3

IS A SPONGE AN ANIMAL?

Learning objectives

By the end of this unit, your pupils will have achieved a greater understanding of the following concepts:

- vertebrate and invertebrate animals
- the main vertebrate groups: mammals, birds, reptiles, amphibians and fish
- vertebrate nutrition: carnivores, herbivores and omnivores
- vertebrate respiration: lungs, gills and skin
- vertebrate reproduction: viviparous and oviparous
- the main invertebrate groups: arthropods, molluscs, annelids, echinoderms, cnidarians and poriferans

Competences

This unit covers the following competences:

- Linguistic competence
- Mathematical competence and basic competences in science and technology
- Digital competence
- Learning to learn

Key vocabulary

Vertebrates: amphibians, birds, fish, mammals, reptiles

Invertebrates: annelids, arachnids, arthropods, bivalve, cephalopod, cnidarians, crustaceans, echinoderms, gastropod, insects, molluscs, myriapods, poriferans

Nutrition: carnivores, herbivores, omnivores

Respiration: gills, lungs, skin

Reproduction: oviparous, viviparous

Cambridge English Qualifications practice

You will find ***A2 Flyers*** activity types in the following exercises:
Pupil's Book, Page 42, Activity 1 – Reading and Writing Part 6
Activity Book, Page 19, Activity 12 – Reading and Writing Part 2

Throughout this unit, you will find the following ***A2 Flyers*** vocabulary:
after, air, also, as, beetle, begin, cut, decide, each, end, ever, find out, follow, for, front, fur, happen, if, important, information, insect, keep, large, ocean, octopus, other, planet, prepare, so, soft, thousand, together, tortoise, until, use, usually, will, wing

Materials needed for *Hands on*

- litmus paper
- test tube

Materials needed for other activities

- pictures of vertebrate and invertebrate animals
- pictures of local bird species
- pictures of different beak types
- pictures of differently coloured beetles

Investigate

The *Investigate* project that runs through this unit encourages pupils to imagine they are wardens at a wildlife park, for which they have to make signs with information about animals. The different *Investigate* stages practise the following skills:

- autonomous research
- decision-making
- communication
- presentation of work

Other resources

- Interactive activities
- Flashcards: *Animal kingdom*
- Song: *Mammals, amphibians, birds, fish and reptiles*
- Video documentary: *Marine invertebrates*

UNIT 3
PAGES 30–31

Objective:

Pupils will review vocabulary and concepts relating to vertebrate and invertebrate animals studied in previous years.

Key vocabulary

amphibian, arachnid, bird, cnidarian, crab, crustacean, dove, echinoderm, fish, frog, gastropod, iguana, jellyfish, mammal, mollusc, panda, reptile, shark, snail, spider, sponge, starfish

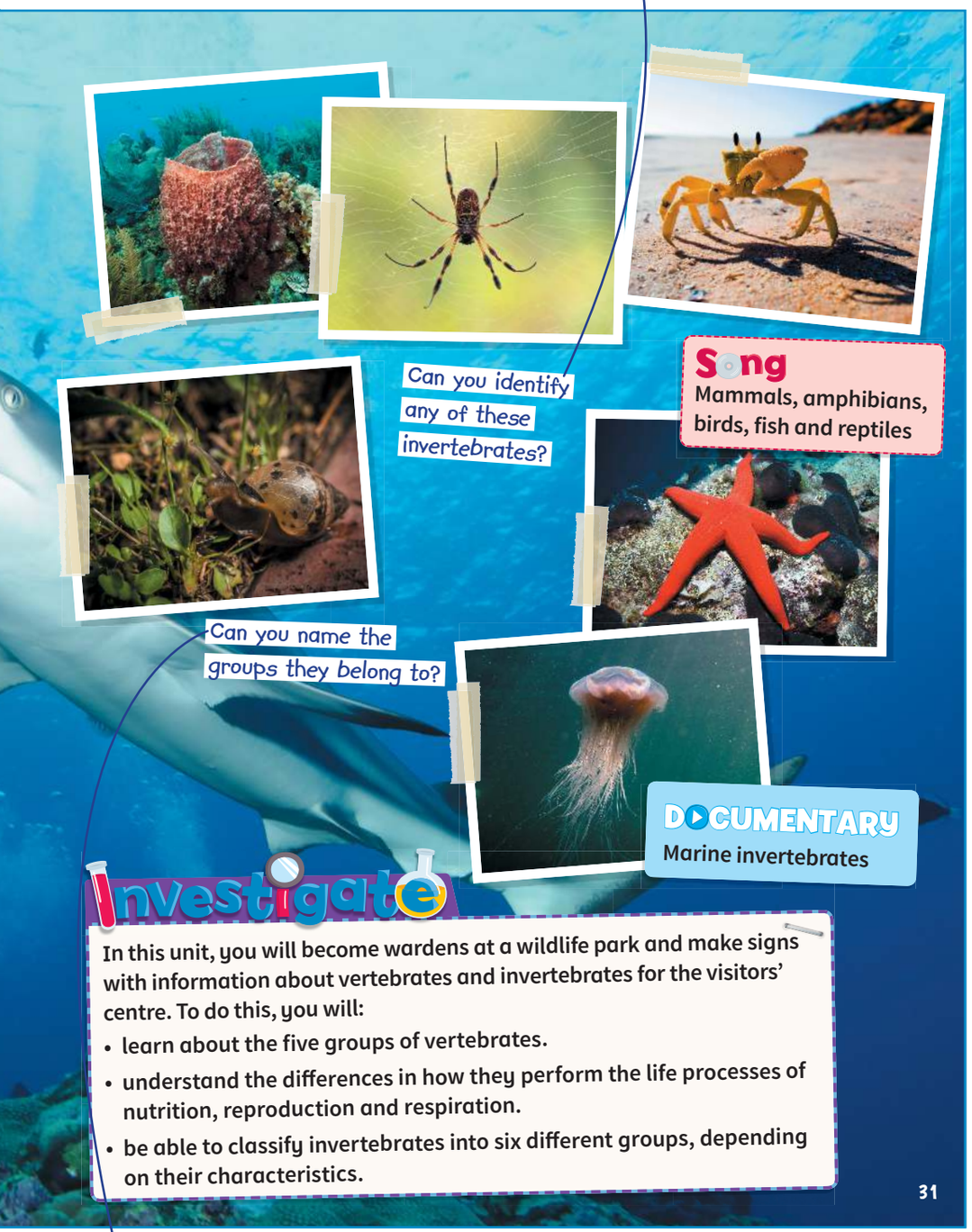
Warm up

- Play a game of *odd one out* to review the different vertebrate and invertebrate groups. Stick flashcards of four different animals up on the board or, alternatively, display photos of four different animals using the IWB. One of the four animals has to be the odd one out, for example: crocodile, frog, iguana, turtle – the frog is the odd one out. Once you have played a few rounds of the game, let volunteers choose the four cards to display on the board.

Yes, sponges are animals. They belong to the poriferan group.

Mammals, amphibians, birds, fish and reptiles

Sponge, spider, crab, snail, starfish, jellyfish



Poriferan, arthropod (arachnid and crustacean), echinoderm, mollusc (gastropod), cnidarian

For next lesson ... pictures of vertebrate and invertebrate animals

Main concepts

- Ask pupils the questions about the images. For the pictures on page 30, encourage pupils to name the animals as well as the vertebrate groups. For the pictures on page 31, ask pupils if they have ever seen these animals in real life.
- Finally, read the intro text about the *Investigate* project. Explain the role of wardens in wildlife parks.

Learn more

- Use the photos on these pages to get pupils thinking about other concepts they will be working on in this unit. Ask questions: *Where does a frog live? Is an iguana a herbivore? What is the difference between an insect and an arachnid?*

Tip

To get pupils motivated about the *Investigate* project, show them online videos of some different wildlife parks.

Song
The song is this unit focuses on the life processes of nutrition, respiration and reproduction in the different vertebrate groups.

Documentary
The documentary in this unit focuses on invertebrate species that live in the seas and oceans.

UNIT 3
PAGE 32

Objective:

Pupils will review some key concepts related to animals: vertebrates and invertebrates; nutrition, respiration and reproduction.

Key vocabulary

carnivore, gills, herbivore, invertebrate, lungs, omnivore, oviparous, skin, vertebrate, viviparous

Warm up

- Remind pupils that they are animals as well. Ask: *What vertebrate group do you belong to? How do you breathe?* etc.

Main concepts

- After reading the first section, ask pupils to stand up. Show them a selection of images of vertebrate and invertebrate animals. Tell them to remain standing if they are vertebrates or sit down if they are not. Continue until only one pupil remains.
- Repeat the activity with the other three sections: nutrition, reproduction and respiration. As there are three options in two of the sections, pupils can raise their hands for one of them.

Learn more

- Ask pupils to find out about ovoviviparous animals at home.

Lots of different things, depending on whether they are carnivores, herbivores or omnivores.

WHAT DO VERTEBRATES EAT?

By the end of this lesson, you will know where the embryo develops in oviparous animals.

This year, we will take a close look at animals. But first, let's revise some things you already know.

Vertebrates and invertebrates

Animals can be classified into **two different groups** depending on whether they have a **backbone**:

- Vertebrates have a backbone.
- Invertebrates do not have a backbone.

Nutrition

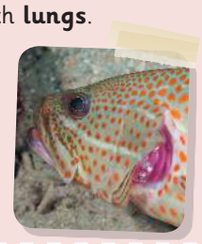
Animals are **consumers**. This means they eat other living things. Different vertebrates perform the life process of nutrition in different ways:

- **Carnivores** only eat other animals.
- **Herbivores** only eat plants.
- **Omnivores** eat both plants and other animals.

Respiration

All vertebrates need to take in oxygen and release carbon dioxide to live, but different vertebrates breathe in different ways:

- Some breathe with **lungs**.
- Others breathe through **gills**.
- Some even breathe through their **skin**.



Which animals breathe through their skin?

Adult amphibians

Reproduction

Vertebrates reproduce sexually, but they reproduce in different ways:

- **Viviparous** vertebrates give birth to live young. The embryo develops inside the female.
- **Oviparous** vertebrates lay eggs. The embryo grows outside the mother's body in an egg.

Find out how ovoviviparous animals reproduce.

They produce eggs inside their bodies, but then give birth to live young.

Find a hatched egg hidden somewhere in this unit.

Hidden hatched egg on page 39.

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Meerkats are omnivores. They eat insects and plants.

WHAT DO MEERKATS EAT?

Let's look at how **mammals** perform nutrition, respiration and reproduction.

By the end of this lesson, you will know how whales breathe.

Nutrition

Mammals can be **carnivores**, **herbivores** or **omnivores**.

Carnivores	Herbivores	Omnivores

Respiration

All mammals breathe using their **lungs**. For example, whales take in and expel air through their blowhole when they come to the surface of the water.

Reproduction

Almost all mammals are **viviparous**. Mammals that lay eggs are called **monotremes**. The platypus and the echidna are examples of monotremes.

Respiration in whales is voluntary. They have to decide when they want to come to the surface to breathe.

Investigate STAGE 1

- **Choose a mammal and research it. Make a sign.**
- **Include this information on the sign:**
  - the mammal's name
  - where and how it was born
  - the species
  - what it eats
  - some of its physical characteristics

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The stages of this *Investigate* project are best carried out at home. Before they get started, give pupils some tips on doing online research, as well as the addresses of some age-appropriate websites where they can find information on animals. Pupils can work in groups of five to complete this project. To make the task less time-consuming, each group member can find out one of the five pieces of information.

For next lesson ...
photos of beak types and local bird species

UNIT 3
PAGE 33

Objective:

Pupils will gain a greater understanding of how mammals perform the life processes of nutrition, respiration and reproduction.

Key vocabulary

chimpanzee, cow, fox, lungs, monotreme, otter, panda, pig, seal, sloth, viviparous

Warm up

- Ask pupils to look at the animals in the table and name them.
- If pupils do not know the names, give them time at the beginning of the lesson to find out using a dictionary or the internet.

Main concepts

- Ask pupils to explain the difference between carnivores, herbivores and omnivores. Can they name any other mammals that are carnivores, herbivores or omnivores?
- After reading the section on respiration, display the diagram of the whale on the IWB and invite a volunteer to come to the board and explain how whales perform respiration.

Learn more

- Ask pupils to find out the names of five other aquatic mammals.

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UNIT 3
PAGE 34

Objective:

Pupils will gain a greater understanding of how birds perform the life processes of nutrition, respiration and reproduction.

Key vocabulary

air sacs, beak, hawk, heron, hooked, hummingbird, peck, pointed, sparrow, tear, toucan, woodpecker

Warm up

- Show pupils a video of how a hummingbird eats nectar from a flower, and discuss its beak.

Main concepts

- After reading the text about nutrition, show images of different birds and ask pupils to describe their beaks.
- Read the section on respiration and display the diagram of the bird on the IWB. Invite a volunteer to explain how birds perform respiration.
- Show pupils images of different types of birds' nests on the board, e.g. the nests of blackbirds, storks, etc. Ask them to guess what kinds of birds build nests like these.

Learn more

- Ask pupils to observe and find information about birds in their neighbourhood. They report back in the next session.

Fish and marine invertebrates. They will eat almost anything.

WHAT DO SEAGULLS EAT?

Let's look at how **birds** perform nutrition, respiration and reproduction.

By the end of this lesson, you will know why birds have different types of beaks.

Nutrition

Like mammals, birds can be **carnivores**, **herbivores** or **omnivores**. We can tell what a bird eats by looking at its **beak**.

Hawks have a hooked beak for tearing meat.

Sparrows have cone-shaped beaks for eating seeds.

Woodpeckers have long, strong beaks for pecking into wood.

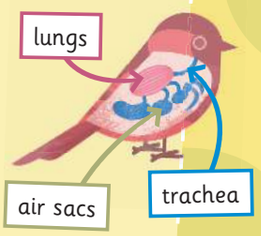
Hummingbirds have long, thin beaks for eating nectar.

Toucans have long, thick beaks for eating fruit.

Herons have long, pointed beaks for fishing and hunting.

Respiration

Like mammals, birds breathe using their **lungs**. Unlike mammals, birds do not have a diaphragm. Instead, they use **muscles** in their chest and muscles in their **air sacs** to inhale and exhale.



Reproduction

Birds are **oviparous**. They lay eggs with hard shells. Most birds build **nests** to protect their eggs from predators and the weather. The adult birds incubate[1] their eggs.

[1]**to incubate:** to sit on eggs to keep them warm and make them hatch

Reptiles are oviparous. They lay eggs on land.

HOW DO REPTILES REPRODUCE?

Let's look at how **reptiles** perform nutrition, respiration and reproduction.

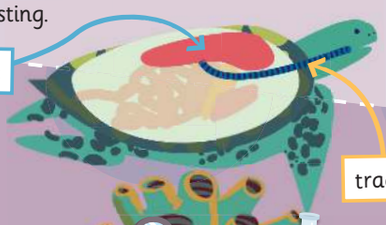
By the end of this lesson, you will know how long sea turtles can hold their breath for.

Nutrition

Most reptiles are **carnivores**, but some are **omnivores** or **herbivores**. For example, most iguanas and tortoises are herbivores. Crocodiles and alligators are carnivores. They have long jaws[1] for catching their prey[2] and sharp teeth for cutting up meat.

Respiration

Like birds and mammals, all reptiles breathe using their **lungs**. Even aquatic reptiles like sea turtles must come to the surface to inhale air. However, sea turtles can hold their breath under water for as long as seven hours if they are resting.



Reproduction

Like birds, reptiles are **oviparous**. They lay their eggs on land. However, unlike birds, reptiles do not incubate their eggs. They do not nurture[3] their young either.

Investigate STAGE 2

- Choose one bird and one reptile.
- Prepare signs for each animal.
- For the bird, include a section on *beak type*.

[1] **jaw:** part of the mouth from where the teeth grow;
[2] **prey:** an animal that is hunted by another animal for food;
[3] **to nurture:** to feed, take care and help to develop

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At this stage, the pupils find out the same information as in the previous stage for a bird and for a reptile. They must also include a description of the type of beak the bird has and what they use it for, e.g. tearing meat, pecking into wood, etc.

UNIT 3
PAGE 35

Objective:

Pupils will gain a greater understanding of how reptiles perform the life processes of nutrition, respiration and reproduction.

Key vocabulary

alligator, catch, crocodile, iguana, incubate, jaw, nurture, prey, reptile, sea turtle, tortoise

Warm up

- Ask pupils if they know the names of any reptiles that can be found in their country.
- Elicit personal experiences of pupils with reptiles. Ask: *Have you ever seen a reptile in the wild? Has anyone ever held a snake?* etc.

Main concepts

- Draw pupils' attention to the photos in the section on nutrition. Ask what animals pupils can see and what they are eating. Then ask if they are carnivores, herbivores or omnivores.
- After reading the section on respiration, using the class clock as a timer, ask pupils to hold their breath for as long as they can.

Learn more

- Draw a Venn diagram on the board and ask pupils to compare how reptiles and mammals perform nutrition, reproduction and respiration.

UNIT 3
PAGE 36

Objective:

Pupils will gain a greater understanding of how amphibians perform the life processes of nutrition, respiration and reproduction. They will also review the life cycle of an amphibian.

Key vocabulary

emerge, incubate, metamorphosis, sticky, tadpole, tip, transformation

Warm up

- Review some of the concepts related to amphibians that pupils have studied in previous years.

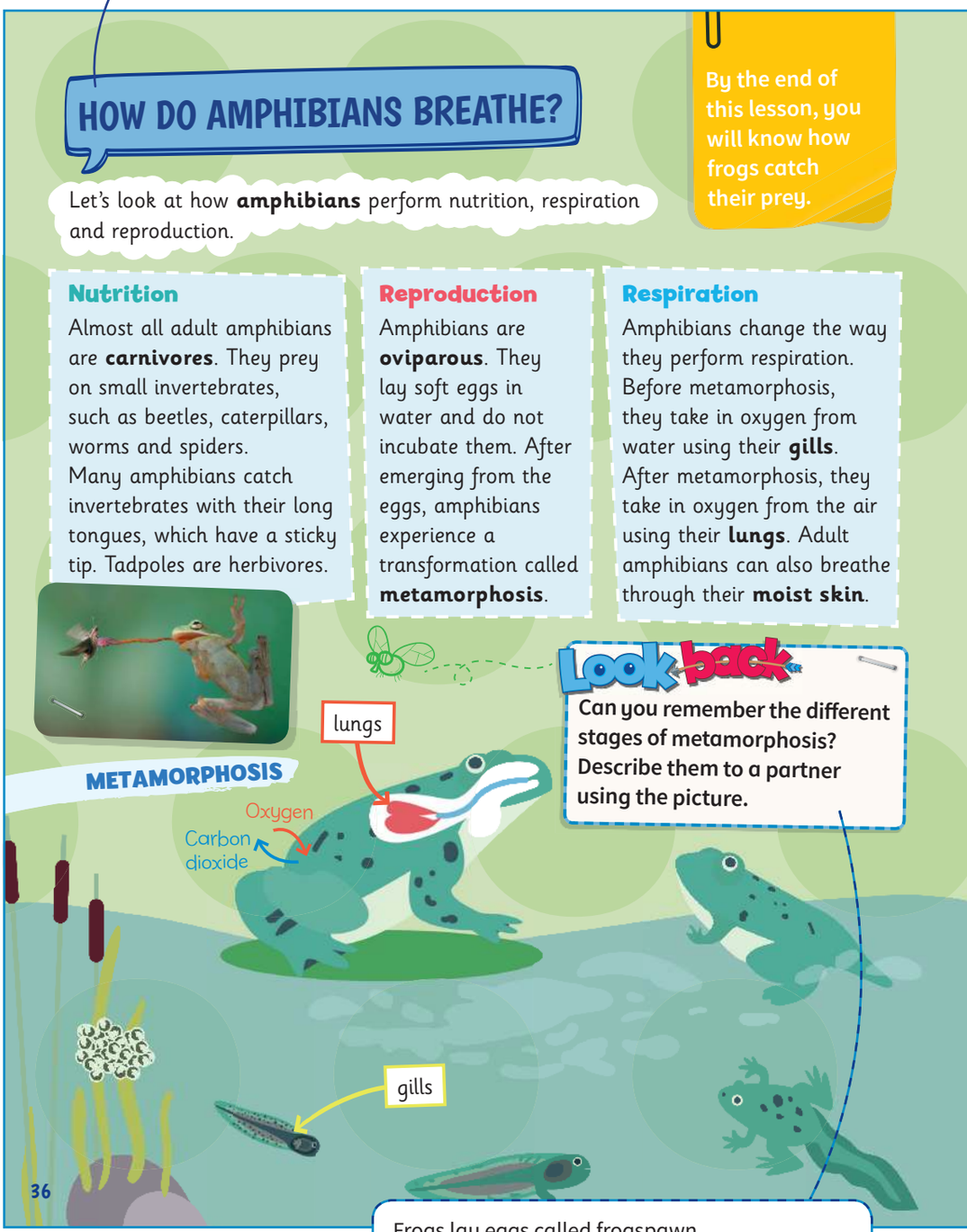
Main concepts

- After reading the main sections, check comprehension by showing pupils pictures of caterpillars, a long tongue with a sticky tip, etc. and asking them to find the words in the text.
- The metamorphosis diagram has intentionally been left unlabelled. Use the diagram to elicit the different stages of metamorphosis from pupils.

Learn more

- Ask pupils to find out about the most colourful amphibian they can find and print out a picture or do a drawing of it.

Tadpoles breathe using gills. Adult amphibians breathe using lungs and their moist skin.



Frogs lay eggs called frogspawn.
Tadpoles hatch from the eggs.
First, the tadpoles grow back legs.
Next, they grow front legs.
Finally, they lose their tail and move to the land.

Yes, fish sleep, but with their eyes open.

DO FISH SLEEP?

By the end of this lesson, you will know how fish breathe.

Let's look at how **fish** perform nutrition, respiration and reproduction.

Nutrition

The majority of fish are **carnivores**. However, some fish like the parrotfish are **herbivores**. Others, like the catfish, are **omnivores**.

Reproduction

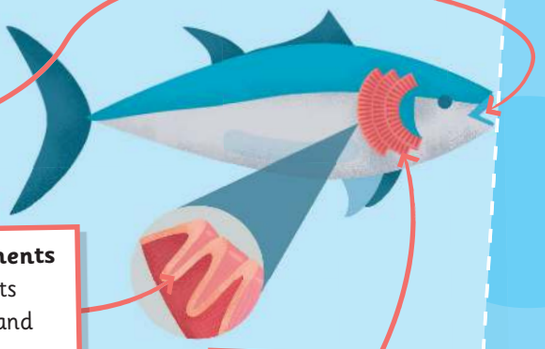
Like amphibians, fish are **oviparous**. They lay their eggs underwater and do not incubate them.

Fish sleep with their eyes open because they do not have eyelids.

Respiration

Fish breathe through their **gills**.

The fish takes in water through its **mouth**. The water contains oxygen.



The water passes through **filaments** in the fish's **gills**. These filaments absorb oxygen from the water and move it into the blood.

Waste carbon dioxide is expelled together with the water through the **gills**.

Fish have to constantly take in fresh water to keep breathing.

Investigate STAGE 3

- Choose one amphibian and one fish.
- Prepare signs for each animal.

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For the final two vertebrate groups, pupils search for the same information as in Stage 1. Encourage pupils to pick interesting amphibians and fish, for example poison dart frogs and clownfish.

UNIT 3
PAGE 37

Objective:

Pupils will gain a greater understanding of how fish perform the life processes of nutrition, respiration and reproduction.

Key vocabulary

catfish, expel, filament, incubate, parrotfish, underwater

Warm up

- Review how mammals, birds, reptiles and amphibians perform nutrition, reproduction and respiration.
- Draw a table with five columns – one for each vertebrate group. Ask pupils questions about the four groups you have just reviewed. If they get a question right, they come up to the board and write the information in the table.

Main concepts

- After reading the sections on nutrition, reproduction and respiration, ask volunteers to complete the column about fish in the table you created in the *Warm up* activity. Then, ask pupils to copy the table in their notebooks.

Learn more

- Show pupils a video of fish hatching from eggs under a microscope.

UNIT 3
PAGES 38–39

Objective:

Pupils will further their knowledge of three of the six main invertebrate groups: arthropods, molluscs and annelids. They will see four arthropod subgroups (insects, arachnids, crustaceans and myriapods) and three mollusc subgroups (gastropods, bivalves and cephalopods).

Key vocabulary

abdomen, annelid, antenna, arachnid, arthropod, bivalve, cephalopod, cephalothorax, claw, cnidarian, echinoderm, gastropod, insect, mollusc, myriapod, ring, sponge, thorax

Warm up

- Refresh pupils' knowledge of different arthropod subgroups by giving a dictation and asking pupils to draw what you say. Here is an example dictation for an insect: *This arthropod has three body sections: a head, a thorax and an abdomen. It has two antennae. It has six legs. Finally, it has two wings. Write the name of the group under your picture.*

No, not all insects have wings. For example, many ant species are unwinged.

DO ALL INSECTS HAVE WINGS?

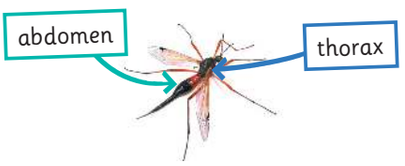
About 97% of all animal species on the planet are **invertebrates**. Although there are millions of different invertebrate species, we classify them into **six main groups**: arthropods, molluscs, annelids, echinoderms, cnidarians and poriferans.

Arthropods

This is the largest group of invertebrates. Arthropods have an **exoskeleton**, a **segmented body** and **pairs of appendages**[1]. There are four main arthropod groups:

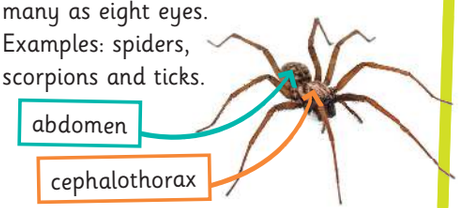
Insects

Insects have three main body sections: a **head**, a **thorax** and an **abdomen**. They have **six legs** and a pair of **antennae**. Some insects have **wings**. Examples: butterflies, ants and bees.



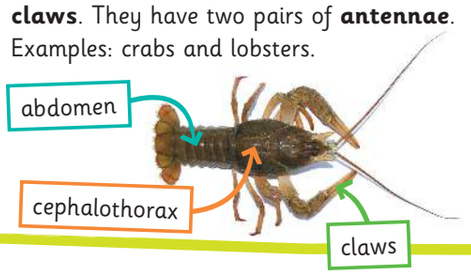
Arachnids

Arachnids have two main body sections: an **abdomen** and a **cephalothorax**. They have **eight legs**. They do not have antennae or wings, and can have as many as eight eyes. Examples: spiders, scorpions and ticks.



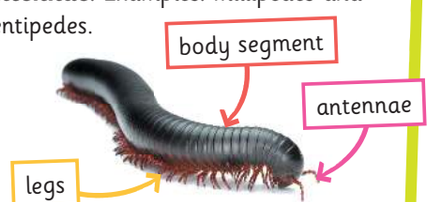
Crustaceans

Most crustaceans have two main body sections: an **abdomen** and a **cephalothorax**. They have **10 legs**. Their front pair of legs are sometimes **claws**. They have two pairs of **antennae**. Examples: crabs and lobsters.



Myriapods

Myriapods have two main sections: a head and a segmented body. Each segment of the body has one or two pairs of legs. They have one pair of **antennae**. Examples: millipedes and centipedes.



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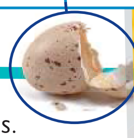
Try the observation activity on page 92. It gives pupils the opportunity to observe more closely the characteristics of an arthropod.

CAMBRIDGE
Cambridge University Press
978-1-108-57850-9 — Science Skills Level 4 Teacher's Book with Downloadable Audio
Series: Science Skills
Excerpt
More Information

Slugs do not have shells.

Here's the hidden hatched egg!



By the end of this lesson, you will know how many legs ants have.

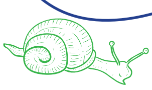
Molluscs

Molluscs are the second largest group of invertebrates. They have a **soft body**. Some molluscs live **on land** and others live **in the water**. Almost all molluscs have a shell. They can be classified as follows:

Gastropods

They have a large **muscular foot** that helps them move and most have a **shell**. Snails and slugs are gastropods.

Find out which gastropods do not have a shell.



Cephalopods

Cephalopods have an **internal shell**. They also have a **prominent head**. Instead of feet, they have **tentacles**. Octopuses, squids and cuttlefish are cephalopods.

Bivalves

The shell of a bivalve is divided into two parts, or *valves*. The **soft body** is inside the valves. Clams and oysters are bivalves.

Bivalves open their shell to eat, but close it when they are in danger.

Annelids

There are more than 17,000 species of annelids. Most live in water. Some, like the earthworm, live on land. Some annelids are parasites and live inside other animals. Their **body** is **long** and **soft**, and made up of **rings**. Earthworms and leeches are annelids.

Investigate STAGE 4

- Investigate and prepare a sign for one of the three invertebrate groups on these pages:
  - arthropods
  - molluscs
  - annelids
- Include information on whether it is a *marine* or *terrestrial* invertebrate.

¹appendage: an arm, leg

Assign different arthropod and mollusc subgroups to different groups of pupils so there is variety in the animals the pupils research. You can allow pupils to come up with categories of information to research.

Main concepts

- Before reading the section on arthropods on page 38, draw a table on the board with four columns to be filled in. On the left-hand side, write the following categories: body sections; number of legs; antennae; wings. After reading each section, ask pupils questions about the arthropod group and ask volunteers to fill in the information in the table. When you have completed the table, ask pupils to copy it into their notebooks.
- Ask pupils to compare the four groups using the following structure: *Insects have three body sections, whereas arachnids, myriapods and crustaceans have two body sections.* Repeat the process for the section on molluscs. Change the categories to: shell, feet, head and tentacles.

Learn more

- If you have a school garden or a green area nearby, take pupils outside to look for annelids. Select a small patch of land and dig up the soil.
- Explain to pupils the importance of earthworms to soil.

Tip

To give pupils an idea of the variety of invertebrate species, show them pictures of vividly coloured beetles on the IWB. Clips from nature documentaries about arthropods are easy to find and really pique pupils' interest.

UNIT 3
PAGE 40

Objective:

Pupils will become familiar with the three remaining invertebrate groups: echinoderms, cnidarians and poriferans. The species in these three invertebrate groups all live in water.

Key vocabulary

cnidarian, echinoderm, hydra, jellyfish, pore, poriferan, prey, prickly, sea anemone, sea cucumber, sponge, starfish, tentacle, tube feet, urchin, venom

Warm up

- Ask pupils if they have ever seen any animals at the seaside. Ask: *Are there any animals that can hurt you at the seaside? How?* Elicit that jellyfish can sting you and sea urchins can prick you with their venomous spines.

Main concepts

- Ask three volunteers to read the main sections. Draw pupils' attention to the word *poriferan*. *Why do you think this group has this name?* Lead them to understand the connection between the words *pore* and *poriferan*.

Learn more

- Brainstorm ideas with pupils about how we can stay safe from venomous echinoderms and cnidarians at the beach.

Sea cucumbers are aquatic invertebrate animals, belonging to the echinoderm group.

WHAT IS A SEA CUCUMBER?

By the end of this lesson, you will know how sponges eat.

The animals in these three invertebrate groups all live in water.

Echinoderms

Echino means 'prickly' and *derm* means 'skin'. Most echinoderms have a **prickly structure** on the outside. They have an **internal skeleton** and **tube feet**, which help them attach to things and move around. Starfish, urchins and sea cucumbers are echinoderms.

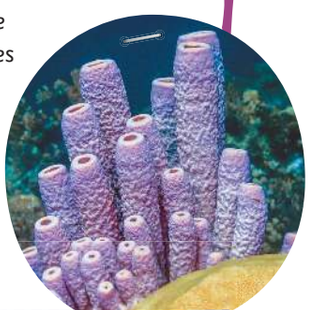
Echinoderms can regenerate body parts if they lose them to a predator.

Cnidarians

Cnidarians do not have a head or a brain, but they do have a **mouth**! It is their only body opening. The mouth is usually surrounded by **tentacles** containing venom, which they use to catch their prey. Jellyfish, sea anemones, coral and hydras are cnidarians.

Poriferans

Poriferans live at the bottom of the ocean. They attach themselves to rocks and do not move around. There are pores on their bodies, which water passes through. This is how they get their food. **Sponges** are poriferans.

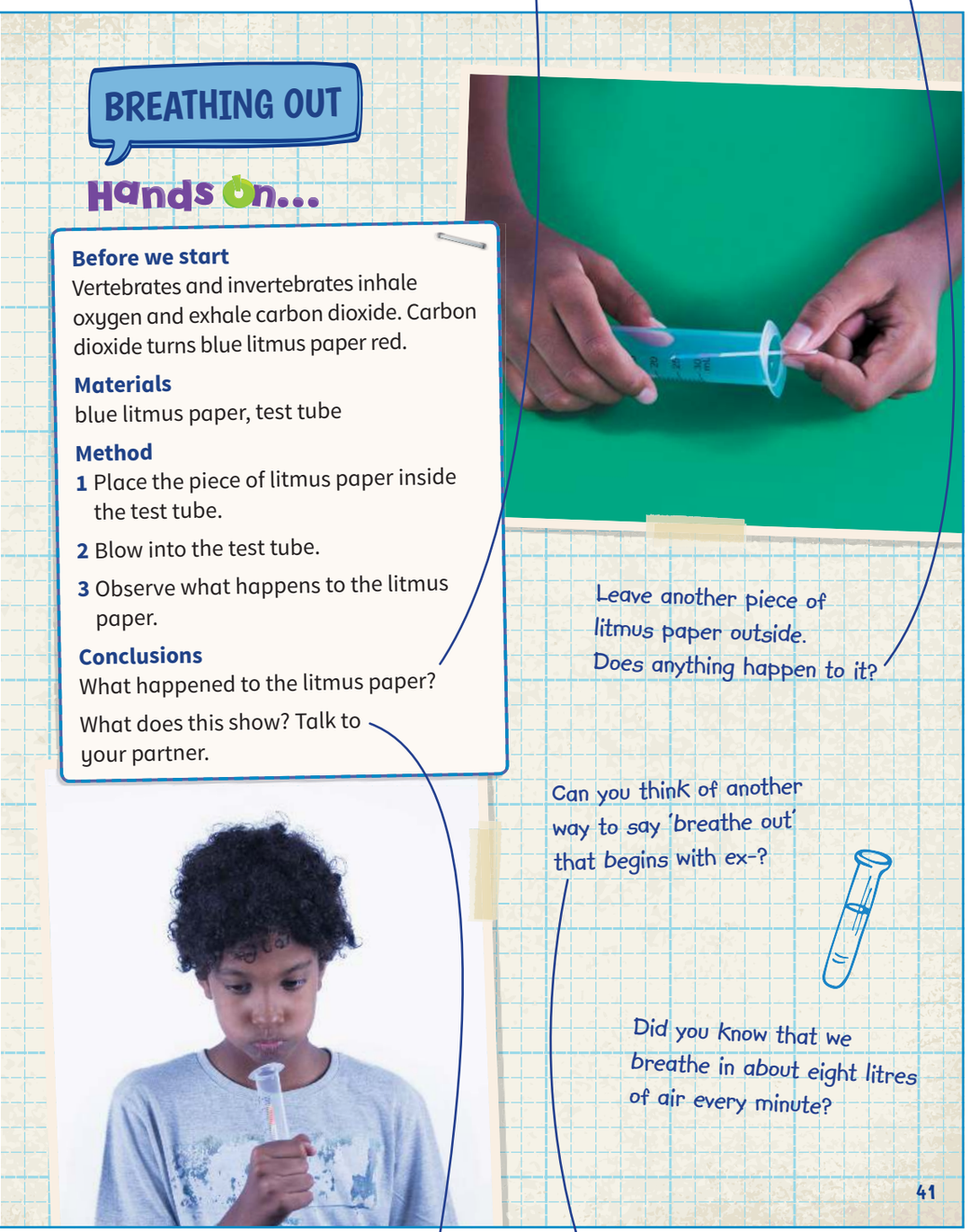


Investigate STAGE 5

- **Investigate and prepare a sign for one of the three invertebrate groups on this page:**
  - echinoderms
  - cnidarians
  - poriferans

40

Draw pupils' attention to the examples of echinoderms and cnidarians on this page: sea urchins, sea cucumbers, starfish, jellyfish, sea anemones and hydras. Ask them to choose from these options. They can also research information about how echinoderms and cnidarians use venom for hunting and self-defence.



UNIT 3
PAGE 41

Objective:

Pupils will carry out a practical investigation into vertebrate and invertebrate respiration.

Key vocabulary

blow, carbon dioxide, exhale, inhale, litmus paper, oxygen, test tube

Warm up

- Ask pupils to stand up and take a deep breath. Ask them what they have inhaled. Explain that as well as oxygen in the air, there is also carbon dioxide. Tell pupils to run on the spot for 30 seconds, then ask them if there is now more oxygen in the air in the classroom than before. Elicit that because they were breathing more, there is now more *carbon dioxide* in the air.

Main concepts

- Pupils work in pairs to complete this investigation. Distribute the materials to each pair. One pupil holds the test tube and the litmus paper while the other pupil blows into the test tube. Read and discuss the first conclusion question as a class. Pupils then discuss why the litmus paper turned red, in pairs.

Learn more

- Read and answer the secondary content questions as a class.

UNIT 3
PAGES 42–43

Language skills answers

1 a went

b were

c see, look at, be near

d most

e the

f mammal

g are

h long

This activity gives pupils practice of *A2 Flyers* Reading & Writing Part 6.

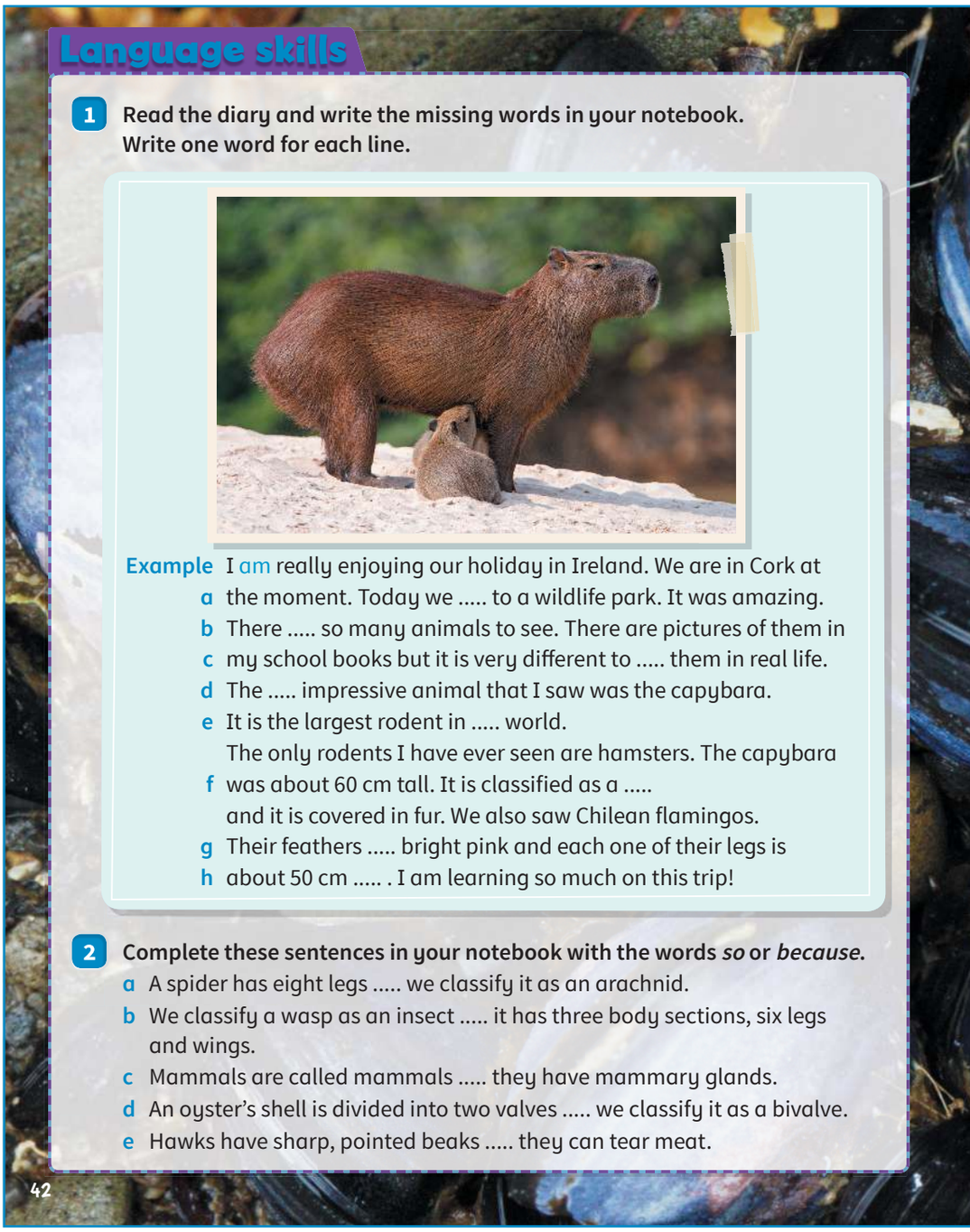
2 a so

b because

c because

d so

e so



Language skills

1 **Read the diary and write the missing words in your notebook. Write one word for each line.**

Example I am really enjoying our holiday in Ireland. We are in Cork at

a the moment. Today we ..... to a wildlife park. It was amazing.

b There ..... so many animals to see. There are pictures of them in

c my school books but it is very different to ..... them in real life.

d The ..... impressive animal that I saw was the capybara.

e It is the largest rodent in ..... world.
The only rodents I have ever seen are hamsters. The capybara

f was about 60 cm tall. It is classified as a .....
and it is covered in fur. We also saw Chilean flamingos.

g Their feathers ..... bright pink and each one of their legs is

h about 50 cm ..... . I am learning so much on this trip!

2 **Complete these sentences in your notebook with the words *so* or *because*.**

a A spider has eight legs ..... we classify it as an arachnid.

b We classify a wasp as an insect ..... it has three body sections, six legs and wings.

c Mammals are called mammals ..... they have mammary glands.

d An oyster's shell is divided into two valves ..... we classify it as a bivalve.

e Hawks have sharp, pointed beaks ..... they can tear meat.

42

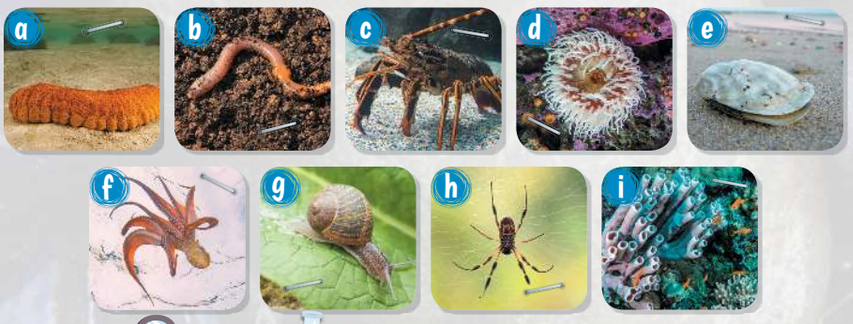
Review

1 Copy and complete the table in your notebook.

breathe through their skin | breathe with gills | lay their eggs in water | carnivores | have different types of beak | herbivores | breathe with lungs | lay their eggs on land | monotremes | omnivores | oviparous | undergo metamorphosis | viviparous

Mammals	Birds	Reptiles	Amphibians	Fish
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....

2 Identify the invertebrate group or subgroup in each picture and write the names in your notebook.



Investigate FINALE

- Find images of the animals you have written about. Include at least one image for each animal.
- Set up a visitors' centre. You can do this at your desk or in a corner of the classroom.
- Invite your classmates to come to your visitors' centre.
- Present your animals to them.

Assessment link
Go to page 82 for more activities.

For this stage, pupils can print out photos of the animals they have created signs for or research them in class and create a slide presentation. Tell pupils to study their signs so when other pupils come to their visitors' centre, they can describe their animals without having to look at their signs.

Review answers

1 Mammals: carnivores, herbivores, breathe with lungs, monotremes, omnivores, viviparous

Birds: carnivores, have different types of beaks, herbivores, breathe with lungs, lay their eggs on land, omnivores, oviparous

Reptiles: carnivores, herbivores, breathe with lungs, lay their eggs on land, omnivores, oviparous

Amphibians: breathe through their skin, lay their eggs in water, carnivores, breathe with lungs, oviparous, undergo metamorphosis, breathe with gills

Fish: breathe with gills, lay their eggs in water, carnivores, herbivores, omnivores, oviparous

2 a echinoderm

b annelid

c arthropod, crustaceans

d cnidarian

e mollusc, bivalve

f mollusc, cephalopod

g mollusc, snail

h arthropod, arachnid

i poriferan

Encourage pupils to revise the unit content using the questions on page 82 and the study techniques on page 83.

UNIT 3 ASSESSMENT PAGE 82

Think about it answers

1 Herbivores, carnivores and omnivores

2 Viviparous vertebrates give birth to live young. The embryo develops inside the female. Oviparous vertebrates lay eggs. The embryo grows outside the mother's body in an egg.

3 Examples may include: lion, fox, seal, otter, meerkat.

4 Hawks have a hooked beak for tearing meat. Toucans have long, thick beaks for eating fruit.

5 Reptiles lay their eggs on land.

6 Answers may include: flies, slugs, snails, worms, spiders.

7 Most fish are carnivores.

8 About 97% of all animal species on the planet are invertebrates.

9 Any of these for arthropods: insects, arachnids, crustaceans, myriapods. Any of these for molluscs: gastropods, cephalopods, bivalves.

10 Sea anemones belong to the echinoderms.

Think harder answers

1 Llamas are herbivores.

2 Monotremes are mammals that lay eggs, e.g. the platypus and the echidna.

3 Herons have long, pointed beaks for fishing and hunting. Hummingbirds have long, thin beaks for eating nectar.

4 Birds incubate their eggs, but reptiles do not.

5 Reptiles breathe using lungs. Adult amphibians breathe with their lungs and moist skin. Baby amphibians, or tadpoles, breathe using gills.

6 Frogs lay eggs called frogspawn. Tadpoles hatch from the eggs. The tadpoles grow back legs. Then, they grow front legs. Finally, they lose their tail and move on to the land.

7 Jellyfish feel threatened by humans swimming in the sea. We are larger animals than they are, so they believe us to be a danger to them. Their sting is a defence mechanism, or a way of defending themselves from danger.

8 Earthworms secrete a mucus that helps them to move more easily through the soil.

9 Clams, mussels, oysters, razor clams, scallops, etc.

10 It means jointed (*arthro-*) leg (*-pod*).

UNIT 3 TRACKLIST