Grouping animals by features

Science Capital:

Become a zoologist or ecologist. Research into ways that we can maintain populations of animals

National Curriculum Objectives:

Foundation 1	Foundation 2	Year 1 and 2	Year 3 and 4	Year 5 and 6
		Year 1: • identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) • identify and name a variety of common animals that are carnivores, herbivores and omnivores **Year 2:** • explore and compare the differences between things that are living, dead, and things that have never been alive • notice that animals have offspring which grow into adult • find out about and describe the basic needs	**Year 3:** • identify that animals 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 some animals have skeletons and muscles for support, protection and movement. **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 • construct and interpret a variety of food chains, identifying producers, predators and prey.	**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 animals **Year 6** • describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals • give reasons for classifying animals based on specific characteristics

		of animals, including humans, for survival (water, food and air) • 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.		

	**Year 1** SB1.1 know and name a range of animals including fish, amphibians, reptiles, birds and mammals SB1.2 know and name a variety of common animals by what they eat (carnivore, herbivore and omnivore) SB1.3 know the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) by describing and comparing	**Key scientist** **Coming soon…**

Prior Learning	**Future learning**
• Animals have some similar and some different body parts. (EYFS F1) • Some animals are nocturnal, meaning they only come out at night and sleep during the day. (EYFS F2) • Some animals hibernate and go to sleep for the winter when it is cold (EYFS F2)	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. (Y2 – Grouping animals by feature) • Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences (Y6 - Grouping animals by feature) • Give reasons for classifying animals based on specific characteristics. (Y6 - Grouping animals by feature)
Linked texts	

Coming soon…

What pupils need to know or do to be secure

Show understanding of a concept using scientific vocabulary correctly

Key Learning

Animals vary in many ways having different structures e.g. wings, tails, ears etc. They also have different skin coverings e.g. scales, feathers, hair. These key features can be used to identify them.

Animals eat certain things - some eat other animals, some eat plants, some eat both plants and animals.

Possible Evidence to support teacher assessment

Can name a range of animals which includes animals from each of the vertebrate groups
- Can describe the key features of these named animals
- Can label key features on a picture/diagram
- Can write descriptively about an animal
- Can write a What am I? riddle about an animal
- Can describe what a range of animals eat

Key Vocabulary

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,
N.B.
The children need to be able to name and identify a range of animals in each group e.g. name specific birds and fish. They do not need to use the terms mammal, reptiles etc. or know the key characteristics of each, although they will probably be able to identify birds and fish, based on their characteristics.

Common misconceptions

Some children may think:
- only four-legged mammals, such as pets, are animals
- humans are not animals
- insects are not animals
- all 'bugs' or 'creepy crawlies', such as spiders, are part of the insect group
- amphibians and reptiles are the same.

The children also do not need to use the words carnivore, herbivore and omnivore. If they do, ensure that they understand that carnivores eat other animals, not just meat.	
Apply knowledge in familiar related contexts	
Line of Enquiry – Classification •Make first-hand, close observations of animals from each of the groups. • Compare two animals from the same or different groups. • Classify animals using a range of features. • Identify animals by matching them to named images. • Classify animals according to what they eat.	**Possible Evidence to support teacher assessment** Can sort and group animals using similarities and differences • Can use simple charts etc. to identify unknown animals • Can create a drawing of an imaginary animal labelling its key features • Can use secondary resources to find out what animals eat, including talking to experts e.g. pet owners, zookeepers etc. • Can use first-hand close observations to make detailed drawings
Equipment **Coming soon…**	

	**Year 2** SB2.1 know the differences between things that are living, dead and things that have never been alive by exploring and comparing SB2.4 know how animals obtain their food from plants and other animals, using food chains, and identify and name different sources of food SB2.5 know that young animals, including humans, grow into adults SB2.6 know the basic needs of animals, including humans, for survival (water, food, air)	**Key scientist** **Coming soon…**

Prior Learning	Future learning
Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 – Grouping animals by feature)	Recognise that living things can be grouped in a variety of ways. (Y4 – Grouping animals by feature)

• Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 – Grouping animals by feature) • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Grouping animals by feature)	• Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. (Y4 – Grouping animals by feature) • Construct and interpret a variety of food chains, identifying producers, predators and prey. (Y4 – Grouping animals by feature) • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 – Grouping animals by feature) • Describe the life process of reproduction in some animals. (Y5 – Grouping animals by feature)

Linked texts

Coming soon…

What pupils need to know or do to be secure

Show understanding of a concept using scientific vocabulary correctly

Key Learning	Possible Evidence to support teacher assessment
All objects are either living, dead or have never been alive. Living things are plants (including seeds) and animals. Dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g. leaves and twigs, shells, fur, hair and feathers (This is a simplification, but appropriate for Year 2 children.) An object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive (again ignoring that plastics are made of fossil fuels).	• Can find a range of items outside that are living, dead and never lived • Can talk about what the animals eat in a habitat and how the plants provide shelter for them • Can construct a food chain that starts with a plant and has the arrows pointing in the correct direction • Can describe how animals, including humans, have offspring which grow into adults, using the appropriate names for the stages

Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be young, such as babies or kittens, that grow into adults. In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g. tadpoles. The way that animals obtain their food from plants and other animals can be shown in a food chain. All animals, including humans, have the basic needs of feeding, drinking and breathing that must be satisfied in order to survive. To grow into healthy adults, they also need the right amounts and types of food and exercise Animals and plants live in a habitat to which they are suited, which means that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well. The habitat provides the basic needs of the animals and plants – shelter, food and water	• Can state the basic needs of animals, including humans, for survival
Key Vocabulary living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival, offspring, reproduction, growth, baby, toddler, child, teenager, adult, old person, names of animals and their babies (e.g. chick/hen, kitten/cat, caterpillar/butterfly), survive, survival, water food, air	**Common misconceptions** Some children may think: • plants and seeds are not alive as they cannot be seen to move • fire is living • arrows in a food chain mean 'eats'.
Apply knowledge in familiar related contexts	
Line of Enquiry – Observation over time Explore the outside environment regularly to find objects that are living, dead and have never lived. • Classify objects found in the local environment. • Observe animals and plants carefully, drawing and labelling diagrams.	**Possible Evidence to support teacher assessment** • Can sort into living, dead and never lived • Using a food chain can explain what animals eat

• Create simple food chains for a familiar local habitat from first-hand observation and research. • Create simple food chains from information given e.g. in picture books (Gruffalo etc.). Ask people questions and use secondary sources to find out about the life cycles of some animals. • Observe animals growing over a period of time e.g. chicks, caterpillars, a baby. • Ask pet owners questions about how they look after their pet.	Can describe, including using diagrams, the life cycle of some animals and their growth to adults e.g. by creating a life cycle book for a younger child • Can measure/observe how animals grow. • Show what they know about looking after an animal by creating a pet owners' guide • Explain how development and health might be affected by differing conditions and needs being met/not met
Equipment **Coming soon…**	

	**Year 3** SB3.1 know that animals need the right types and amount of nutrition and that they cannot make their own food; they get nutrition from what they eat SB3.2 know some other animals have skeletons and muscles for support, protection and movement	**Key scientist** **Coming soon…**

Prior Learning	**Future learning**
• Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Y2 - Humans) • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Humans)	• Describe the simple functions of the basic parts of the digestive system in humans. (Y4 - Humans) • Identify the different types of teeth in humans and their simple functions. (Y4 - Humans) • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6 - Humans)
Linked texts **Coming soon…**	

What pupils need to know or do to be secure

Show understanding of a concept using scientific vocabulary correctly

Key Learning

Animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need.
Food contains a range of different nutrients – carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water – and fibre that are needed by the body to stay healthy.

A piece of food will often provide a range of nutrients.

Possible Evidence to support teacher assessment

- Can name the nutrients found in food
- Can state that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients

Key Vocabulary

Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water,

Common misconceptions

Some children may think:

- certain whole food groups like fats are 'bad' for you
- certain specific foods, like cheese are also 'bad' for you
- diet and fruit drinks are 'good' for you

Apply knowledge in familiar related contexts

Line of Enquiry – Classification

- Classify food in a range of ways.
- Use food labels to explore the nutritional content of a range of food items.

Possible Evidence to support teacher assessment

• Use secondary sources to find out the types of food that contain the different nutrients. • Use food labels to answer enquiry questions e.g. How much fat do different types of pizza contain? How much sugar is in soft drinks? • Plan a daily diet to contain a good balance of nutrients. • Explore the nutrients contained in fast food.	• Can classify food into those that are high or low in particular nutrients • Can answer their questions about nutrients in food, based on their gathered evidence • Can talk about the nutrient content of their daily plan
Equipment **Coming soon…**	

	**Year 4** SB4.1 know that living things can be grouped in a variety of ways SB4.2 know how to use classification keys in order to group, identify and name a variety of living things in their local and wider environment SB4.6 know how to construct and interpret a variety of food chains, identifying producers, predators and prey	**Key scientist** **Coming soon…**

Prior Learning	**Future learning**
• Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Grouping animals by feature) • Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Grouping animals by feature) Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Grouping animals by feature) • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Y2 - Grouping animals by feature) • 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. (Y3 - Grouping animals by feature)	• Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 – Grouping animals by feature) • Describe the life process of reproduction in some plants and animals. (Y5 – Grouping animals by feature) • Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. (Y6 - Grouping animals by feature) • Give reasons for classifying plants and animals based on specific characteristics. (Y6 - Grouping animals by feature)

Linked texts

Coming soon…

What pupils need to know or do to be secure

Show understanding of a concept using scientific vocabulary correctly

Key Learning

Living things can be grouped (classified) in different ways according to their features. Classification keys can be used to identify and name living things

Living things can be classified as producers, predators and prey according to their place in the food chain.

Possible Evidence to support teacher assessment

- Can name living things living in a range of habitats, giving the key features that helped them to identify them
- Can name producers, predators and prey within a habitat
- Can construct food chains

Key Vocabulary

classification, classification keys, environment, habitat, skeleton, bones, herbivore, carnivore, omnivore, producer, predator, prey, food chain

Common misconceptions

Some children may think:
arrows in a food chains mean 'eats'

- invertebrates have no form of skeleton.
- 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

Apply knowledge in familiar related contexts

Line of Enquiry – Classification

- Observe plants and animals in different habitats throughout the year.
- Compare and contrast the living things observed.
- Use classification keys to name unknown living things.
- Classify living things found in different habitats based on their features.
- Create a simple identification key based on observable features

Classify animals as herbivores, carnivores or omnivores according to the type of teeth they have in their skulls.

- Use food chains to identify producers, predators and prey within a habitat.
- Use secondary sources to identify animals in a habitat and find out what they eat.

Possible Evidence to support teacher assessment

Can keep a careful record of living things found in different habitats throughout the year (diagrams, tally charts etc.)

- Can use classification keys to identify unknown plants and animals

Can create food chains based on research

Equipment

Coming soon…	

	**Year 5** SB5.1 know the differences in the life cycles of a mammal, amphibian, insect and bird SB5.2 know the life process of reproduction in some animals	**Key scientist** **Coming soon…**

Prior Learning	**Future learning**
• Understand the key features of the lifecycle of an • Animal (EYFS – Understanding the world) • Notice that animals, including humans, have offspring which grow into adults. (Y2 – Grouping animals by feature)	• Reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, menstrual cycle (without details of hormones), gametes, fertilisation, gestation and birth, to include the effect of maternal lifestyle on the foetus through the placenta. (KS3) • Reproduction in plants, including flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal, including quantitative investigation of some dispersal mechanisms. (KS3)

Linked texts

Coming soon…

What pupils need to know or do to be secure	
Show understanding of a concept using scientific vocabulary correctly	
As part of their life cycle, animals reproduce. Most animals reproduce sexually. This involves two parents where the sperm from the male	**Possible Evidence to support teacher assessment**

<table>
<tr><td>fertilises the female egg. Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be born live, such as babies or kittens, and then grow into adults. In other animals, such as chickens or snakes, there may be eggs laid that hatch to young which then grow to adults. Some young undergo a further change before becoming adults e.g. caterpillars to butterflies. This is called a metamorphosis.</td><td>Can draw the life cycle of a range of animals identifying similarities and differences between the life cycles</td></tr>
<tr><td>Key Vocabulary
life cycle, reproduce, sexual, fertilises</td><td>Common misconceptions
Some children may think:
• only birds lay eggs</td></tr>
<tr><td colspan="2">Apply knowledge in familiar related contexts</td></tr>
<tr><td>Line of Enquiry – Research using secondary sources
Use secondary sources and, where possible, first-hand observations to find out about the life cycle of a range of animals.
• Compare the gestation times for mammals and look for patterns e.g. in relation to size of animal or length of dependency after birth.
• Look for patterns between the size of an animal and its expected life span.</td><td rowspan="2">Possible Evidence to support teacher assessment
Can present their understanding of the life cycle of a range of animals in different ways e.g. drama, pictorially, chronological reports, creating a game
• Can identify patterns in life cycles
• Can compare two or more animal life cycles they have studied</td></tr>
<tr><td>Equipment
Coming soon…</td></tr>
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	**Year 6** SB6.1 know that living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals SB6.2 know how to classify animals based on specific characteristics and give reasons for this	**Key scientist** **Coming soon…**

Prior Learning	**Future learning**
• Recognise that living things can be grouped in a variety of ways. (Y4 – Grouping animals by feature) • • Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. (Y4 - Grouping animals by feature) • • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Grouping animals by feature) • • Describe the life process of reproduction in some plants and animals. (Y5 - Grouping animals by feature)	• Differences between species. (KS3)

Linked texts

Coming soon…

What pupils need to know or do to be secure
Show understanding of a concept using scientific vocabulary correctly

Key Learning

Living things can be formally grouped according to characteristics. Plants and animals are two main groups but there are other livings things that do not fit into these groups e.g. micro-organisms such as bacteria and yeast, and toadstools and mushrooms. Plants can make their own food whereas animals cannot.
Animals can be divided into two main groups: those that have backbones (vertebrates); and those that do not (invertebrates).
Vertebrates can be divided into five small groups: fish; amphibians; reptiles; birds; and mammals. Each group has common characteristics.
Invertebrates can be divided into a number of groups, including insects, spiders, snails and worms.

Possible Evidence to support teacher assessment

Can give examples of animals in the five vertebrate groups and some of the invertebrate groups
• Can give the key characteristics of the five vertebrate groups and some invertebrate groups
• Can compare the characteristics of animals in different groups

Key Vocabulary

vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, warm-blooded, cold-blooded, insects, spiders, snails, worms,

Common misconceptions

Some children may think:
• all micro-organisms are harmful

Apply knowledge in familiar related contexts

Line of Enquiry – Classification

• Use secondary sources to learn about the formal classification system devised by Carl Linnaeus and why it is important.
• Use first-hand observation to identify characteristics shared by the animals in a group.
• Use secondary sources to research the characteristics of animals that belong to a group.
• Use information about the characteristics of an unknown animal or plant to assign it to a group.
• Classify plants and animals, presenting this in a range of ways e.g. Venn diagrams, Carroll diagrams and keys.
• Create an imaginary animal which has features from one or more groups.

Possible Evidence to support teacher assessment

Can use classification materials to identify unknown plants and animals
• Can create classification keys for plants and animals
• Can give a number of characteristics that explain why an animal belongs to a particular group

Equipment

Coming soon…	