can recognise that sounds get fainter as the distance from the sound source increases.
 | **Y3 Plants*** I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
* I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

**Y4 Living things and their habitats*** I can recognise that living things can be grouped in a variety of ways
* I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
* I can recognise that environments can change and that this can sometimes pose dangers to living things.
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|  | **Years 4 and 5 Cycle A** |
|  | **Terms 1/2** | **Terms 3/4** | **Terms 5/6** |
| **Year A** | **Chemistry: Y4 States of matter –** *teach just this objective from Year 4 which will be revisited in Cycle B.* I can compare and group materials together, according to whether they are solids, liquids or gases **Chemistry: Y5 Properties of materials***Materials is split into two areas: properties of materials (cycle A) and changes of materials (cycle B).* **Physics: Y4 Electricity *Curriculum*** *links: DT in T5 making torches*Key Question – How do I prove that electricity needs a complete circuit? | **Physics: Y5 Forces -***. This objective will be repeated in Year B as it is a challenging concept.* I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object **Physics: Y5 Earth and Space**Key Question – Why does the sun appear to move across the sky? | **Biology: Y4 Animals, including humans** Key Question – Why do our body parts function in different ways?**Biology: Y5 Animals, including humans***Links with PSHE curriculum taught in T6 which will be taught alongside this unit.*Key Question – Do all mammals develop in the same way? |
| **Y4 States of matter –** *teach just this objective from Year 4 which will be revisited in Cycle B.* * I can compare and group materials together, according to whether they are solids, liquids or gases

**Y5 Properties and changes of materials (focus on properties)*** I can 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
* I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic

**Y4 Electricity***Curriculum links: DT in T5 making torches** I can identify common appliances that run on electricity
* I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
* I can 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
* I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
* I can recognise some common conductors and insulators, and associate metals with being good conductors
 | **Y5 Forces -** *Children use their understanding of gravity to help make sense of why the planets orbit the Sun, and the Moon orbits the Earth. Therefore, one objective (below) from Yr 5 forces is taught before Earth and Space. This objective is repeated in Year B as it is a challenging concept.* * I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object

**Y5 Earth and Space*** I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system
* I can describe the movement of the Moon relative to the Earth
* I can describe the Sun, Earth and Moon as approximately spherical bodies
* I can use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky.
 | **Y4 Animals, including humans** * I can describe the simple functions of the basic parts of the digestive system in humans
* I can identify the different types of teeth in humans and their simple functions
* I can construct and interpret a variety of food chains, identifying producers, predators and prey.

**Y5 Animals, including humans -** *Links with PSHE curriculum taught in T6 which will be taught alongside this unit.** I can describe the changes as humans develop to old age.
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|  | **Years 4 and 5 Cycle B** |
|  | **Terms 1/2** | **Terms 3/4** | **Terms 5/6** |
| **Year B** | **Chemistry: Y4 States of matter**Key Question – How can we create a water cycle?**Chemistry: Y5 Changes of materials**Key Question – Can all mixtures be separated?  | **Physics: Y4 Sound**Key Question – Can sound be changed?**Physics: Y5 Forces** Key Question – How can I slow down a force? | **Biology: Y4 Living things and their habitats**Key Question – Why is it useful to classify living things?**Biology: Y5 Living things and their habitats**Key Question – Do plants and animals reproduce in the same way? |
| **Y4 States of matter*** I can compare and group materials together, according to whether they are solids, liquids or gases *( this objective is taught in Cycle A but revisited in Cycle B)*
* I can 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)
* I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.*Links with water cycle in Geography T5/6*

**Y5 Changes of materials*** I know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
* I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
* I can demonstrate that dissolving, mixing and changes of state are reversible changes
* I can 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.
 | **Y4 Sound*** I can identify how sounds are made, associating some of them with something vibrating
* I can recognise that vibrations from sounds travel through a medium to the ear
* I can find patterns between the pitch of a sound and features of the object that produced it
* I can find patterns between the volume of a sound and the strength of the vibrations that produced it
* I can recognise that sounds get fainter as the distance from the sound source increases.

**Y5 Forces*** I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
* I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces
* I can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
 | **Y4 Living things and their habitats***Evidence for this objective is collected throughout year (identify and name a variety of living things in their local and wider environment) Animals visible in a habitat will change depending on the weather on the day and the season so the habitat is visited at different times throughout the year.***Y4 Living things and their habitats*** I can recognise that living things can be grouped in a variety of ways
* I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
* I can recognise that environments can change and that this can sometimes pose dangers to living things.

**Y5 Living things and their habitats –*** I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
* I can describe the life process of reproduction in some plants and animals
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|  | **Years 5 and 6 Cycle A** |
|  | **Terms 1/2** | **Terms 3/4** | **Terms 5/6** |
| **Year A** | **Chemistry: Y5 Properties materials** *Materials is split into two areas: properties of materials (cycle A) and changes of materials (cycle B).* **Physics: Y6 Electricity *Curriculum links –*** *applying knowledge in DT – building a moon buggy*Key Question – How can I demonstrate the effect of change in a circuit? | **Physics: Y5 Forces** *This objective is repeated in Year B as it is a challenging concept.* I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object **Physics: Y5 Earth and Space**Key Question – Why does the sun appear to move across the sky? | **Biology: Y5 Animals, including humans –***Curriculum links: Puberty PSHE*Key Question – Do all mammals develop in the same way?**Biology: Y6 Animals, including humans**Key Question – How do our choices affect how our bodies work? |
|  **Y5 Properties and changes of materials (focus on properties)*** I can 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
* I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic

**Y6 Electricity*** I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
* I can 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
* I can use recognised symbols when representing a simple circuit in a diagram.
 |  **Y5 Forces -** *Children use their understanding of gravity to help make sense of why the planets orbit the Sun, and the Moon orbits the Earth. Therefore, one objective (below) from Yr 5 forces is taught before Earth and Space. This objective is repeated in Year B as it is a challenging concept.** I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object

**Y5 Earth and Space*** I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system
* I can describe the movement of the Moon relative to the Earth
* I can describe the Sun, Earth and Moon as approximately spherical bodies
* I can use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky.
 |  **Y5 Animals, including humans*** I can describe the changes as humans develop to old age.

**Y6 Animals, including humans*** I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
* I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
* I can describe the ways in which nutrients and water are transported within animals, including humans.
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|  | **Years 5 and 6 Cycle B** |
|  | **Terms 1/2** | **Terms 3/4** | **Terms 5/6** |
| **Year B** | **Biology: Y6 Living things and their habitats**Key Question – Do plants and animals reproduce in the same way?**Chemistry: Y5 Changes of materials**Key Question –How can separating materials be useful? | **Physics: Y5 Forces** Key Question – How can I slow down a force?**Physics: Y6 Light** Key question – Can we change the way in which light travels? | **Biology: Y5 Living things and their habitats****Biology: Y6 Evolution and inheritance** Key Question – Why do offspring look like their parents? |
|  **Y6 Living things and their habitats*** I can describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
* I can give reasons for classifying plants and animals based on specific characteristics.

**Y5 Changes of materials*** I know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
* I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
* I can demonstrate that dissolving, mixing and changes of state are reversible changes
* I can 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.
 | **Y5 Forces*** I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
* I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces
* I can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

**Y6 Light*** I can 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
* I can 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
* I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
 | **Y5 Living things and their habitats*** I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
* I can describe the life process of reproduction in some plants and animals

**Y6 Evolution and inheritance**This topic is conceptually more challenging and is therefore taught later in the year* I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
* I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
* I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
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