To study a forest, we have to analyse its characteristics.

1 **Look at the picture. Answer your teacher's questions.**

2 **Where can you find a forest like this one? Justify your answer.**

_____

_____

WE HAVE LEARNED THAT...

A habitat is the place where a group of _____ _____ of the same kind _____ together.

This forest is a _____ forest. The plants and _____ that live here are characteristic to the mild _____ climate. It is their natural habitat.

2 CLASSIFYING DIFFERENT THINGS IN A FOREST

There are many different things found in a forest.

1 **In groups, use the cards and classify the things found in a forest.**

2 **Compare your classification with the other groups. Which is the best criterion?**

LANGUAGE HELP

- We have classified the different things in … groups.
- The first group is …
- The second group is …
- …
- The last group is …
- We think the best criterion is … because … .

3 **Write the criterion and examples in the boxes.**

_____	_____

WE HAVE LEARNED THAT...

The components in the forest can be divided into _____ _____ and _____ _____ . The first group, _____ _____ are the components that are _____ . The second group, _____ _____ are the components that _____ _____ .

In a forest, there are living and non-living things.
Let's start by studying living things.

1 What can living things do? Write or draw them in the box.

Living things can





2 **Classify the life functions into three groups. Write the name of each group.**

Living things

_____	_____	_____
Stimulus and response	Nutrient* management	Perpetuation of species

WE HAVE LEARNED THAT...

The three life functions of living things are:

1 _____ : this is related* to _____ .

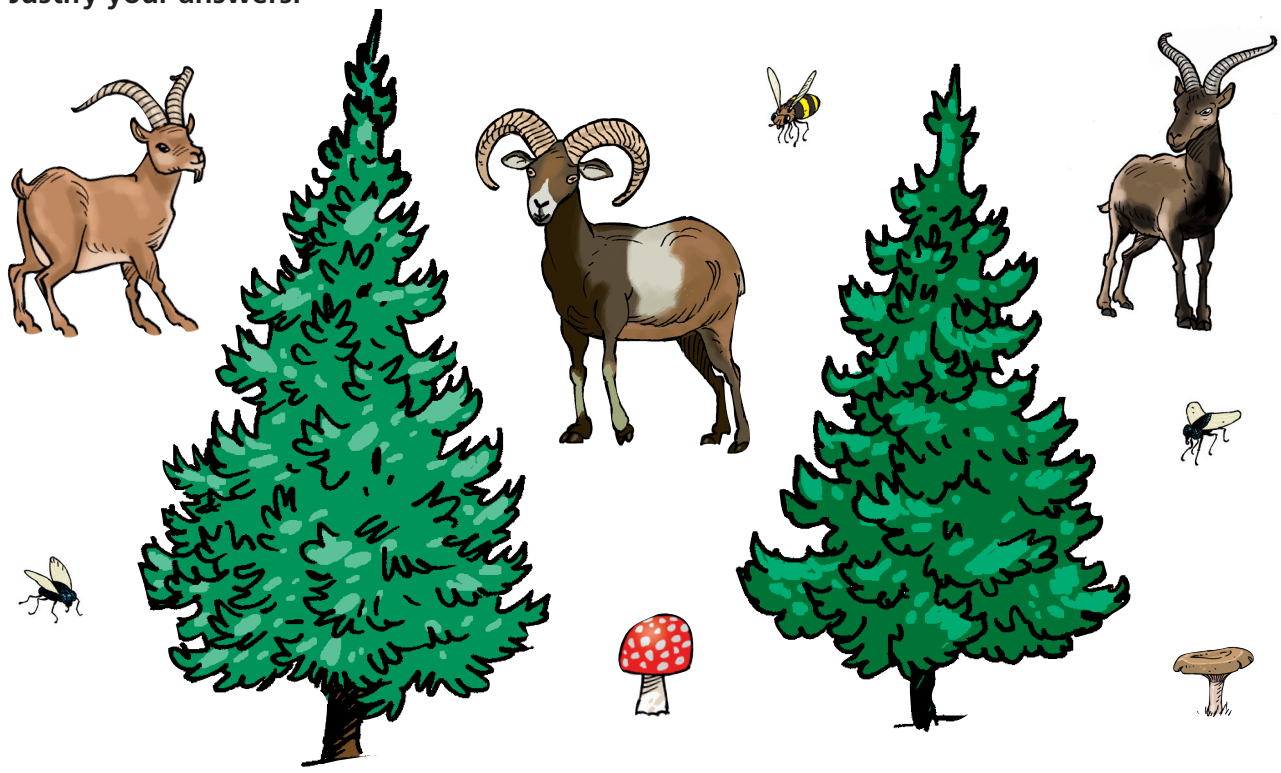
2 _____ : this is related to _____ .

3 _____ : this is related to _____ .

Think about the initial questions. Any ideas so far?

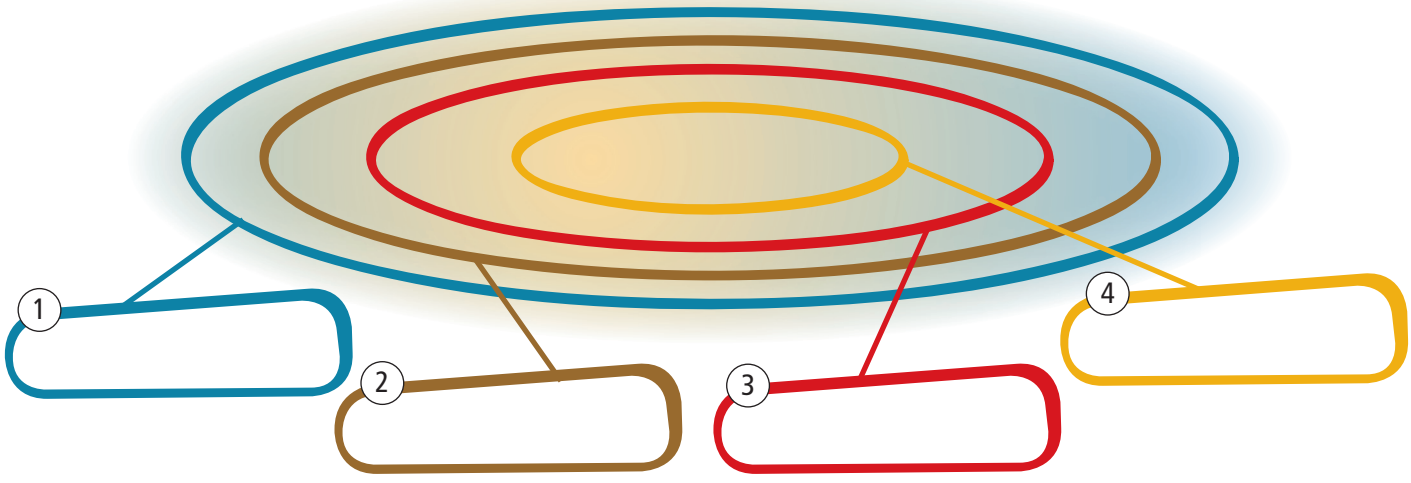
Living things are related to each other.
Let's study how they live together.

1 In groups, match the living things that belong to the same species. Justify your answers.



2 WWW Look at the diagram. Use the internet link and write the words in the correct boxes.

COMMUNITY SPECIES ECOSYSTEM POPULATION



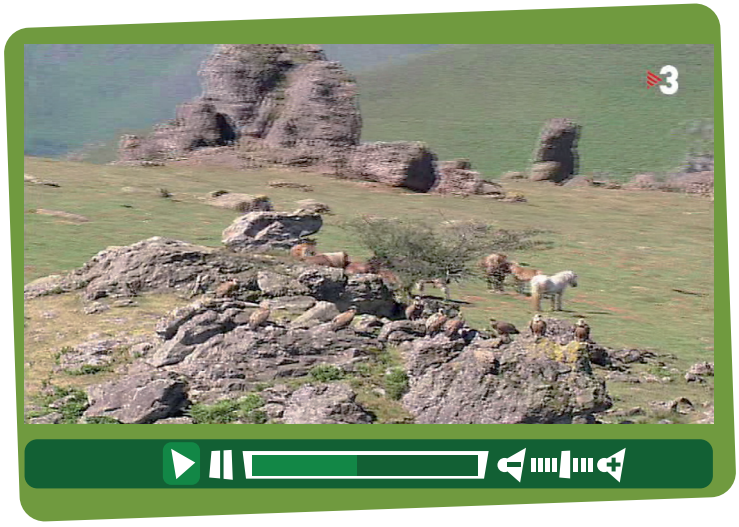
3 **Justify your answers. Use the following sentences.**

LANGUAGE HELP

- The orange group represents the … because …
- The next group is the … because …
- The brown group …
- The …

WWW HOW INTERESTING!

4 **Watch the video and complete the text.**



We can see different _____ _____ such as horses, sheep, vultures and grass in this habitat. A group of horses is called a herd. All the horses in an area are called a _____ of horses. The animals we see all live in the same _____ , a high mountain area, so they all form a _____ .

WE HAVE LEARNED THAT...

Species are groups of _____ , _____ or other living things that are able to breed and _____ fertile offspring. The group of animals, plants or other living things of the same species in an area is called a _____ . All species which live in the same area are called a _____ . The community and the type of _____ where this community lives form an _____ .

5 THE FOREST GAME

There is a relationship between living and non-living things. Do you know what it is?

1 Play a game!

2 Now read and write T (True) or F (False).

1 The nightingale needs the blackberry bush because birds can't make their own food.

2 The blackberry bush makes its own food.

3 The nightingale only needs the blackberry bush to survive*.

4 If the nightingale disappears, there will be lots of blackberry bushes.

5 If the sun disappears, the forest will disappear because the animals will be cold.

6 The nightingale doesn't need water to survive.

7 Only animals need air to survive.

8 Pine trees and earthworms are not related to each other.

9 The nightingale helps the blackberry bush to reproduce.

10 All components in an ecosystem are related to each other.

3 **Work with a partner. Write two things from the forest and explain how they are related. Use the following words.**

LANGUAGE HELP

What is the relationship between … and … ?

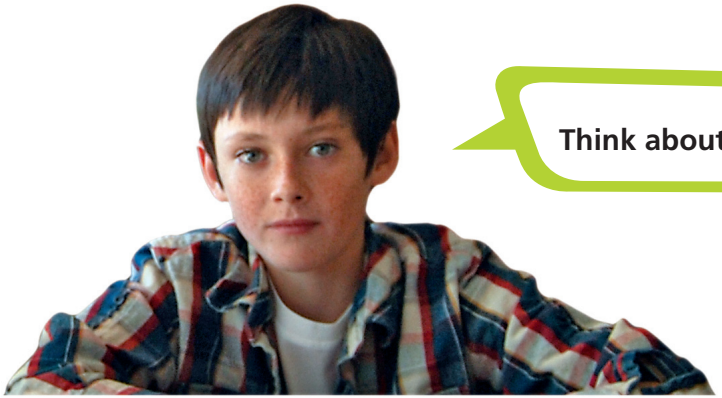
- eat
- need
- gives energy
- gets energy from
- is food for

Components		Relationship
frog	sun	The frog eats insects. Insects eat plants. Plants need the sun to make their own food.

WE HAVE LEARNED THAT...

All components (_____ _____ and _____ _____)

in an ecosystem are related to each other. If one component disappears then the other components may _____ or be modified. It means that all components in an _____ help to keep the _____ .



Think about the initial questions. Any ideas so far?

Living things can be classified into three groups: producers, consumers and decomposers, depending on how they get food.

1 **Work in groups of three. Choose an example of a living thing for each of you. Write your names.**

A Wolves: _____ **B** Pine trees: _____ **C** Bacteria: _____

2 **Read your text (A, B or C) and become an expert on that living thing. What are the most important characteristics of each group?**

A

WOLVES

Wolves are animals that live in the wild, usually in forests. When a wolf is born, it is called a 'pup' and it only weighs about 0.5 kg but an adult wolf can weigh between 30-40 kg on average. Wolves usually live for six to eight years.

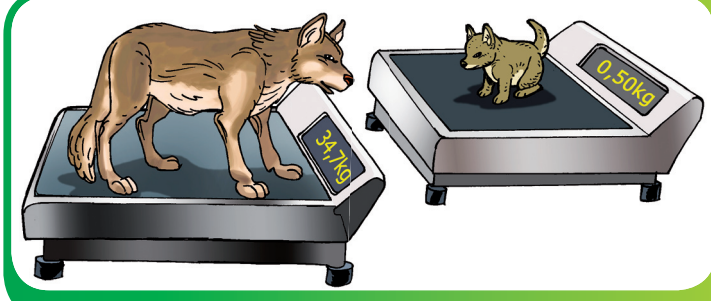
Wolves live in groups called 'packs'. Pups play a lot and as they play, they learn how to communicate and also hunting techniques. Communication skills are very important to a pack's survival; they hunt* together and they protect their pups and their territory.

Wolves are very intelligent and they have an exceptional sense of smell (100 times better than humans) and an acute sense of hearing. These characteristics help them to adapt to their habitat and to find food, because unlike plants, they cannot produce their own food.

Wolves are carnivores; they eat other animals. They mainly hunt big mammals such as deer but they also eat smaller animals such as rabbits and some birds. They sometimes eat dead* animals. Wolves have different methods of hunting, depending on the size of their prey.

A wolf's digestive system is quite different from ours. They can eat great amounts of food at one time (about 9 to 10 kg of food) and then survive without food for three days or more.

Wolves can run very fast and they travel constantly looking for prey. They can cover distances of almost 200 km in a day, but they usually travel an average* of 20 km.

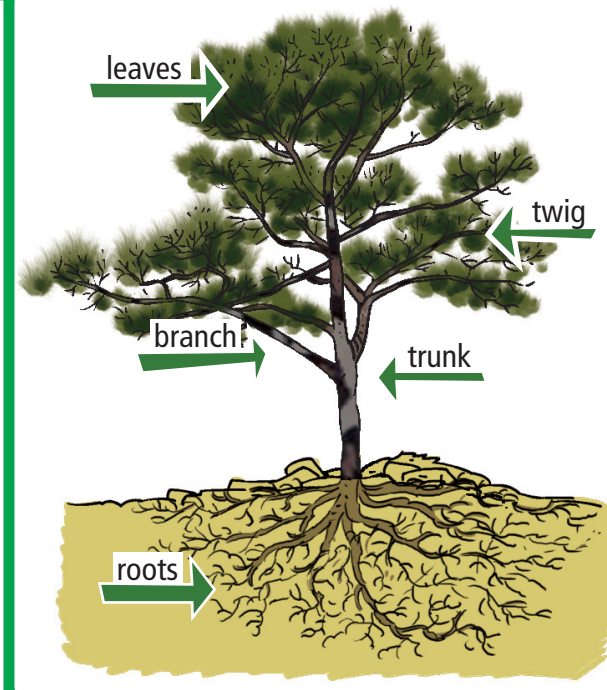


Unfortunately, wolves are in danger of extinction. They have disappeared from some areas and in other areas they are protected. In addition, there are many fairy tales that show wolves as bad, dangerous* creatures; but the image of 'the big bad wolf' is unfair because wolves almost never attack humans.

B

PINE TREES

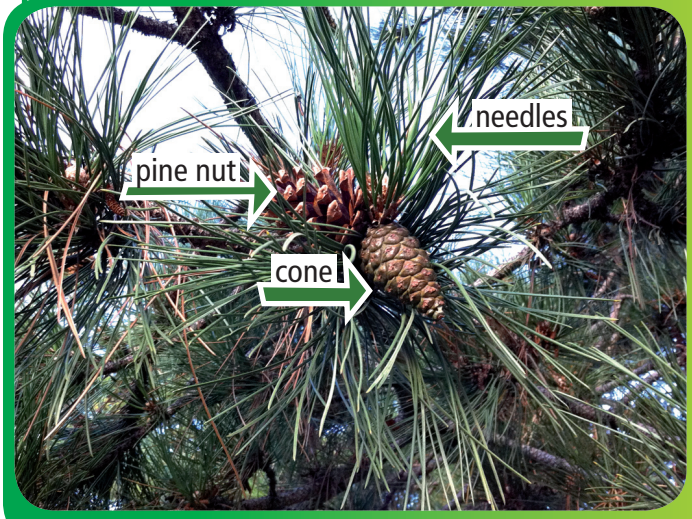
Trees are living things. They are plants. There are different types* of trees because they have adapted to the climate and the ecosystem in which they live. For example, trees that live in the forest have thin leaves because they don't need to retain water but plants in the dry areas have thick leaves to store water. The main parts of a tree are the roots, trunk, branches, twigs (small branches) and leaves.



Pine trees are the most common of all coniferous trees. Conifers are evergreen trees; this means that they do not lose their leaves in winter. Their leaves are called needles. Pine trees have also got cones, that is why they are called 'conifers'. The pine nut which grows on this tree is very tasty and is used in many recipes.

There are more than a hundred species of pine trees. They live for a long time. They are some of the tallest plants in the world. They are able to grow* very tall because their trunks and branches are made of strong wood.

The roots of pine trees go deep into the soil*. Roots anchor* the trees to the soil, so if there's a strong wind, they do not fall over. With the help of root hairs, roots get the water and nutrients from the soil. Trees need these to produce their own food.



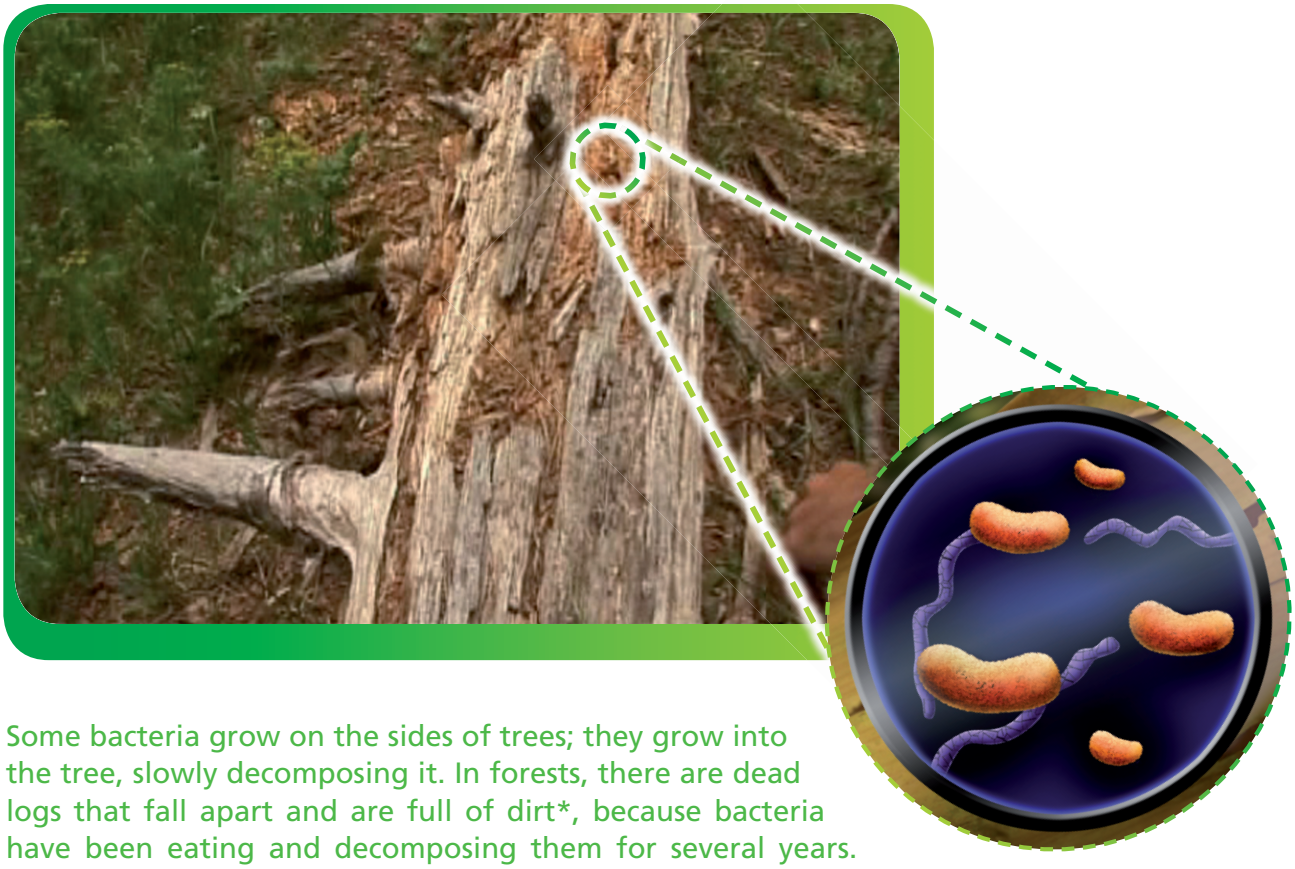
Obviously trees cannot hunt to get their food, because they cannot move from where they are anchored. So they have to produce their own food. To do this, they absorb the energy from the sun (sunlight energy), water, minerals (nutrients) and carbon dioxide (CO_2), to produce glucose (sugar). This is the energy/food for the trees. This way of producing their own food is called 'photosynthesis' and not only trees do this, but all plants. Trees also send out oxygen into the air, which helps to reduce levels of pollution*.

C

BACTERIA

Bacteria are living things. They are very simple, small organisms. Bacteria are everywhere: seas, soils, even inside our bodies!

Bacteria do all sorts of things and they can be different shapes and sizes. Some bacteria are good and they help other living things to perform their functions like the ones found in soil where plants grow. But some bacteria are harmful* and may cause diseases, like 'salmonellosis', which is an infection in your stomach caused by a bacterium called 'salmonella'.



Some bacteria grow on the sides of trees; they grow into the tree, slowly decomposing it. In forests, there are dead logs that fall apart and are full of dirt*, because bacteria have been eating and decomposing them for several years. In the end, the bacteria break up the log and return it to the soil. In this case, bacteria are beneficial because they add nutrients to the soil which in turn is very good for plants.

Bacteria also eat dead plants and animals and the waste* of living things. They break* them down and decompose them into nutrients and minerals which then return to the soil. This way, plants can use them to make more food and start the cycle of food and energy again.

3 **In your original group, share the key information and complete the following table.**

	Example of living thing	Where do they get their energy from?	Where are they in the food chain: 1st, 2nd or 3rd?
PRODUCER			
CONSUMER			
DECOMPOSER			

4 **Check your answers.**

Think about the initial questions. Any ideas so far?

WE HAVE LEARNED THAT...

- Producers are usually _____ . They take in water and _____ from the soil and produce their own food through the process called _____ (thanks to the energy from the sun). For this reason, they are called producers. They are the _____ stage in a food chain.
- Consumers are usually _____ and cannot create their own food. They need to _____ or consume other living organisms which can be _____ or _____ . Consumers are the _____ stage in a food chain.
- _____ , such as _____ and fungi (mushrooms), break down dead _____ , _____ and organic waste. By doing this, they produce energy and put _____ back into the _____ for other animals and plants to use. This begins the cycle again. They are the third stage in a _____ _____ .

7 FOOD CHAINS – A STORY TO MAKE YOU THINK

Once upon a time … Stories help us learn Science.

1 **Read the story individually.**

Once upon a time, there was a farmer who wanted to sell a cabbage and a sheep in the local market in a nearby village.

On his way to the village, he met a wolf.

'Excuse me sir', the wolf asked the farmer, 'could you show me the way to the village?'

'Of course', replied the farmer. So they walked towards the village together.

After a while, they arrived at a river. The river was deep and blue. There was a small boat at the edge of the river to cross over to the other side. The boat was so small that not everything would fit so the farmer could only take with him the cabbage or the sheep or the wolf at one time.

The farmer started thinking about how he could get everything across the river in the small boat.

'If I cross over with the cabbage first, the wolf will eat the sheep. If I cross over with the wolf first, the sheep will eat the cabbage', he thought to himself. 'How can I cross the river and get to the market with the cabbage, the sheep and the wolf?'

2 **In groups, answer the questions.**

1 What problem does the farmer have? _____ .

2 Who will eat who? _____ .

3 Will the wolf eat the cabbage? _____ .

4 What will the wolf get from the sheep? _____ .

5 What will the sheep get from the cabbage? _____ .

6 Where does the cabbage get food from? _____ .

3 **Help the farmer. In groups, think of how he can cross the river.**

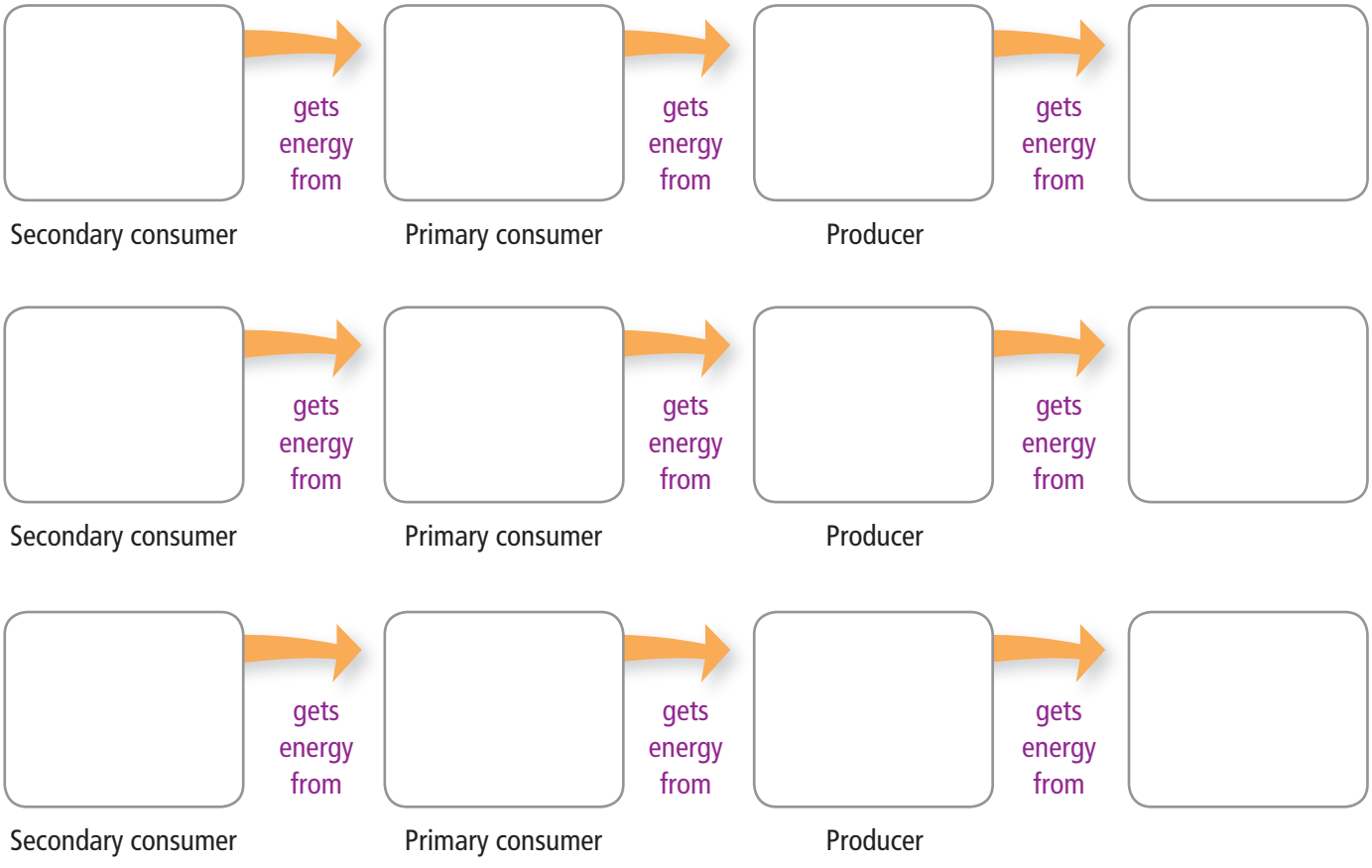
4 **Draw pictures to illustrate a food chain. Complete the sentences.**

1 A wolf is a carnivore because _____ .
It is called a secondary consumer.

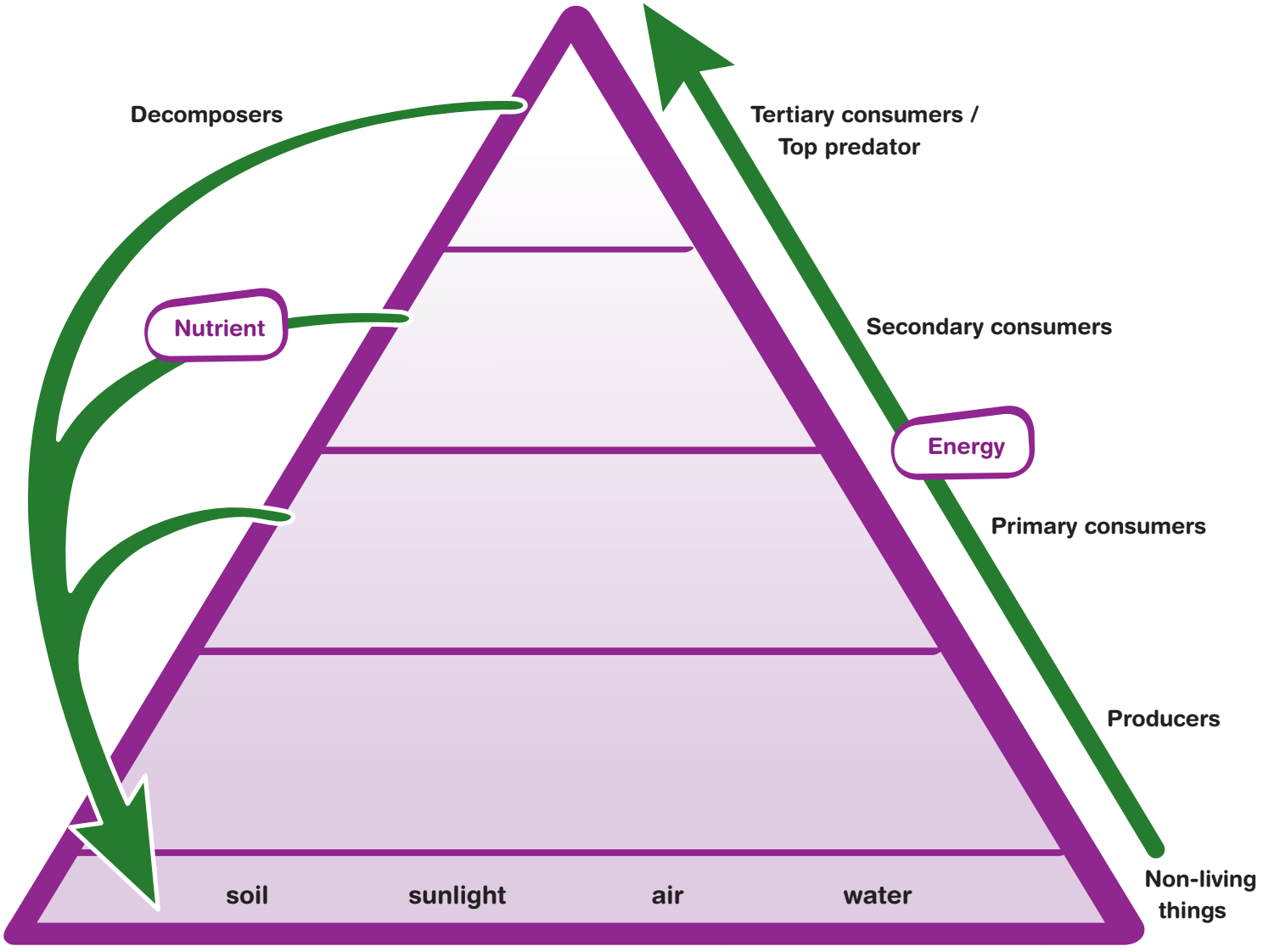
2 A sheep is a herbivore because _____ .
It is called a primary consumer.

3 The cabbage gets energy from the _____ .
It is a _____ because it can make* its own food and does not eat anything.

5 **Can you think of other food chains? Draw the pictures.**

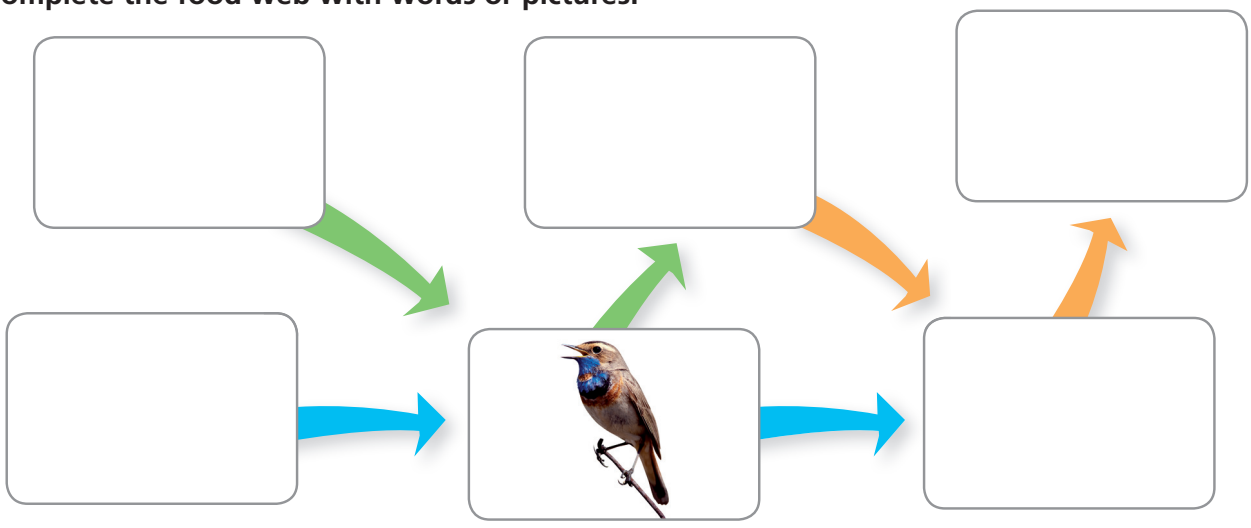


6 Complete the pyramid. Write the names of the living things.



7 Where are human beings in this pyramid? Why?

8 **Complete the food web with words or pictures.**



WE HAVE LEARNED THAT...

- A food chain starts with an energy source like the _____ . The arrows in the chains show the flow of _____ .
- The sun and other _____ provide the food for some organisms. These organisms, such as plants and algae, can convert that energy into _____ and are called _____ .
- The next stage is organisms that _____ producers because they _____ produce their own food. They are called primary consumers or _____ . Some examples are _____ , _____ and _____ .
- The next stage is organisms that eat _____ _____ . They are called secondary _____ . Some examples are _____ , _____ and _____ .
- Food chains can be longer than this. The animal at the end of a food chain is the _____ _____ or top predator (it has no natural enemies).
- Eventually, consumers, producers and the top predator die. Then, _____ transform their bodies and the nutrients return to the _____ .

We are going to check what we have learned.
Let's study a different type of forest.

1 **Watch the video. What kind of forest is it?**

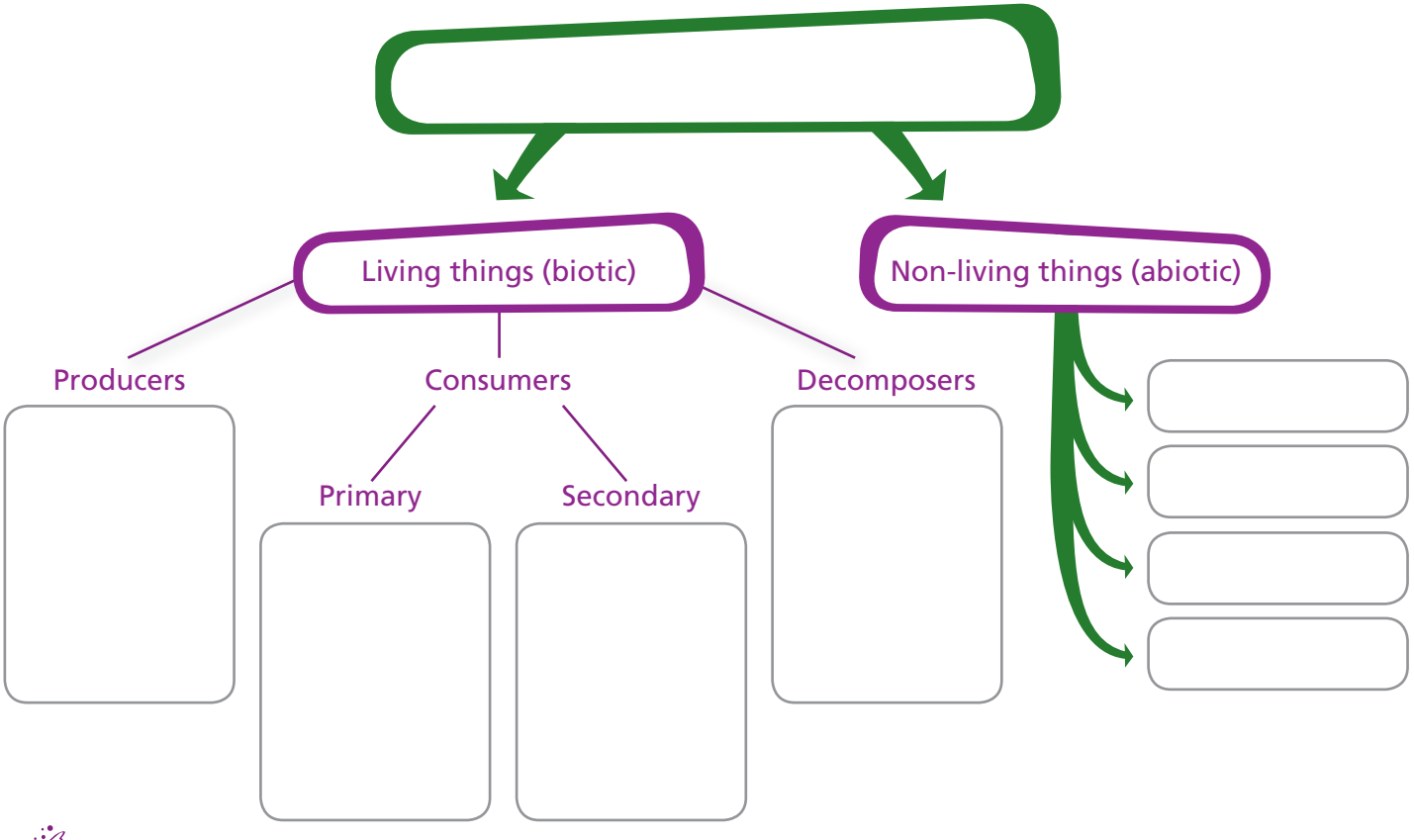
This video shows an _____

_____

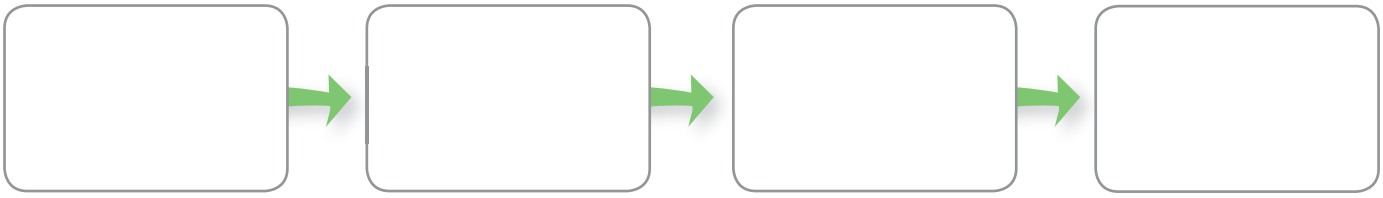
_____

_____ .

2 **What did you see in the video? Complete the diagram.**

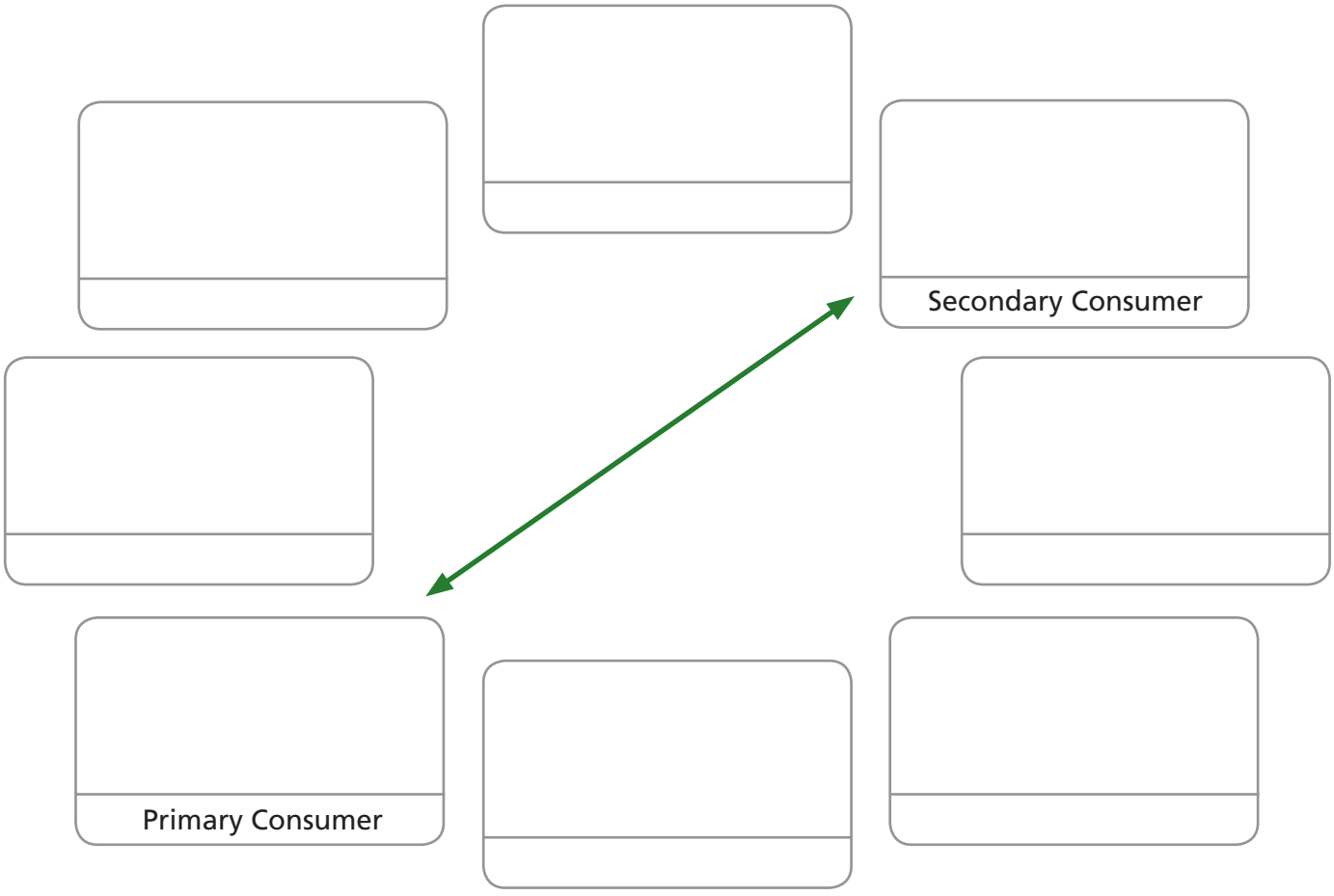


3 **Draw and label a food chain with examples from the Atlantic forest.**



4 **Draw and label the living things in the ecosystem. Draw arrows to show the three life functions.**

Nutrition Interaction Reproduction



In groups, check your answers orally.

Did you draw any red arrow? _____ Why? _____

Think of something that could alter the balance* in the Atlantic forest. Describe what would happen. _____

_____