Year 2 Living Things and their Habitats

National Curriculum Objectives:

- 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 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 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.

Killer Facts:

- Some things are alive, some will never live and others were once alive but are now dead.
- Animals and plants live in many different places.
- Living things adapt to survive in different environments.
- Animals gain their food from plants and other animals around them.
- Food chains show us what animals eat.

Prior EYFS Learning	Is it alive?	Where does it live?	What do they eat?	Key Vocabulary
- Make observations about animals and plants. - Talk about similarities and differences between living things. - Ask questions about the environment around them. - Talk about the features of their own immediate environment. **Previous Year 1 Learning:** - 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	Show children a living plant in a pot, a dead plant/flower and a plastic flower. What is the difference? Can they explain? Children to sort a range of living things and objects. Go out into the surrounding environment and ask children to find examples of living, non-living and dead things. If children are able to find living things, consider their microhabitats – draw and photograph these. Why are these places helping the living things to survive?	Children to investigate the living things in the habitats/ microhabitats around the school grounds. Record the different types of mini beasts that are found in the local habitat After this, go larger and consider the animals that live in a range of habitats. Can the children sort the animals into the habitats they live in? Design a bug hotel, based around the right conditions for mini-beasts. Make observations about the number of mini-beasts found there over a number of weeks. Create a choice chamber including different living conditions. E.g. Dry and dark, damp and dark, light and bright. Make predictions about where animals would choose to go and why. How does a rainforest habitat compare to the arctic habitat?	After looking at the living thing in the school grounds, construct a food chain using some of the living things there. E.g. Soil – plants – caterpillar. Consider what would happen to the habitat if the plants were to die. Consider the food chains that might exist within different habitats. Can the children order the different food chains accurately?	living non-living dead habitat micro-habitat environment food source shelter seashore ocean woodland rainforest desert damp shade conditions

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
- recognise that environments can change and that this can sometimes pose dangers to living things.

Year 4 Living Things and their Habitats

National Curriculum Objectives:

- 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.

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.

Killer Facts:

- Living things can be divided into groups according to their characteristics.
- The environment can change which can affect the habitats where things live.
- A range of food chains exist in habitats.
- Humans can have a serious impact on the environment.

Prior Year 2 Learning	How can we classify living things?	Changing Habitats	How we humans have an impact?	Key Vocabulary
- 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 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 different sources of food	Explore what it means to be 'alive' use MRS NERG to help if appropriate. Can they identify living things within their local school environment that fit this criteria? Afterwards, use these or other examples of living animals and discuss how we could sort them using hoops on the floor/venn diagrams. E.g. it can walk, it can fly. Can they sort using these criteria and discuss overlap? Us this to sort animals in multiple ways. Ask yes/no questions in a guess who style game and create a simple classification key using 4 animals. Use pre-created classification keys to name leaves/plants.	How has the local environment in Cornwall changed? Observe longitudinal changes in a habitat. E.g. A woodland area in spring vs winter – why are there more living things there in the spring/summer? Link this with the food chain – if there are no leaves, insects have little food/animals hibernate so the birds food source declines. The habitat is therefore less populated in the winter. Consider the different between vertebrates and invertebrates. Group animals into the vertebrate subgroups – mammals, fish, amphibians, reptiles, birds. Consider the different habitats these creatures might live in. Sort natural and man-made changes to the environment – tides, seasons, rainfall, erosion, pollution, buildings, planting. How does the number of invertebrates on the school field change over the year?	Show children a range of environmental issues – air pollution, deforestation, ocean pollution, climate change. What dangers could these pose to the living things there? Research possible solutions and present to class using ICT. Place 2 thermometers next to each other in a sunny spot. Put a glass over one of them. Check the temperature at time intervals. If the jar is the CO2 (greenhouse gases) what will the impact on Earth be?	living* habitat* environment* flowering* non-flowering* food source* vertebrate invertebrate fish amphibians reptiles birds mammals deforestation human impact classify prior learning*

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:

- 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.

Killer Facts:

- Some living things reproduce asexually, which means there is a copy of only 1 parent.
- Some living things reproduce sexually, which means the offspring inherit information from both parents.
- Different types of living things have different life cycles.
- Life cycles change throughout the year and with different habitats.

Prior Year 4 Learning

- 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.

Animal Lifecycles

Compare life cycle of a range of animals including frogspawn-tadpoles-frogs (amphibian), egg-chick-chicken (birds), and metamorphosis of the caterpillar – butterfly(amphibians)

Record life cycles in the form of annotated sketches.
https://www.youtube.com/watch?v=ocWgSgMGxOc
Create an audio commentary to narrate the metamorphosis of an amphibian such as the Monarch Butterfly.

Match a range of animals and their offspring by name. E.g. hedgehog – hoglet, mole – pup, rabbit – kitten, deer – fawn. Give children the opportunity the record data using bar charts/scatter graphs – compare periods of gestation for a range of animals – give children the data which they then have to plot.

If appropriate, compare these to the lifecycle of a human linked with Animals, Including Humans area of learning.

If possible, hire and incubator and eggs to observe the life cycle of a bird begin.

Plant lifecycles

Plants reproduce in different ways - Bulbs are asexual
- A flowering plant life cycle is sexual and dependent upon pollinators.
Building on Year 3 knowledge from seed dispersal, consider the full plant life cycle.

Dissect a flower and separate the parts. Label the male and female structures – make detailed diagrams and sketches of these.

Investigate asexual reproduction in plants – using cuttings and hydroponics (planting these in water and soil) then observe any changes.

(See Hamilton resources for full lesson plans).

Key Vocabulary

habitat*
environment*
flowering*
non-flowering*
food source*
mammals*
amphibians*
insects*
birds*
reptiles*
life cycle
sexual
asexual
inherit
offspring
reproduction
pollination
fertilisation
metamorphosis
pregnancy
egg
embryo
prior learning*

In Year 6:

- 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 6 Living Things and their Habitats

National Curriculum Objectives:

- 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.
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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.

Killer Facts:

- Living things are classified by similarities and differences.
- Classification helps us to narrow down the millions of different species of living things on Earth.
- Classification keys help us to identify different species and sub groups.
- Carl Linnaeus created a classification system that we still use today to classify living things.
- Vertebrates have sue sub-groups of mammals, amphibians, birds, insects and reptiles.
- Microorganisms – including mould - that are placed in toe correct conditions will survive best.

Prior Year 5 Learning

- 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 do we classify living things?

Recap and extend Year 4 knowledge on classification keys. Can they produce more complex classification keys involving multiple objects/living things?

Explore the Linnaean method of classification – how he classified vertebrates and invertebrates and sort animals into their sub-groups. Children could be given or research some of the weird and wonderful creatures of the world and consider which subgroup they should be classified into, giving reasons.

Create a hybrid creature of their own and classify this, explain their choices carefully.

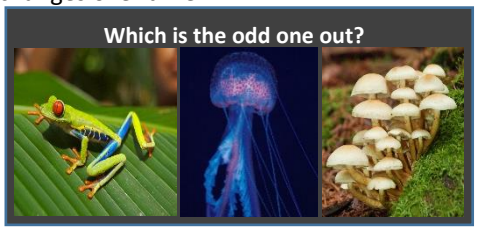
Give children a variety of living things – can they discuss which one is the odd one out, based on the classification system and their observations of similarities and differences? Make use of a range of plant types – flowering, conifers, ferns, mosses.

Classify plants using classification keys (Hamilton Resources)

Microorganisms

Introduce microorganisms and how we classify these – bacteria, fungi, viruses, protozoa. Children to use a range of modelling materials to create their own microorganisms and discuss which category they would fall into.

Discuss how microorganisms like mould - a fungus - reproduce – spores need to correct conditions. Children could consider the correct conditions for grown of mould and consider how to make this a fair test. Observe changes over time.



Can children explain which might be the odd one out, giving scientific explanations and using their knowledge of classifying living things? Use knowledge of vertebrates/invertebrates, microorganisms and animals or biomes (linked with geography).

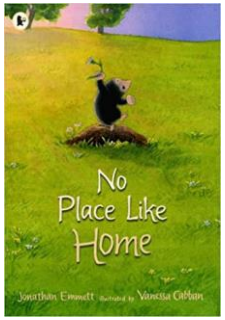
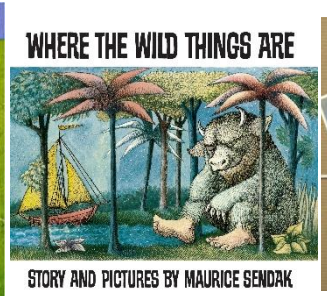
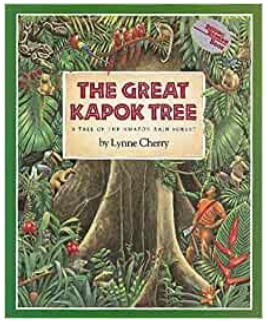
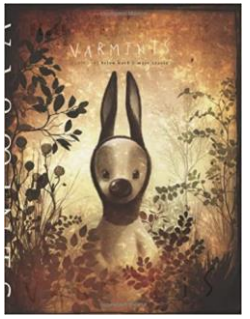
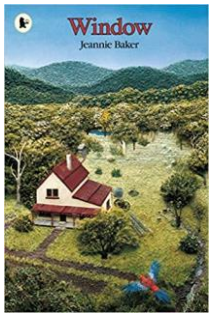
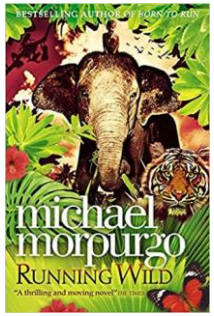
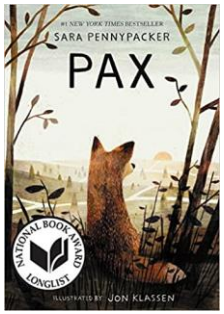
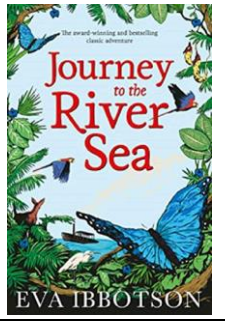
Key Vocabulary

habitat*
environment*
flowering*
non-flowering*
food source*
mammals*
amphibians*
insects*
birds*
reptiles*
prior learning*
classification key
observable characteristics
micro organisms
organisms
bacteria
fungi
comparative

prior learning*

In KS3:

- https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/335174/SECONDARY_national_curriculum_-_Science_220714.pdf

Year Group	Common Misconceptions	Recommended Linked Texts for Living Things and their Habitats	
Year 2	- an animal's habitat is like its 'home' - plants and seeds are not alive as they cannot be seen to move - fire is living - arrows in a food chain mean 'eats'	**No Place Like Home** by Jonathan Emmett **Where the Wild Things Are** by Maurice Sendak **Meerkat Mail** by Emily Gravett	  
Year 4	- the death of one of the parts of a food chain or web has no or limited consequences on the rest of the chain - there is always plenty of food for wild animals - animals are only land-living creatures - all animals and plants always adapt to their habitats - all changes to habitats are negative	**The Great Kapok Tree** by Lynne Cherry **Varmints** by Helen Ward **Window** by Jeannie Baker	  
Year 5	- all plants start out as seeds - all plants have flowers - plants that grow from bulbs do not have seeds - only birds lay eggs	**Running Wild** by Michael Morpurgo **Pax** by Sara Pennypacker **Journey to the River Sea** by Eva Ibbotson	  
Year 6	- all micro-organisms are harmful - mushrooms are plants - bacteria always makes you ill	**The Wonder Garden** by Jenny Broom **The Explorer** by Katherine Rundell **Beetle Boy** by M.G. Leonard