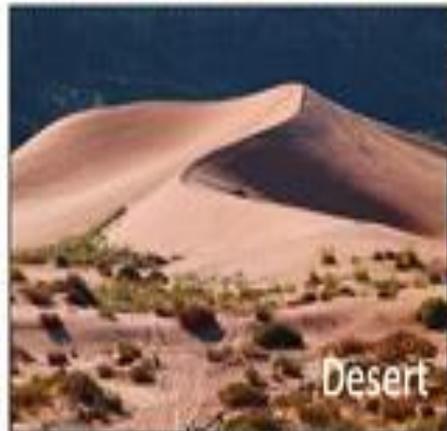
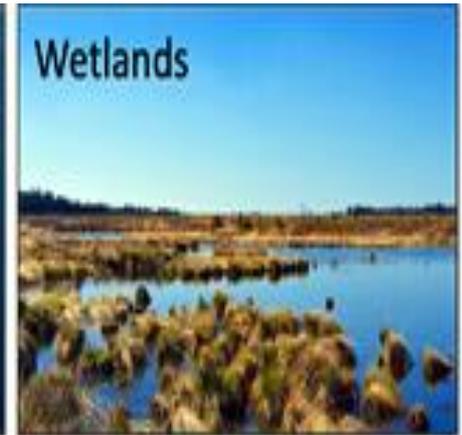
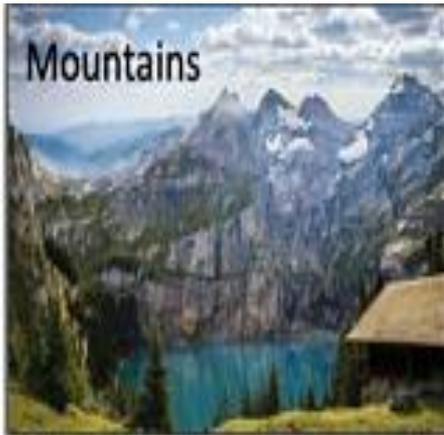


# Science

## Knowledge and Skills Organiser

### Living things and their habitats

#### (Y2,Y4,Y5,Y6)



Our Science Knowledge and Skills organisers are primarily a planning guide for the teachers. They include the statutory statements (**Subject Knowledge to be covered**) and the non statutory guidance (in blue). They offer suggestions (in red) for how these statements might be taught **working scientifically** – which is a requirement of the National Curriculum.

The Knowledge and Skills Organisers map out how and when these areas are taught and help to build a clear, progressive scientific statement of intent for our children as they progress through the school.

We have added additional ideas and guidance for the teachers, which they can choose to use and interpret i.e. how the local area might be used, key questions and ideas which might be pursued, outdoor learning opportunities and cross curricular links as these are features we recognise are important in terms of our holistic curriculum provision.

Parental/ carer support:

By mapping out our curriculum in this way we hope that these documents also help parents and carers support the learning of their child/ren by

- Showing the knowledge being covered
- Offering some suggestions which might also be investigated at home
- Sharing key vocabulary, which can be discussed to ensure your child's understanding
- Suggestions of places to visit

## **Science skills (Working Scientifically) to be covered**

- Asking simple questions and recognising that they can be answered in different ways-
- **observing closely, using simple equipment e.g They could describe the conditions in different habitats and microhabitats (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**
- performing simple tests
- **identifying and classifying – e.g 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 like: ‘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 (eg, grass, cow, human).**
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

### **Outdoor Learning:**

Investigate habitats in the school environment- such as hedgerows and trees.

### **Forest School:**

Investigate micro habitats – under stones and under logs

### **Local Links**

Nature walk along the canal  
Nature treasure hunt with sticky cards.  
Binoculars to observe  
<https://www.woodlandtrust.org.uk/>

### **Key Vocabulary for topic**

Living, Dead, Habitat, Energy, Food chain, Predator, Prey, Woodland, Pond, Desert

### **Resources**

Well resourced environmental boxes.  
Identification sheets  
Magnifying glasses and pots  
Activities file etc

## **Year 2 – Living things and their habitats Topic**

### **Possible Questions**

Conduct an experiment to decide if an object is alive or not (such as a car)  
Construct food chains using given plants and animals  
Investigate the range of impacts should one aspect of the food chain die out. (game)  
Websites – show children and discuss habitat changes or extinction  
Play food chain game  
What are the differences between the living things in different habitats? Why?  
Simple sorting activity

### **Subject Knowledge to be covered:**

Explore and compare the differences between things that are living, dead, and things that have never been alive ( e.g They should raise and answer questions that help them to become familiar with the life processes that are common to all living things. )

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 (e.g Pupils should be introduced to the terms ‘habitat’ (a natural environment or home of a variety of plants and animals) and ‘microhabitat’ (a very small habitat, for example for woodlice under stones, logs or leaf litter).

Identify and name a variety of plants and animals in their habitats, including microhabitats (e.g 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.

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

### **Cross -Curricular links**

Design and technology models and dioramas  
English – non-fiction booklets  
Maths – ICT – create graphs from habitat investigations  
Sorting, Venn diagrams  
Computing– Picollage app on iPads create pictures and information about school habitats.  
create photo trail.  
Geography- Habitats around the world

### **Outdoor Learning:**

Forest school and school grounds - 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. Visit to local nature reserves and show change of land use. Compare the different habitats.

### **Science skills (Working Scientifically) to be covered**

- asking relevant questions and using different types of scientific enquiries to answer them- e.g raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched.
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers e.g : using and making simple guides or keys to explore and identify local plants and animals;
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions e.g making a guide to local living things;
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes (e.g Pupils could begin to put vertebrate animals into groups, for example: fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects)
- using straightforward scientific evidence to answer questions or to support their findings.

### **Local Links**

Proposed quarry development and impact on the village  
Change of use of old gravel pits for nature reserve.  
Herts wildlife trust  
RSPB reserve- change of land use. (gravel pits)

### **Key Vocabulary for topic**

#### **Subject specific vocabulary**

Environment	fish	amphibians	
Flowering	reptiles	birds	
non-flowering	mammals	invertebrates	
Plants	snails	slugs	worms
Animals	spiders	insects	plants
Vertebrate	flowering/non-flowering		
plants	human impact/positive	and	
negative	ecology	deforestation	
Environment	nature reserves	litter	
dangers!			

## **Year 4 Living things and their habitats Topic:**

### **Subject Knowledge to be covered:**

- recognise that living things can be grouped in a variety of ways (e.g Pupils should explore possible ways of grouping a wide selection of living things that include animals, flowering plants and non-flowering plants) **Note:** plants can be grouped into categories such as flowering plants (including grasses) and non-flowering plants, for example ferns and mosses.
- 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 e.g 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.)

### **Possible Questions**

How will the quarry development affect the wildlife and plant life?  
How could we help preserve habitats around the world? (Palm oil use)  
What can we do to help cut down on packaging and litter?

#### **Websites**

[www.orangutans-sos.org/take-action](http://www.orangutans-sos.org/take-action)  
<https://www.youtube.com/watch?v=TQQXstNh45g>

### **Cross -Curricular links**

Geography: local environment and quarry site and change of land use affecting habitats. Compare habitats local and rainforest, Rainforest habitats and destruction. Map work and research.  
English Letters to local MP re quarry. Letter about plastic use and litter.  
Change of land use  
DT- diorama habitats  
Maths- research changes in animal population. Graphs.

### Outdoor Learning:

Pond  
Coppins Corner – garden – growing plants etc (photo diary and comments on changes over time Picollage app on iPads))

### Local Links

Foxholes Farm  
RSPB nature reserve- lifecycles (dragonfly etc)

Observe tadpole growth and metamorphosis- classroom tank.  
Webcam on egg and chick development in Early years

### Key Vocabulary for topic Subject specific vocabulary

Life cycle  
Reproduction  
Mammal  
Amphibian  
insect  
asexual/sexual  
Metamorphosis

**Resources** environmental box  
Pond dipping nets and ID cards  
Bug catching pots and ID cards  
Tin with butterfly metamorphosis.

### Science skills (**Working Scientifically**) to be covered

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- **taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate e.g 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,**
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- **reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations – e.g 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.**
- **identifying scientific evidence that has been used to support or refute ideas or arguments (e.g They should find out about the work of naturalists and animal behaviourists, for example, David Attenborough and Jane Goodall.)**

## Year 5 – Living things and their habitats Topic:

### **Subject Knowledge to be covered:**

Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird (e.g 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. )

Describe the life process of reproduction in some plants and animals (e.g Pupils should find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals.)

### Possible Questions

What's the difference between how plants and animals reproduce?  
Can you describe the lifecycle of a bird/amphibian/mammal/insect?  
What are the differences between life cycles?  
Play build a flower game (like Beetle- throw dice)  
Or build a flower as a PE game  
Time lapse video of plants and flowers, animals and insect development and growth.

### Cross -Curricular links

ART – detailed observational drawings of plants.  
English– non fiction information – Biography – work of David Attenborough and Jane Goodall)- leaflet/booklet comparisons.  
Story booklet about lifecycles written and illustrated for younger children.  
Computing- Photo diary and observations over time (Picollage app on iPads)  
PSRE- sex Education

### Outdoor Learning:

Forest School – habitats  
Create habitat and shelter for imaginary creature and explain.

Bug hunt – classify invertebrates

Pond- classify

### Science skills (**Working Scientifically**) to be covered

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs –e.g **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**
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments

### Local Links

Paradise Wildlife Park

River

Rye Meads RSBP Nature Reserve

Leaf collection- classification  
Photo record in local environment.

## Year 6 – Living things and their habitats Topic:

### Subject Knowledge to be covered:

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 (ie [look 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.)

Give reasons for classifying plants and animals based on specific characteristics [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.](#)

### Key Vocabulary for topic

#### Subject specific vocabulary

Classify	Class
Classification	Order
Domain	Family
Kingdom	genus
Phylum	species
Invertebrate	vertebrate

### Resources

Use STEM resources and videos  
Beak resources

### Possible Questions

Is algae a plant or living thing?  
What criteria would you use to classify....?  
Classification- How would you sort these animals? (Game)  
Why have birds developed different beaks? Explain your thoughts. (STEM Beak game using different tools)  
Can you name any creatures which don't fit into a specific category? (platypus)

### Cross -Curricular links

English - Arthur Spiderwick inspired creatures and writing.  
Art – detailed technical drawings.