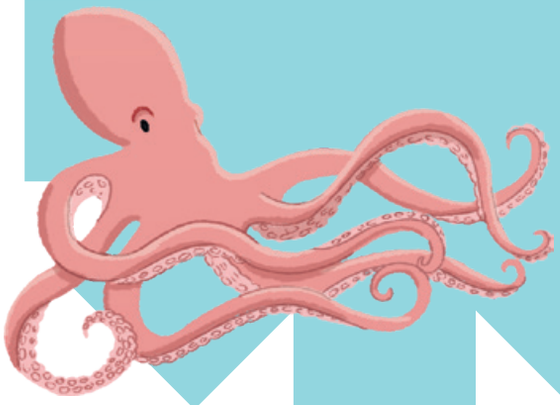
4 Invertebrates



1. LISTEN, POINT and SAY.
2. WATCH and SING along.
3. LOOK at the picture. COUNT the animals with a shell.

1. mussels

2. sea urchin

LET'S SEE WHAT YOU ALREADY KNOW

What do you already know about invertebrates? SAY.

a. examples of invertebrates

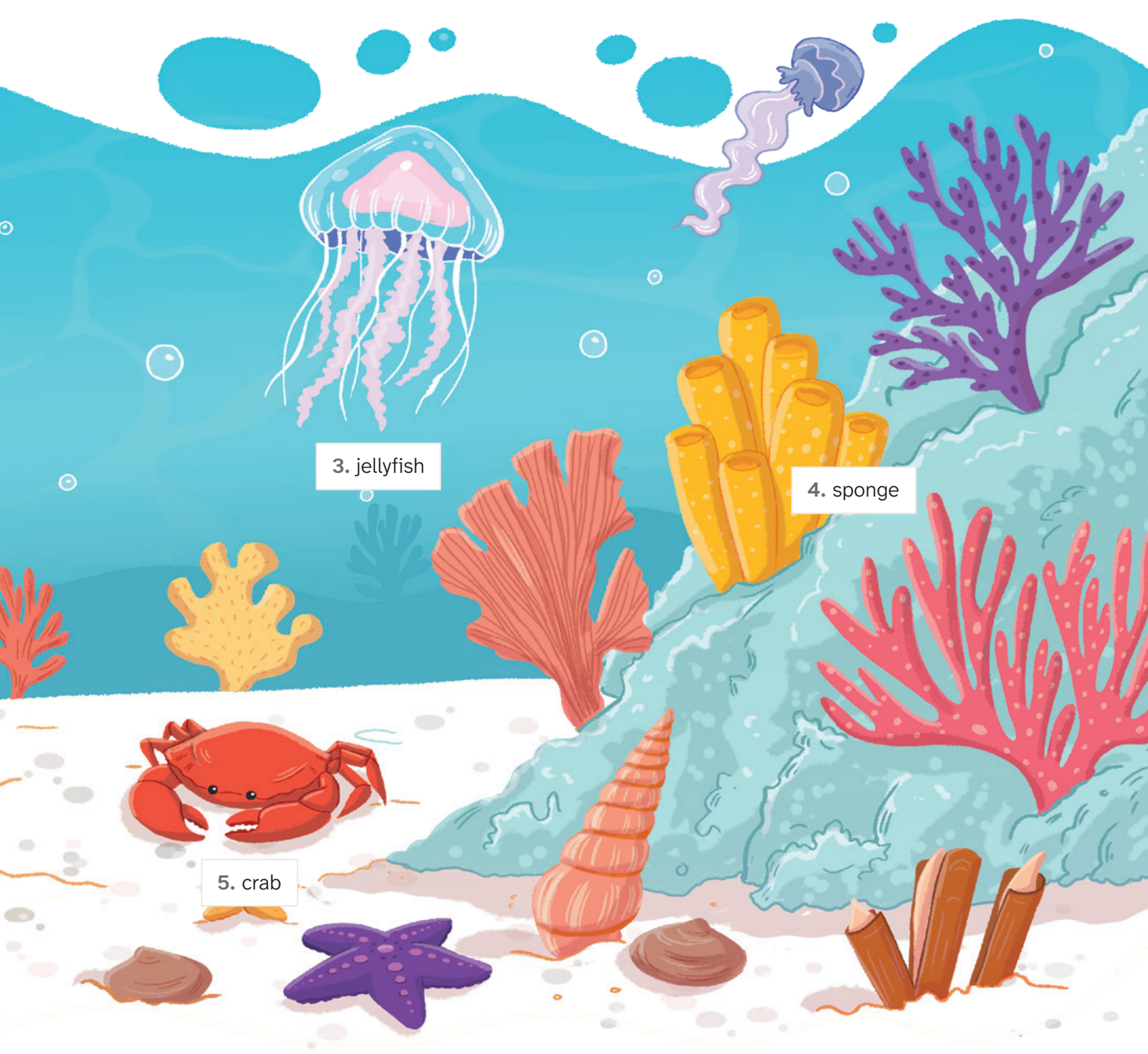
b. characteristics of insects

c. examples of molluscs

WORD BANK

... are invertebrates. They live in the sea.

A (*sea snail*) is an example of ... .



YOU WILL LEARN ABOUT:

- general characteristics of invertebrates
- sponges and cnidarians
- annelids and echinoderms
- molluscs
- arthropods

LEARNING SITUATION GOAL

DESCRIBE an invertebrate.

Characteristics of invertebrates

Invertebrates are the biggest group of animals on Earth. They are animals that do not have a backbone. Like all animals, they perform the three vital functions: interaction, nutrition and reproduction.

Interaction

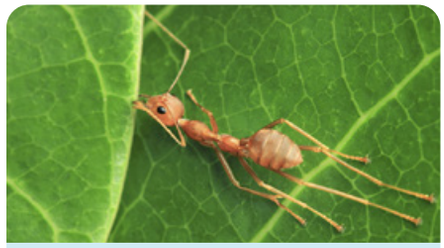
Invertebrates react to stimuli from their environment with their **sensory organs** and the nervous system that coordinates the response. For example, octopuses can change their colour to protect themselves.

Nutrition

Invertebrates are classified into three groups based on what they eat.

Invertebrate **herbivores**, like caterpillars, eat plants.

Invertebrate **carnivores**, like scorpions, eat other animals.



Invertebrate **omnivores**, like ants, eat plants and animals.

Reproduction

Most invertebrates reproduce **sexually**, but some reproduce **asexually**.

Sexual reproduction requires a male and a female. Invertebrates that reproduce sexually are usually oviparous.

Asexual reproduction requires only one parent. In this type of reproduction, a new animal can grow from one part of the parent, like the starfish.

There are six groups of invertebrates: **sponges**, **cnidarians**, **annelids**, **echinoderms**, **molluscs** and **arthropods**.

1 SAY the three types of invertebrates based on what they eat.

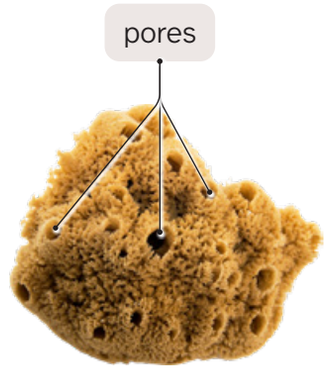
Sponges and cnidarians

Sponges and **cnidarians** are aquatic animals. Most of them live in oceans where water is salty.

Sponges

Sponges, also called porifera, are the simplest group of invertebrates. They do not look like animals.

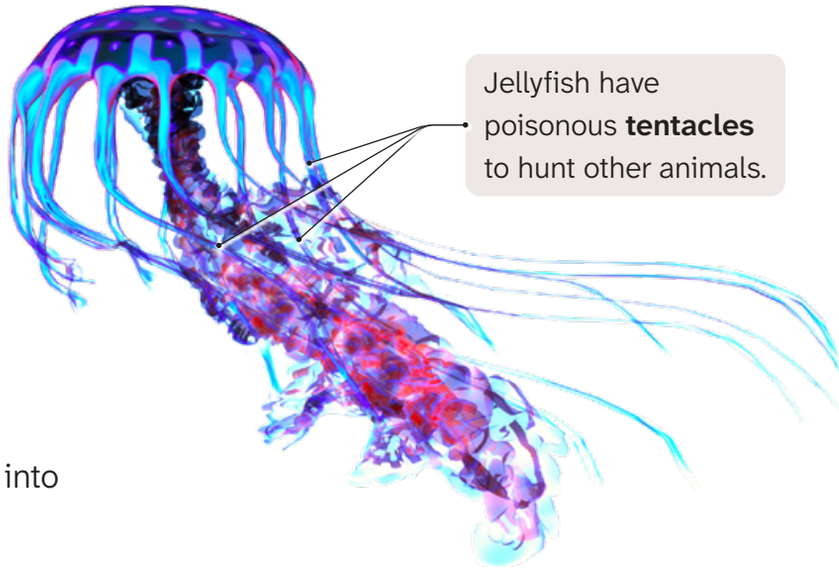
- Baby sponges (larvae) can swim. When they grow, they fix to a rock, a coral reef, or even the shell of another sea animal.
- Their body is bag-shaped and has many small holes called **pores**.
- Sponges feed by filtering water. They absorb water through their pores to catch tiny food particles.



Cnidarians

Cnidarians are very simple animals, just like sponges.

- Some of them swim, like jellyfish, but others are fixed to the ground, like corals.
- They have jelly-like bodies and **tentacles**.
- Most cnidarians have radial symmetry. This means that their body can be divided into many equal parts.



1 What invertebrate can't swim? SAY.

a. jellyfish

b. baby sponge

c. coral

2 WRITE a short description of a cnidarian: body parts, habitat and how it moves.

3 Which two characteristics have sponges? CHOOSE.

a. They have tentacles.

b. They swim when they are adults.

c. Adults are fixed to the ground.

d. Their body have a lot of pores.

e. They look like animals.

Annelids and echinoderms

Annelids and **echinoderms** have complex organ systems, and even muscles.

Annelids

Annelids are invertebrates that have soft and long bodies.

- They have moist skin. So they need to live in a humid place.
- They breathe through their skin.
- Their body is divided into segments.

The **segments** help worms move.

- They can live in water, on land or in both environments.

Aquatic	Terrestrial	Aquatic and terrestrial
		
Marine feather dusters are aquatic annelids that live at the sea bottom.	Earthworms are terrestrial annelids that live in moist soil.	Bloodsuckers are annelids that can live on land and in water.

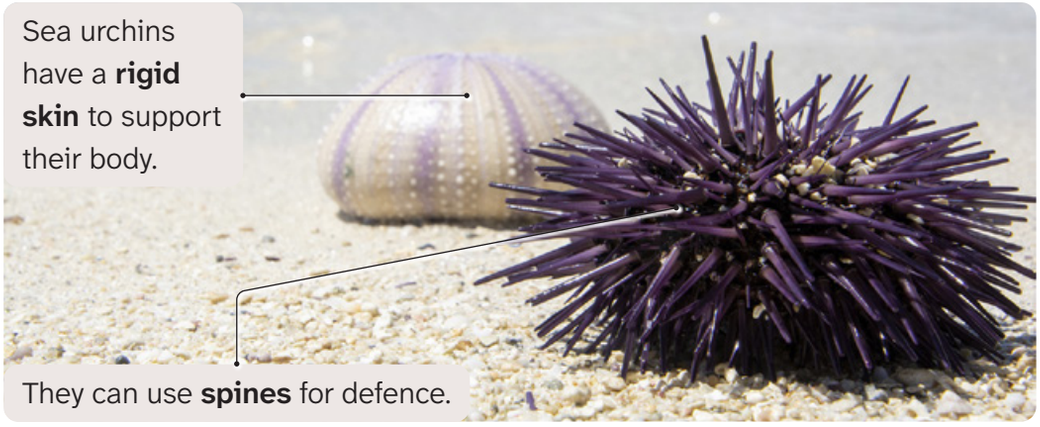
1 Where do they live? **MATCH**.

a. marine feather duster	**1.** in water
b. earthworm	**2.** in water and on land
c. bloodsucker	**3.** on land

2 How are annelids' body and skin? **SAY**.

Echinoderms

Echinoderms are animals that live on the sea floor. They are identified by having a rigid body covered in spines.



Other characteristics of echinoderms:

- Most can move using a type of foot, while others are fixed to the ground. Starfish, for example, have many small feet and use them to move along the sea floor.
- They can have different shapes.

Spherical like sea urchins.

Star-shaped like starfishes.

Elongated like sea cucumbers.

3 **EXPLAIN** how starfish move along the floor.

4 What do sea urchin use for defence? **TELL**.

a. their spherical shape

b. their spines

c. their feet

5 **DRAW** and **LABEL** an annelid and an echinoderm.

Molluscs and arthropods

Most **molluscs** and **arthropods** are invertebrates that have a hard shell or an external covering.

Molluscs

Molluscs are the second biggest group of invertebrates.

- They have a soft body.
- Most molluscs have a shell.

There are three types of molluscs: gastropods, bivalves and cephalopods.

Gastropods

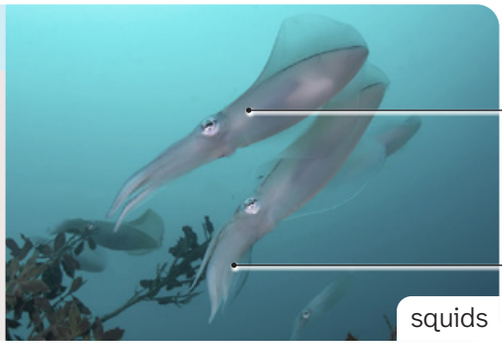
- Gastropods can live on land or in water. They have **two antennae** with one eye on each.
- Some have a **shell** for protection.

Bivalves

- Bivalves live in water.
- They have **two shells** for protection.
- They can be found in marine and freshwater environments.

Cephalopods

- Cephalopods live in water.
- They have a **large head** with **tentacles**. Tentacles can be used to move and catch their food.
- Some can have a shell.



CHECK THIS OUT!

Bivalves are ecologically important because they filter water. The daily filtration capacity varies by species and size, but a single large oyster can filter up to 190 litres a day.

1 Which molluscs have antennae? SAY one example.

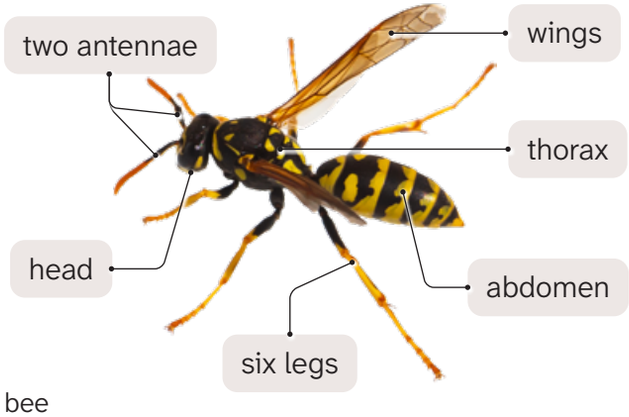
Arthropods

Arthropods are the biggest group of invertebrates. They have an external skeleton, called exoskeleton, which protects their body.

There are four types: insects, arachnids, crustaceans and myriapods.

Insects

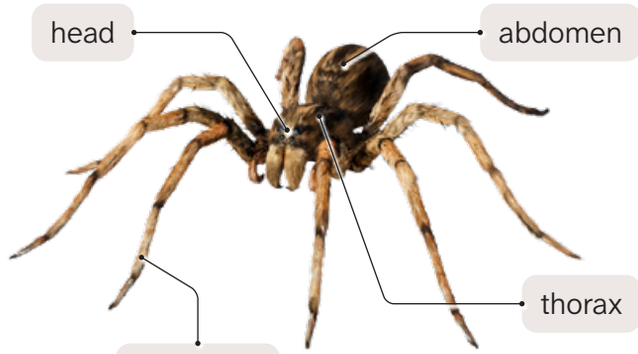
Most have wings to help them fly.



bee

Arachnids

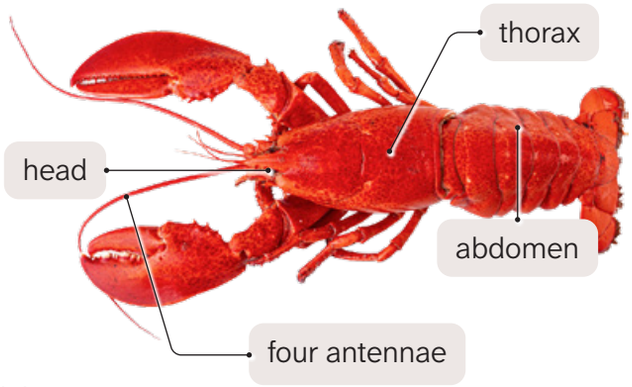
They do not have antennae.



spider

Crustaceans

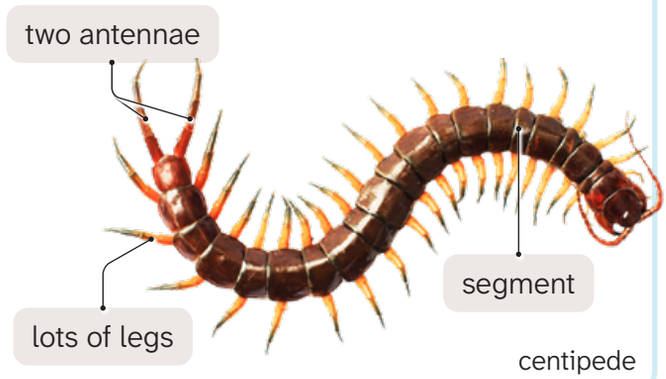
They have a variable number of legs.



lobster

Myriapods

Their body is divided into many **segments**. In each segment, they have a pair of legs.



centipede

2 **TELL** the differences between insects and arachnids.

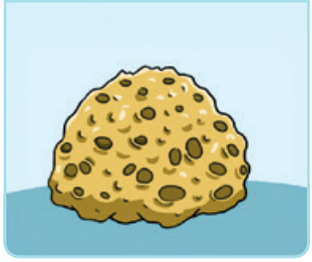
3 What group of invertebrates include gastropods, bivalves and cephalopods? **CHOOSE**.

a. arthropods **b.** molluscs **c.** sponges

Key ideas

INVERTEBRATES

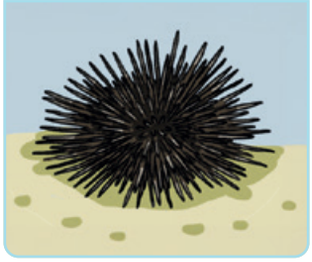
Sponges



Cnidarians

Annelids

Echinoderms



Arthropods

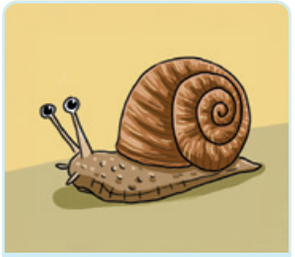
Insects

Crustaceans

Arachnids

Myriapods

Molluscs



Gastropods

Bivalves

Cephalopods

1 In pairs, **EXPLAIN** the visual summary to your partner.

WORD BANK

There are five groups of invertebrates: ... .

... belong to (*arthropods*).

A (*worm*) is an ... .

Review

Characteristics of invertebrates

1 **SAY** which vital function (nutrition, reproduction or interaction) each sentence refers to.

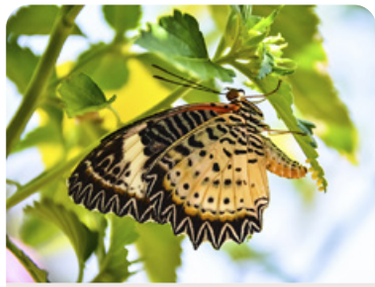
A

Crabs raise their claws to warn other animals.

B

Snails eat plants.

C



Butterflies reproduce by laying eggs.

2 **LISTEN** to the descriptions of three invertebrates. **CLASSIFY**.

herbivore	carnivore	omnivore
.....	.....	.....

Sponges and cnidarians

3 **READ** the sentences and **DECIDE** if they refer to an sponge or a cnidarian.

a. It filters water to catch food.

b. It has jelly-like body.

c. It uses tentacles.

d. It has tiny pores.

4 **LISTEN** to an interview. What animal is the boy describing? **CHOOSE**.

A

sponge

B

jellyfish

Review

Annelids and echinoderms

5 In pairs, **CHOOSE** one photo and **DESCRIBE** the invertebrate to your partner. Use the words or expressions below to help you. Your partner **GUESSES** which one it is.

long body | legs | sharp spines | round body | soft body | moves slowly | segments

A 

B 

C 

6 **READ** the text and **CHOOSE** the correct actions to protect animals in the sea.

> The ocean is home to many animals, like sea urchins and sea cucumbers. Some of them are in danger because of water pollution.

a. Throw rubbish into the sea.

b. Clean the beaches.

c. Avoid touching sea animals.

Molluscs and arthropods

7 **LOOK** at the arthropods and **CLASSIFY** them in your notebook.

A 

B 

C 

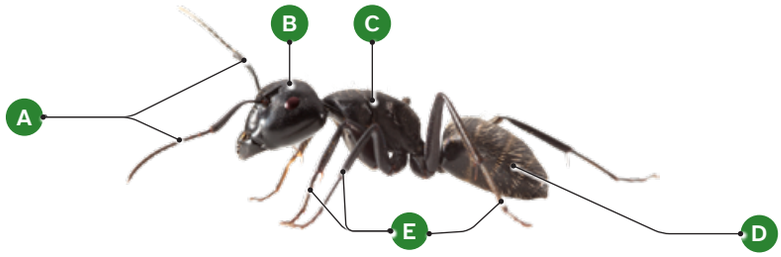
insect	arachnid	crustacean
.....	.....	...

8 In pairs, pupils **PLAY** a guessing game. Pupil A thinks of a mollusc or arthropod, and pupil B must ask Yes/No questions to discover which one it is?

WORD BANK

Is it a mollusc?
Yes / No.

9 **LOOK** at the photo of the ant. **WRITE** the parts in your notebook.



Put it together

10 **LOOK** at the photo. **USE** the *See–Think–Wonder* thinking routine and **ANSWER** the questions.

- What body parts can you see?
- Which group do you think it belongs to?
- What do you wonder about this animal?

11 **MATCH** the descriptions with the animals below.

a. This invertebrate has eight legs.

b. This animal cannot move from one place to another.

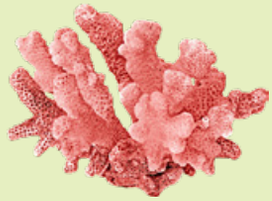
c. This invertebrate can fly.

d. If you touch its tentacles, this animal can hurt you.

1 

2 

3 

4 

Self - evaluation

1 **COMPLETE**.

One interesting thing I learnt is … .

A new word I learnt is … It means … .

I should revise … .

Learning situation goal

STEP 1. Think back

You are now ready to DESCRIBE an invertebrate. Think about what you know about invertebrates.

1 LOOK at the photos and SAY the groups of invertebrates you can see.

A 

D 

B 

E 

C 

E 

WORD BANK

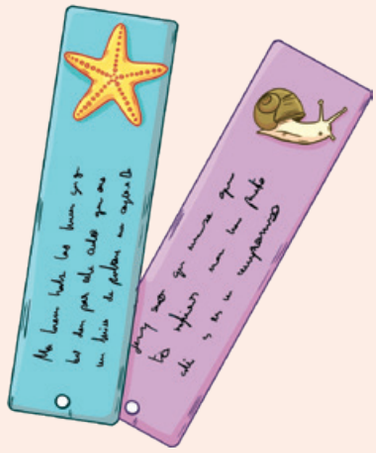
I think it is a/an	I can see a/an ... .
This is a/an	It looks like a/an ... .
Here I can see a/an	This animal is a/an ... .

STEP 2. Plan

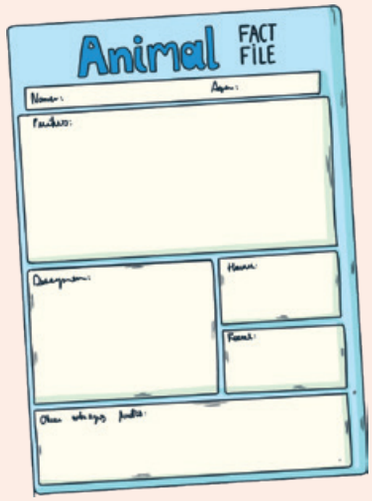
1 THINK about the invertebrate you chose.

- Where does your invertebrate live: on land or in water?
- Does it have legs? What body parts does it have?
- How does it move?
- Does it have a shell, legs or tentacles?

2 What will you make? CHOOSE.



bookmark



fact file

STEP 3. Make

1 THINK about the materials you need.

a. CHOOSE from these materials.

crayons

scissors

glue stick

coloured card

pencil

paints

b. Do you need any other material? THINK.

2 DESIGN your bookmark or fact file.

3 WRITE the name of your invertebrate.

STEP 4. Share

SHARE your work with the class.

1 COMPLETE and SAY.

I made … about … .

It has … . / It doesn't have any … .

It lives in / on … .

It moves by … .

STEP 5. Be mindful

THINK about yourself and your classmates.

1 💬 How did I feel? SAY.

I asked for help when … .

I felt **happy** / **calm** / **curious** because … .

2 💬 THINK about your group. SAY.

My classmate was good at **explaining** / **organising** / **drawing** … .

Our group made a decision by … .