

A collage of various animals including a parrot, tiger, bear, wolf, eagle, lion, and zebra.

**EYFS-Y6 Science
Knowledge and Skills Organiser:
Animals, including humans**

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:

- Talk about what they see, using a wide vocabulary.
- Begin to make sense of their own life-story and family's history. Show interest in different occupations.
- 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.

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

Reception

Development Matters Ages and Stages to be covered:

- Talk about members of their immediate family and community.
- Name and describe people who are familiar to them.
- 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:

- Talk about the lives of the people around them and their roles in society. .
- Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and 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

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Choosing ways to do things

- Planning, making decisions about how to approach a task, solve a problem and reach a goal
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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**
- performing simple tests
- **identifying and classifying**
- **using their observations and ideas to suggest answers to questions –e.g compare and contrast animals at first hand or through videos and photographs,**
- **describing how they identify and group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells.**
- gathering and recording data to help in answering questions

Subject Knowledge to be covered:

- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (e.g use the local environment throughout the year to explore and answer questions about animals in their habitat. The children should understand how to take care of animals taken from their local environment and the need to return them safely after study. Pupils should become familiar with the common names of some fish, amphibians, reptiles, birds and mammals, including those that are kept as pets.)
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores
- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense e.g Pupils should have plenty of opportunities to learn the names of the main body parts (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) through games, actions, songs and rhymes.

Outdoor Learning possibilities

Pond dipping on school grounds (taught to understand the importance of returning animals/insects back to habitat)
Nature trail
Bug hunt
Forest School activities
Bird feeders - observe

Local Links

Finding and classifying animals in the school environment
Visits - RSBP reserve Rye Meads
Hatfield forest
Herts Wildlife Trust
Paradise Wildlife Park

Key Vocabulary for topic

Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves

- Names of animals experienced first-hand from each vertebrate group
- Parts of the body including those linked to PSHE teaching
- Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue

Year 1 – Animals, including humans

Possible Questions/ experiences

Looking closely at the features of animals using magnifying glasses
Learning songs to recall the main parts of the body
Testing senses through taste tests, feely bags, colour blindness tests, etc.

Bat/Owl senses game
TV clips nature programs

Cross -Curricular links

Music- create musical sounds to associate with creatures.
Art – painting, designing, screen printing creatures.
Study nature painters and photographers
DT models
PE- Team games constructing a body or parts.

Year 2 –Animals, including humans

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

asking simple questions and recognising that they can be answered in different ways e.g asking questions about what things animals need for survival and what humans need to stay healthy; and suggesting ways to find answers to their questions.

observing closely, using simple equipment
performing simple tests
identifying and classifying –

using their observations and ideas to suggest answers to questions e.g Children might work scientifically by: observing, through video or first-hand observation and measurement, how different animals, including humans, grow;
gathering and recording data to help in answering questions

Outdoor Learning:

Nature observation: what stage of the life cycle is the bug at? (Lime tree as you walk up the bank to the field is v good for ladybird larvae.

Exercise outside - mini cross country/Golden mile

Forest School:

Foraging

Local Links

Canal walk nature trail
Nature reserve
observation hides along the river.
(Good in Spring)

Funtrition
Tesco/ Coop visit

Key Vocabulary for topic

Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta)

Possible Questions

What do animals need to survive?
What is a balanced diet?
What is regular exercise and why do we need it?
What do humans need to survive?
Is it the same for other animals?
How do animals grow? : e.g egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep. Growing into adults can include reference to baby, toddler, child, teenager, adult.

Tadpoles in classroom.
Observe chicks in EYFS
Invite a parent in with baby.

Subject Knowledge to be covered:

- notice that animals, including humans, have offspring which grow into adults.- (i.e introduced to the processes of reproduction and growth in animals. The focus at this stage should be on questions that help pupils to recognise growth; they should not be expected to understand how reproduction occurs. The following examples might be used: egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep. Growing into adults can include reference to baby, toddler, child, teenager, adult.
- find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
- describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene -ie be introduced to the basic needs of animals for survival, as well as the importance of exercise and nutrition for humans.

Cross -Curricular links

English – Life cycle stories, Non-Fiction information booklets
DT – food, fruit kebab, healthy plate
Cooking – Healthy meals
Life cycle moving model using paper plates.
Pop-up/Flap books
History – local transport systems
Art/music
SRE – Sex Education

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

- asking relevant questions and using different types of scientific enquiries to answer them –e.g **e.g research different food groups and how they keep us healthy, and design meals based on what they find out.**
- 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
- 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 e.g **reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions eg compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat.**
- 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 – eg identify and group animals with and without skeletons and observing and comparing their movement**
- using straightforward scientific evidence to answer questions or to support their findings.

Outdoor Learning:

Exploring how to prepare our bodies for physical activity in PE – stretching muscles.

Local Links

Celtic harmony – talking about Celtic warrior diets.
Life space – Coram workshop.

Key Vocabulary for topic

Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints

Resources - Bones, X-Rays, magnetic skeleton

Year 3 – Animals, including humans

Possible Questions

What are the main food groups?
What is nutrition?
How can we keep ourselves healthy?
Can we make our own food?
What is a skeleton?
What is the function of a skeleton? What would happen if humans did not have a skeleton?
What are the function of our muscles?
Play games
X-rays

Subject Knowledge to be covered:

- 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
- Identify that humans and some other animals have skeletons and muscles for support, protection and movement

(Pupils should continue to learn about the importance of nutrition and should be introduced to the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions.)

Cross -Curricular links

History-Stone age links - What is hunting food?
How does the Neolithic man's diet differ to people today?
Links to stone age animals – How did their skeletons differ?
Science – Fossils
English Non-Fiction information booklets
(Books Funny Bones, children's stories related to food)

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

- asking relevant questions and using different types of scientific enquiries to answer them
- **setting up simple practical enquiries, comparative and fair tests eg finding out what damages teeth and how to look after them.— investigation into the effect of different types of liquid on our teeth – egg shells.**
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- **gathering, recording, classifying and presenting data in a variety of ways to help in answering questions e.g They might draw and discuss their ideas about the digestive system and compare them with models or images.**
- **recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables e.g comparing the teeth of carnivores and herbivores and suggesting reasons for differences;**
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- 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
- using straightforward scientific evidence to answer questions or to support their findings

Outdoor Learning:

What food chains can we observe in the local area/environment?

Quadrats

Food chain games (File of ideas)

Hedgehog survival game in

Science cupboard.

Local Links

Coram – life tent –

Digestive system lesson.

Science museum.

Dentist/ doctor/ school

nurse talk

Key Vocabulary for topic

Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain

Resources – Science cupboard model teeth

Human body model

Year 4 – Animals, including humans

Subject Knowledge to be covered:

- describe the simple functions of the basic parts of the digestive system in humans
- identify the different types of teeth in humans and their simple functions
- construct and interpret a variety of food chains, identifying producers, predators and prey

Introduced to the main body parts associated with the digestive system, for example, mouth, tongue, teeth, oesophagus, stomach and small and large intestine and explore questions that help them to understand their special functions.

Children will find out what damages teeth and how to look after them

Possible Questions and experiences

What are the different types of teeth?

What journey does our food take after we swallow it?

What is a food chain?

What is a producer/consumer/predator/prey?

What would happen if a creature was taken out of the food chain? (all rabbits were killed)

Digestive system model (messy but good for learning)

Good Internet clips

Food chain games

If brave could ask the butcher for a digestive system to demonstrate (H&S teacher to wear apron and gloves also children if handling. Wash hands thoroughly after and dispose of gloves in medi bin)

Cross -Curricular links

What would an Ancient Egyptian diet have looked like?

Did they have methods of looking after their teeth like we do?

DT- Food chain mobile

Model teeth

Literacy – Non –Fiction report on investigations or information.

PSHE – Heathy teeth and health diet

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 research the gestation periods of other animals and comparing them with humans
find out and record the length and mass of a baby as it grows.
- 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

Subject Knowledge to be covered:

- describe the changes as humans develop to old age
- learn about the changes experienced in puberty. -e.g should draw a timeline to indicate stages in the growth and development of humans. They should learn about the changes experienced in puberty.

Cross -Curricular links

Geography: How different cultures respect the different generations and expectations at different ages. Physical changes.

PHSE- family traditions across in different cultures, from birth to old age
Sex Education

Year 5 – Animals, including humans

Local Links

Invite older people in to talk about their lives and changes. Discuss with them lifestyle and activities compared to when younger.

Key Vocabulary for topic

puberty life cycle gestation
growth reproduce foetus
baby fertilisation toddler
child teenager adult
old age life expectancy adolescence
adulthood
early adulthood middle adulthood
late adulthood childhood foetus
Elderly, Growth, Development,

Possible Questions/experiences

Compare the changes in the different generations of your family.
How have you changed starting school?
How do you think your body will change during puberty?
Draw timelines to indicate stages in the growth and development of humans.
learn about the changes experienced in puberty
Research the gestation periods of other animals and comparing them with humans; by finding out and recording the length and mass of a baby as it grows.

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 – what happens to our heart/ body temperature/ breathing etc during exercise?**
- 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
- **identifying scientific evidence that has been used to support or refute ideas or arguments -exploring the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.**

Outdoor Learning:
PE Effect of exercise

Local Links

Funrition – exercise

STEM ambassador – heart dissection
Heart and pulse rate – STEM workshop

Key Vocabulary for topic

Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle

Resources

Heart model

Year 6 – Animals, including humans

Possible Questions/experiences

- build on their learning about the main body parts and internal organs (skeletal, muscular and digestive system)
- explore and answer questions that help them to understand how the circulatory system enables the body to function.
- learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body
- explore the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.

Subject Knowledge to be covered:

- Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood (i.e Pupils should build on their learning from years 3 and 4 about the main body parts and internal organs (skeletal, muscular and digestive system) to explore and answer questions that help them to understand how the circulatory system enables the body to function.)
- Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
- Describe the ways in which nutrients and water are transported within animals, including humans
i.e Pupils should learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body.

Cross -Curricular links

Heart dissection
Maths – Recordings, charts, comparisons and graphs.
PE- Effect of exercise on the body, pulse rate
PSHE – Healthy lifestyles