Year 2 – Living Things and Their Habitats

National Curriculum Objectives/Knowledge Statements (Substantive):

- Explore and compare the difference 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 micro habitats.
- Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name the different sources of food.

Pupils should be introduced to the idea that all living things have certain characteristics that are essential for keeping them alive and healthy. They should raise and answer questions that help them to become familiar with the life processes that are common to all living things. Pupils should be introduced to the terms 'habitat' (a natural environment or home of a variety of plants and animals) and 'micro-habitat' (a very small habitat, for example for woodlice under stones, logs or leaf litter). They should raise and answer questions about the local environment that help them to identify and study a variety of plants and animals within their habitat and observe how living things depend on
each other, for example, plants serving as a source of food and shelter for animals. Pupils should compare animals in familiar habitats with animals found in less familiar habitats, for example, on the seashore, in woodland, in the ocean, in the rainforest.
Pupils might work scientifically by: sorting and classifying things according to whether they are living, dead or were never alive, and recording their findings using charts. They should describe how they decided where to place things, exploring questions for example: 'Is a flame alive? Is a deciduous tree dead in winter?' and talk about ways of answering their questions. They could construct a simple food chain that includes humans (e.g. grass, cow, human). They could describe the conditions in different habitats and micro-habitats (under log, on stony path, under bushes) and find out how the conditions affect the number and type(s) of plants and animals that live there.

Key Ideas:

a) Some things are living, some were once living but now dead and some things never lived.
b) There is variation between living things.
c) Different animals and plants live in different places.
d) Living things are adapted to survive in different habitats.
e) Environmental change can affect plants and animals that live there.

Prior Learning	Breakdown of Lessons		Vocabulary
In Early Years: • Comments and questions about the place they live or the natural world. • Shows care and concern for living things and the environment. • Can talk about things they have observed such as plants and animals. • Notices features of objects in their environment. • Comments and asks questions about their familiar world.	**Lesson and Big Question**	Knowledge (**Progression of substantive knowledge – what?**). Or Science Enquiry/Skill Based Lesson (**Disciplinary/National Curriculum Working Scientifically Statements – why/how?**). These inc: Fair Testing (Asking Scientific Questions, Planning and Enquiry, Observing closely, Drawing Conclusions, Making Predictions, Evaluating an Enquiry), Identifying & Classifying, Observation Over Time (Observing closely), Pattern Seeking/Research.	Living, dead, never alive, habitats, micro-habitats, food, food chain, leaf litter, shelter, sea shore, woodland, ocean, rainforest, conditions, desert, damp, shade,
	Carl Linnaeus was a Swedish naturalist and explorer. He classified (grouped) all plants and animals and named them. He thinks all things can be classified as living, dead or never lived. What do you think?	Classification- living, dead or never lived.	
	Chris Packham is a famous naturalist and he studies animals in their habitat. Chris wants to know more about why most living things live in habitats that suit them. Identify different habitats and name the plants and animals that live there.	Knowledge based- exploring habitats and the needs of individual animals.	
	Chris Packham is a famous naturalist and he studies animals in their habitats. Last week we taught Chris about different habitats and named the plants and animals that live there. This week Chris wants to know which animals live in microhabitats. Can you name some?	Knowledge- learn about animals and plants that live in a coastal habitat and how they are suited to it.	
	George McGavin is a British Entomologist and Wildlife presenter. He studies insects in their habitats. He would like to know how different habitats provide for the basic needs of animals and plants. Can you tell him about this?	Scientific enquiry- minibeast hunt to observe microhabitats.	
	Sir David Attenborough is a natural historian and he has studied animals all over the world in their natural habitats. He believes that animals get their food from plants and other animals. He thinks we can use food chains to show this. Do you agree?	Knowledge- features of a food chain and understanding of producer, prey and predator.	
	Assessment		

In 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.
- Know and label the features of a river
- Recognise that environments can change and that this can sometimes pose danger to living things.

Year 4 - Living Things and Their Habitats

National Curriculum Objectives/Knowledge Statements (Substantive):

- 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 danger to living things (also links with Geography 'Living Sustainably').

Pupils should use the local environment throughout the year to raise and answer questions that help them to identify and study plants and animals in their habitat. They should identify how the habitat changes throughout the year. Pupils should explore possible ways of grouping a wide selection of living things that include animals and flowering plants and non-flowering plants. Pupils could begin to put vertebrate animals into groups such as fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects.

Note: Plants can be grouped into categories such as flowering plants (including grasses) and non-flowering plants, such as ferns and mosses.

Pupils should explore examples of human impact (both positive and negative) on environments, for example, the positive effects of nature reserves, ecologically planned parks, or garden ponds, and the negative effects of population and development, litter or deforestation.

Pupils might work scientifically by: using and making simple guides or keys to explore and identify local plants and animals; making a guide to local living things; raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched.

Key Ideas:

a) Living things can be divided into groups based upon their characteristics.
b) Environmental change affects different habitats differently.
c) Different organisms are affected differently by environmental change.
d) Different food chains occur in different habitats.
e) Human activity significantly affects the environment.

Prior Learning	Breakdown of Lessons		Vocabulary
In Year 2: • Explore and compare the difference 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 micro habitats. • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name the different sources of food.	Lesson and Big Question	Knowledge (Progression of substantive knowledge – what?). Or Science Enquiry/Skill Based Lesson (Disciplinary/National Curriculum Working Scientifically Statements – why/how?). These inc: Fair Testing (Asking Scientific Questions, Planning and Enquiry, Observing closely, Drawing Conclusions, Making Predictions, Evaluating an Enquiry), Identifying & Classifying, Observation Over Time (Observing closely), Pattern Seeking/Research.	Environment, flowering, non-flowering, plants, animals, vertebrates, fish, amphibians, reptiles, mammals, invertebrate, human impact, nature reserves, deforestation.
	Lesson 1 – What is a living thing? Find out what it means to be living. Look at MRS GREN. Big Question: Amber Kerr asks 'What makes something living?'	Scientific Knowledge – Identify the characteristics of living things. Children will be able to say what the 7 processes of life are and explain what they mean. They will know that in order to be living- ALL characterises of life must be present.	
	Lesson 2- Grouping Living things Sort animals in a variety of different ways- the children coming up with their own criteria for grouping. Big Question: Carl Linneaus believed that all living things could be sorted in a variety of different ways. Prove it.	Scientific enquiry (Identifying and classifying)- find different ways of grouping animals. They will use terms such as mammal, amphibian, reptile, birds, and fish and identify what the animals in these groups have in common with each other. They will sort living using criteria such as habitat and characteristics and discuss whether some living things can fit into more than one group.	
	Lesson 3 – Grouping animals Vertebrates and invertebrates – what does the term vertebrate/invertebrate mean? Can animals be sorted using this criteria? Big Question: Lamarck thought that all animals could be classified as either vertebrates or invertebrates. Do you agree?	Scientific Knowledge (identifying and classifying)- Children will build on their knowledge so far and be introduced to the terms vertebrate and invertebrate. They will sort animals into those that are invertebrates and vertebrates and relate this to the groups they have already encountered e.g. Mammals, reptiles etc- They will understand that mammal, bird, fish, amphibians and reptiles are all vertebrates. This will lead onto the sue of classification keys.	
	Lesson 4 – Classification Keys Big Question: Charles Darwin asks ' can all organisms be classified by the features they have in common? Answer his question by creating your own classification key.	Scientific Knowledge- Children will know what a classification key is and be able to use them to identify an animal. Scientific enquiry (identifying and classifying, asking scientific questions)- explore and use classification keys to help group and name a variety of living things. Children will then use this knowledge to create their own classification key. They will consider what are appropriate questions that will help them to identify a living thing.	

	Lesson 5 – Local habitats Explore the local habitat- school playground and grounds and look for example of living things. David Attenborough Big Question: How does habitat change over time?	Observation- Observe the wildlife in a local habitat. Compare this environment to a contrasting environment. What difference would you see? How have the environments changed over time? New houses being built etc.- how would this affect the environment/wildlife?	
	Lesson 6 – Changing environments Think about how the local habitat is different at different times of the year. Extend to thinking about environmental changes over longer periods of time. David Attenborough Big Question: How does habitat change over time?	Scientific Enquiry – Research, Observation over time/ pattern seeking. Link to climate change- how has the environment changed over time on a global scale? How does global warming pose a danger to living things? What can we do to help change this?	
In 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.			

Year 5 - Living Things and Their Habitats

National Curriculum Objectives/Knowledge Statements (Substantive):

- 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.

Pupils should study and raise questions about their local environment throughout the year. They should observe life-cycle changes in a variety of living things, for example, plants in the vegetable garden or flower border, and animals in the local environment. They should find out about the work of naturalists and animal behaviourists, for example, *David Attenborough and Jane Goodall*.

Pupils should find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals.

Pupils might work scientifically by: observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times), asking pertinent questions and suggesting reasons for similarities and differences. They might try to grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs. They might observe changes in an animal over a period of time (for example, by hatching and rearing chicks), comparing how different animals reproduce and grow.

Key Ideas:

a) Some organisms reproduce sexually where offspring inherit information from both parents.
b) Some organisms reproduce asexually by making a copy of a single parent.
c) Environmental change can affect how well an organism is suited to its environment.
d) Different types of organisms have different lifecycles.

Prior Learning	Breakdown of Lessons		Vocabulary
In 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. • Know and label the features of a river • Recognise that environments can change and that this can sometimes pose danger to living things.	Lesson and Big Question	Knowledge **(Progression of substantive knowledge – what?)**. Or Science Enquiry/Skill Based Lesson **(Disciplinary/National Curriculum Working Scientifically Statements – why/how?).** These inc: Fair Testing (Asking Scientific Questions, Planning and Enquiry, Observing closely, Drawing Conclusions, Making Predictions, Evaluating an Enquiry), Identifying & Classifying, Observation Over Time (Observing closely), Pattern Seeking/Research.	Environment, flowering, non-flowering, plants, animals, vertebrates, fish, amphibians, reptiles, mammals, invertebrate, human impact, nature reserves, deforestation. Sexual, asexual, reproduction, cell, fertilisation, pollination, male, female, pregnancy, gestation, young, mammal, metamorphosis, amphibian, insect, egg, embryo, bird, plant.
	Carl Linnaeus was a famous botanist (a biologist who studies plants) from Sweden. He dissected plants to learn about pollination. He would like to know what the inside of plants look like and if plants reproduce sexually or asexually – prove it.	Science Enquiry/Skill Based Lesson (Fair Testing/Observation Over Time). Record data using tables, scatter graphs, bar and line graphs. Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms. Identify scientific evidence that has been used to support or refute ideas or argument.	
	Janaki Ammal was a famous botanist (a biologist who studies plants) from India. She dissected plants to learn about pollination. She would like to know if it is better for plants to reproduce asexually or sexually – prove it.	Identifying scientific evidence that has been used to support or refute ideas or arguments. Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms. (Knowledge/Pattern Seeking/Research)	
	Oscar Hertwig was a famous biologist (a scientist who studies humans, animals and their habitats) from Germany. He studied animals' behaviour to learn about how they reproduced. He would like to know the stages of a mammal's life cycle.	Identifying scientific evidence that has been used to support or refute ideas or arguments. Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms. (Knowledge/Pattern Seeking/Research)	
	Vladimir Balthasar was a Hungarian entomologist (a biologist who studies insects). He would like to know if all insects go through metamorphosis - prove it.	Identifying scientific evidence that has been used to support or refute ideas or arguments. Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms. (Knowledge/Pattern Seeking/Research)	
	Monica Turner was a famous ornithologist (a biologist who studies birds). She would like to know if birds reproduce in the same way as insects, and if birds go through metamorphosis - prove it.	Identifying scientific evidence that has been used to support or refute ideas or arguments. Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms. (Knowledge/Pattern Seeking/Research)	
	Aristotle – as well as being a famous Ancient Greek philosopher – was also a biologist. He would like you to compare the lifecycles of mammals, amphibians, insects and birds. He thinks that there are both similarities and differences – prove it.	Identifying scientific evidence that has been used to support or refute ideas or arguments. Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms. (Knowledge/Pattern Seeking/Research)	

In Year 6:

- Classify living things into broad groups according to observable characteristics and based on similarities and differences.
- Give reasons for classifying plants and animals based on specific characteristics.
- Know how animals and plants are adapted to suit their environment.
- Know about reproduction and offspring (recognising offspring normally vary and are not identical to their parents).
- Know the ways in which nutrients and water are transported in animals, including humans

Year 6 - Living Things and Their Habitats

National Curriculum Objectives/Knowledge Statements (Substantive):

- Classify living things into broad groups according to observable characteristics and based on similarities and differences.
- Give reasons for classifying plants and animals based on specific characteristics.

Pupils should build on their learning about grouping living things in year 4 by looking at the classification system in more detail. They should be introduced to the idea that broad groupings, such as micro-organisms, plants and animals can be subdivided. Through direct observations where possible, they should classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles, birds and mammals). They should discuss reasons why living things are placed in one group and not another.

Pupils might find out about the significance of the work of scientists such as *Carl Linnaeus*, a pioneer of classification.

Pupils might work scientifically by: using classification systems and keys to identify some animals and plants in the immediate environment. They could research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system.

Key Ideas:

a) Variation exists within a population (and between offspring of some plants)- *NB: this Key Idea is duplicated in Year 6 Evolution and Inheritance.*

a) Organisms best suited to their environment are more likely to survive long enough to reproduce.
b) Organisms are best adapted to reproduce are more likely to do so.
c) Organisms reproduce and offspring have similar characteristic patterns.
d) Competition exists for resources and mates.

Prior Learning	Breakdown of Lessons		Vocabulary
In 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.	Lesson and Big Question	Knowledge (Progression of substantive knowledge – what?). Or Science Enquiry/Skill Based Lesson (Disciplinary/National Curriculum Working Scientifically Statements – why/how?). These inc: Fair Testing (Asking Scientific Questions, Planning and Enquiry, Observing closely, Drawing Conclusions, Making Predictions, Evaluating an Enquiry), Identifying & Classifying, Observation Over Time (Observing closely), Pattern Seeking/Research.	Variation Organisms Populations. Classification Characteristics Environment, flowering, non-flowering, plants, animals, vertebrates, fish, amphibians, reptiles, mammals, invertebrate, human impact, nature reserves, deforestation. Classify, compare, bacteria, microorganism, organism, invertebrates, vertebrates, Linnaean.
	BQ: Carl Linnaeus created two scientific systems: the system for classifying plants and animals and the system for naming all living things. Big Question: Carl Linnaeus thinks things can be classified by their features – prove it. (two weeks)	Enquiry/Identifying & classifying: Look at the term 'classify' – what does it mean? Using the sweets given (Dolly Mixtures/All Sorts) what ways can they be classified? Shape/colour(s)/texture etc. Creating first classification system. Report findings to the class. Week 2 – Knowledge/Skill/Observation: Complete a classification chart for the animals given thinking about habitat/location/type/physical appearance.	
		Knowledge/Identify and Classify/Observation/: (Y4) discuss the difference between vertebrates and invertebrates. Explaining the difference, these two groups can be split into smaller groups. Share examples. Design a new creature and accompanying fact file (creature should exhibit characteristics of a particular group of animals).	
	Jan Low is an American food scientist. She is known for her work helping develop the bio fortified orange-fleshed sweet potato. Let's Investigate: What makes mould grow on bread? (2 weeks)	Research/Enquiry/Identifying & classifying: Identify helpful and harmful uses and effects of microorganisms. Describing how living things are classified into a wide number of groups according to common observable characteristics and based on similarities and differences. (including microorganisms, plants and animals by exploring helpful and harmful microorganisms). Scientific Enquiry - What makes mould grow on bread? (over 5 days)	
		Scientific Enquiry/Observation: Observe slices of bread from mould investigation. Conclude and answer question, drawing accurate conclusions about the growth of mould.	

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	BQ: Carl Linnaeus thought fungi and microorganisms could be classified by different features – prove it.	Looking at the various types of fungi presented, create a classification chart thinking about physical appearance, poisonous/edible etc. Report findings to the class.
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