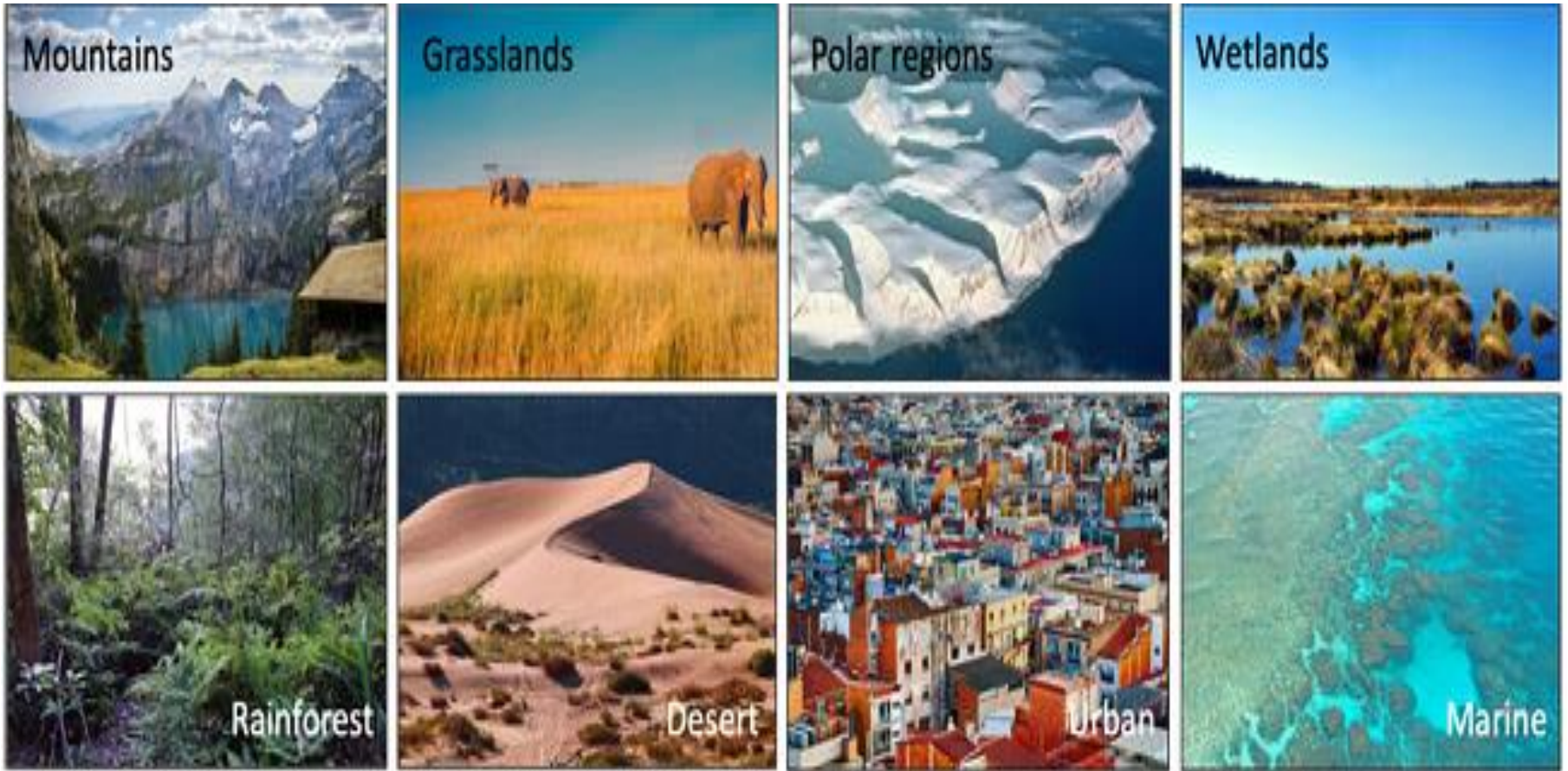
Science
Knowledge and Skills Organiser
Living things and their habitats
(EYFS, Y2,Y4,Y5,Y6)



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

EYFS

Nursery

Development Matters Ages and Stages to be covered:
3-4 Year olds:

- Understand the key features of the life cycle of a plant and an animal.
- Begin to understand the need to respect and care for the natural environment and all living things.
- Continue developing positive attitudes about the differences between people.
- Know that there are different countries in the world and talk about the differences they have experienced or seen in photos.

- **Characteristics of Effective Learning to be covered**
- *Creating and Thinking Critically thinking*
- **Having their own ideas**
- Thinking of ideas
- Finding ways to solve problems
- Finding new ways to do things
- **Making links**
- Making links and noticing patterns in their experience
- Making predictions
- Testing their ideas
- Developing ideas of grouping, sequences, cause and effect
- **Choosing ways to do things**
  - Planning, making decisions about how to approach a task, solve a problem and reach a goal
  - Checking how well their activities are going
  - Changing strategy as needed
  - Reviewing how well the approach worked
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Reception

Development Matters Ages and Stages to be covered:

- Recognise some similarities and differences between life in this country and life in other countries.
- Explore the natural world around them. Describe what they see, hear and feel whilst outside.
- Recognise some environments that are different from the one in which they live. Understand the effect of changing seasons on the natural world around them.

Early learning goals:

- Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps.
- Explain some similarities and differences between life in this country and life in other countries, drawing on knowledge from stories, non-fiction texts and (when appropriate) maps
- Explore the natural world around them, making observations and drawing pictures of animals and plants.
- 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.
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

- **Characteristics of Effective Learning to be covered**
- *Creating and Thinking Critically thinking*
- **Having their own ideas**
- Thinking of ideas
- Finding ways to solve problems
- Finding new ways to do things
- **Making links**
- Making links and noticing patterns in their experience
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Year 2 – Living things and their habitats Topic

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

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

Outdoor Learning:
Investigate habitats in the school environment- such a 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, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed
Names of local habitats eg pond, woodland
Names of micro-habitats eg under logs, in bushes etc

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

Possible Questions/Experiences

Explore the outside environment to find objects that are living, dead and have never lived.
Explore and identify animals and plants that live in habitats and micro-habitats in school grounds. (observing and drawing diagrams)
Explore how features of these animals and plants make them suitable for the habitat.
What do these animals eat? How do the habitats provide shelter?
Construct simple food with plants and animals

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

Year 4 Living things and their habitats Topic:

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)

Subject specific vocabulary
Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate

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 he 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
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.

Year 5 – Living things and their habitats Topic:

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

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.)

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

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.)

Key Vocabulary for topic
Subject specific vocabulary
Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings

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

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 Attenbourough 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

Year 6 – Living things and their habitats Topic:

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.

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

Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering

Resources

Use STEM resources and videos

Possible Questions

Is algae a plant or living thing?
What criteria would you use to classify....?
Classification- How would you sort these animals? (Game)
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.