

# Animals Including Humans Scientific Knowledge

## Introduction

As part of the new framework, OFSTED inspectors will evaluate the extent to which “Teachers have a good knowledge of the subject(s) and courses they teach”. This guidance has been provided to help you develop a broader knowledge of the concepts in this area of science and not just of the content taught in year 1. This will help you to anticipate and answer questions the children may pose. Alongside this, we have also provided some examples of the possible misconceptions you may find the children have.

| Lesson                               | Scientific Knowledge  | Possible Child Misconceptions  |
|--------------------------------------|---|--|
| <b>Lesson 1</b><br>Observing Animals | <b>Grouping and Classifying Living Things</b><br>Scientists classify all living things using a system, based on animal characteristics and structure, developed in the 18 <sup>th</sup> Century by Carl Linnaeus.   | Children may think that humans are not animals.  |
| <b>Lesson 2</b><br>Comparing Animals | <p>Living things are first divided into kingdoms. There are 5 kingdoms:</p> <ul style="list-style-type: none"><li>• animal</li><li>• plants (all green plants)</li><li>• fungi (moulds, yeast, mushrooms)</li><li>• prokaryotes (bacteria, blue-green algae)</li><li>• protists (Amoeba)</li></ul> <p>Once divided into kingdoms, living things are then ranked according to:</p> <ol style="list-style-type: none"><li>1. phylum</li><li>2. class</li><li>3. order</li><li>4. family</li><li>5. genus</li><li>6. species</li></ol> <p>Phylum divides the group again. The animal kingdom can be divided into many different phyla such as:</p> <ul style="list-style-type: none"><li>• Arthropod (exoskeletons and jointed legs)</li><li>• Annelids (segmented worms)</li><li>• Chordata (animals with backbones)</li></ul> <p>Class then divides the groups again. The Chordata (backbones) group is divided into the classes taught in Y1:</p> <ul style="list-style-type: none"><li>• mammals</li><li>• birds</li><li>• fish</li><li>• reptiles</li><li>• amphibians</li></ul> <p>The groups then continue to be divided, until the narrowest group is reached – species.</p> | <p>Children sometimes confuse animals such as sharks and dolphins. It is important to distinguish between these, such as sharks having gills and dolphins needing to come to the surface to breathe. This will help children to understand that these animals belong to different groups. Issues like this are also addressed in the Animals All Around eBook and the Y2 Animals unit.</p> <p>Children may believe that all birds can fly. The unit ensures that some non-flying birds are included, helping children to recognise birds by their features.</p> <p>Children may not know that different species of birds and fish have different names. This is because in everyday life people tend to refer to these animals by their groups. Children may require more help identifying the different species of birds and fish than they will different mammals for example.</p> |

### Lesson 3

#### Animal Diets

Animal diets can be classified in 3 different ways:

- carnivore
- herbivore
- omnivore

#### **Carnivores:**

Carnivores eat a diet of meat.

#### **Omnivores:**

Omnivores are defined as any organism that regularly consumes a variety of food including plants, animals, fungi and algae. For example, humans can eat meat, fruit, vegetables, as well as fungi such as mushrooms.

#### **Herbivores:**

Herbivores are any organism that feeds on plants.

Humans are naturally omnivores, but some humans choose to consume only plant matter or to eat a mainly vegetarian diet. Children need to understand that, as a group, humans are classified as omnivores despite these variances.

Children may not associate meat-eating with eating animals. It may be necessary to ensure that children understand that the cooked meat they eat was once a living animal.

### Lesson 4

#### The Human Body

(No extra detail needed here.)

Children may not be as confident naming body parts such as ankle, wrist or elbow. Ensure that all children are secure in the position of these parts on the human body.

### Lesson 5

#### Senses

There are 5 basic human senses: sight, hearing, touch, taste and smell. The parts of the body that deal with the senses: the eyes, ears, nose tongue and skin are called the **sensory organs**. The nervous system must receive and process information from the environment to help keep the body safe and well. Much of this information comes through the sensory organs.

Special cells in the sensory organs receive stimuli and translate them into signals that the nervous system can use. Nerves send these signals to the brain which interprets them as sight, sound, smell, taste and touch.

Children may think that the sense of touch relates to the hands. It may be necessary when investigating the sense of touch to encourage the children to use other areas of their skin, such as the arms, legs or if suitable face, to demonstrate that the sense of touch comes from the skin.

### Lesson 6

#### Sorting Animals

All living things are classified by scientists according to their characteristics or structures.

Children should be looking for similarities in the groups they create. This does not have to be the traditional classifications for animals as long as the child can explain the characteristics, structures or features the animals have in common.