Natural Science

Natural Science 3 is a collective work, conceived, designed and created by the Primary Education department at Santillana, under the supervision of Antonio Brandi Fernández.

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Do not write in this book.
Do all the activities in your notebook.
People eat food of animal and plant origin. Look at the foods in the picture. Which foods are of animal origin?

Animals are classified into vertebrates and invertebrates. There are five groups of vertebrate animals: mammals, birds, reptiles, amphibians and fish.

Some animals produce milk. Other animals lay eggs. What groups do they belong to?

What is an earthquake? What does rubble mean? Why is it important to clear the rubble quickly? How do search and rescue dogs help? How is the dog helping the woman in the photo? SPEAKING. Dogs help people in different ways. Can you give some other examples?

Know how to

Find out what benefits people obtain from animals.

Final task

Make an animal index card.

What do you remember?

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Benefits we obtain from animals

Animals have been helping people since the beginning of time. They are essential to people for many reasons and we cannot live without them.

Food from animals

Many animals are a source of food. Some animals give us meat. Other animals give us products such as milk, eggs and honey.

In the past, people had to hunt wild animals for food. Today, livestock farming and fishing are more important. Honey is obtained from bees which are kept in beehives.

Clothing

In the past, people used animal skins for clothing. Later, they learnt to use animal hairs to make threads for fabrics such as wool. Wool is obtained from goats, sheep and even rabbits.

Leather is made by tanning animal skins. Leather is a flexible and resistant material. It is used to make shoes and clothes.

Some foods obtained from animals.

Wool is obtained from these animals. A. Sheep. B. Cashmere goat. C. Alpaca.
Transport

In the past, animals were very important for transporting people and goods. Some of these animals were horses, donkeys, oxen, camels and even elephants. Today, motor vehicles are used instead of many animals.

Other benefits

Other benefits of the relationship between people and animals:

- **Companionship.** Dogs and cats are the most popular pets. Hamsters, guinea pigs, birds, fish and reptiles are also popular. Owners must take care of their pets.
- **Protection.** Dogs are used to guard cattle and properties.
- **Leisure time.** Many people enjoy observing animals in zoos or in nature. Other people like to go hunting or fishing. They must respect the laws and regulations of these activities.

Animals give us food, clothing, transport and companionship. They provide leisure time activities and protection.

**ACTIVITIES**

1. **WRITING.** Write a list of the main benefits we obtain from animals. Then, write an example of each.

2. Name three animals that give us food.

3. What is leather? What is it used for?

4. **VALUES EDUCATION.** There are elephants and lions in shows and circuses. In some places, it is against the law to use animals for shows.

What do you think about this? Are you for or against using animals in shows?
Livestock farming

What is livestock farming?
Farm animals are called livestock. So livestock farming means animal farming. Farmers breed animals for their meat, milk, eggs or skins.

There are two types of animal farming:

- **Extensive farming.** Animals live in the open and eat grass from the fields, or grain.
- **Intensive farming.** Animals live fenced in on farms or in barns. Farmers give them hay or dry feed to eat.

Types of livestock

There are different types of livestock:

- **Cattle.** Farmers raise cows for meat, milk and leather.
- **Sheep.** Farmers raise sheep for meat, milk and wool.
- **Pigs.** Farmers raise pigs for meat.
- **Goats.** Farmers raise goats for meat, milk and wool.
- **Poultry.** Farmers raise chickens for meat and eggs.

Cattle, sheep and pigs are raised by both extensive and intensive farming. Goats are raised by extensive farming. Most poultry is raised by intensive farming.

Other animals used for livestock farming are horses, donkeys and rabbits. **Beekeeping** is also farming. Bees give us honey and wax.

Livestock farming is animal farming. There are two types: extensive farming and intensive farming. There are different types of livestock.

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**LEARN MORE**

**Pisciculture**

**Pisciculture** is the farming of fish for food. It can take place in fresh water or in salt water.

**Aquaculture** is the farming of molluscs, such as mussels, and crustaceans, such as prawns.
Sheep farming
The shepherd herds his flock of sheep. His dogs help him to protect the sheep from wild animals. At night, the shepherd encloses the sheep in a pen.

A **ram** is a male sheep. It usually has horns. A **lamb** is a baby sheep. The female is a **ewe**.

Sheep give us milk. They are milked every day. Wool is cut off before the summer. This is called **sheep shearing**. Vets take care of sheep. They give them vitamins to keep them healthy and strong. They **vaccinate** them to prevent illnesses.

Poultry farming
When **cocks** and **hens** live together on farms, cocks fertilize the eggs. The eggs are kept in an **incubator** for three weeks. **Chicks** hatch from these eggs. Farmers feed the chicks until they are fully-grown. Then, they are used for chicken meat.

The hens are kept on the farms to produce eggs. Food, water and temperature are controlled.

There are many animals living in a small space on poultry farms. For this reason, hygiene is essential to prevent disease.

**ACTIVITIES**

1. **SPEAKING.** Look at the picture on the right. What type of livestock is this? What type of animal farming is it? Explain your answer.

2. Which animals give us these products?
   - sausages
   - milk
   - eggs
   - wool
We share our planet with an enormous variety of animals. Some animals are beneficial to people. Others can be harmful. Zoologists, vets, farmers and nature lovers use different ways to observe and classify animals.

**Birdwatching**

You can see birds in the countryside or in the park. Would you like to know their names? Then, birdwatching is your hobby! **Birdwatchers** collect information about birds and find ways to protect them.  

Most birds are shy and flee from people. You need **binoculars** and **telescopes** to observe them closely. 

**Field guides** are books that help you to identify different types of birds or other wild animals according to their size, shape and colour. Most field guides have the same structure:

- **Texts.** These give the name, classification, description, size, food and habitat of the bird or animal.
- **Distribution maps.** These show where the animal or birds live.
- **Drawings and photos.** These help you to recognize the animals or birds.

You can find field guides of a country, or of a specific place, such as a National Park. There are also digital field guides that include bird songs and videos.
Identifying animals with a key

Keys are useful to identify animals. To use a key, check the paired statements and then follow the instructions.

**Key for mammals with hooves in Spain**

1. Animal with a large body and short legs, similar to a pig ........................................... Wild boar
   Other type of animal .............................................................................................................. Go to #2

2. Animal with branched antlers .......................................................................................... Go to #3
   Animal with antlers that are not branched ......................................................................... Go to #4

3. Big, branched antlers that stick out from the sides of the head .................................. Deer
   Antlers with a few branches that do not stick out from the sides of the head .................. Roe deer

4. Thin, straight antlers that curve backwards ..................................................................... Chamois
   Thick antlers, curved backwards ....................................................................................... Go to #5

5. Very curved antlers that surround the head ................................................................. Mouflon
   Not very curved antlers that turn away backwards ......................................................... Ibex

**ACTIVITIES**

1. Use the key and name all the animals in the photos. All of them are mammals with hooves that live in Spain.

   ![Animal Photos]

2. ICT. Look on the Internet and find videos of different birds’ songs. Share your favourite video with the class.
Make an animal index card

An animal index card shows the main characteristics of an animal. It includes a drawing or a photo of the animal.

Study this index card.

Cheetah

- **Classification:** vertebrate, mammal.
- **Type of food:** carnivore.
- **Reproduction:** viviparous.
- **Movement:** walks using its four legs.
- **Skin:** covered with hair.
- **Habitat:** the savannah, in Africa.
- **Other characteristics:** slim body and long legs. Yellowish fur with black spots.
- **More information:** Cheetahs are the fastest land animals. They can reach a speed of 112 km/h when they hunt gazelles and other herbivores.

1. **Look at the pictures. What other information can you include in the **Other characteristics** section?**

2. **ICT. Search for more information about cheetahs to include in the **More information** section. Write it in your notebook.**

Do it yourself.

3. **Make two index cards: one of a vertebrate animal and another of an invertebrate animal. Remember to include:**
   - All the sections in the model index card.
   - A drawing or a photo.
1 SUMMARY. Copy and complete with these words:


Food, _______ and transport are some benefits we obtain from animals.

Farmers breed _______ to get different _______.

There are different types of livestock: cattle, _______, pigs, goats and _______. They give us meat, _______, leather, wool and _______.

2 Which animals give us these products?

A. [Image of a hamburger]
B. [Image of a candle]
C. [Image of a knitted hat]
D. [Image of a sausage]

3 THINK ABOUT IT. Chicks do not hatch from the eggs you buy in shops and supermarkets. Explain why.

Show your skills

Choose one of these activities:

A. Search for information about how to make cheese. Then, prepare a presentation for your classmates.

B. Draw one of the animals in this unit.

C. Write a story about the importance of taking care of and respecting a pet or a farm animal.
Check your vocabulary

arachnid arthropod with eight legs.
arthropod invertebrate with a hard exoskeleton and a segmented body.
carnivore animal that eats other animals.
cetacean aquatic mammal with a long body and fins. A dolphin is a cetacean.
cnidarian most cnidarian are invertebrate animals with jelly-like bodies, for example, jellyfish.
crustacean arthropod with a hard exoskeleton.
decomposer animal that feeds on decaying plant and animal matter.
gills aquatic animals such as tadpoles and fish breathe through gills.
herbivore animal that eats plants.
insect arthropod with six legs and a body divided into head, thorax and abdomen.
invertebrate animal without a spinal column.
livestock farming animal farming to raise animals for their meat, milk, eggs or skins.
lungs organs that many animals use to breathe.

metamorphosis transformation of some animals from larvae to adults.
mollusc invertebrate animal with a soft body. Most have got one or two shells.
myriapod arthropod with a long body with many identical segments.
omnivore animal that eats both plants and other animals.
primate terrestrial mammal with hands and feet with five fingers and toes.
savenger animal that feeds on dead animals.
sponge very simple invertebrate. It lives attached to rocks on the seabed.
tadpole baby amphibian that lives in water and breathes through gills.
vertebrate animal with a spinal column.
worm invertebrate animal with a long, soft body.

1. What groups do the animals in the drawings belong to?

2. What groups do the animals in the photos belong to?
   - Which life process is illustrated in the photo?
   - Explain why.
Check your progress
Copy and write the correct answers in your notebook.

1. All animals...
   a. have got a skeleton.
   b. eat food.
   c. go through metamorphosis.

2. These are vertebrate animals:
   a. tiger, sardine and vulture.
   b. frog, butterfly and tortoise.
   c. octopus, jellyfish and dolphin.

3. Cetaceans...
   a. breathe through gills.
   b. are aquatic mammals.
   c. are fish, like sharks.

4. Birds have got...
   a. feathers and are viviparous.
   b. gills and are oviparous.
   c. feet, feathers and wings.

5. These are reptiles:
   a. snake, crocodile and tortoise.
   b. lizard, mouse and chameleon.
   c. snake, newt and lizard.

6. Baby frogs are...
   a. covered with scales.
   b. called tadpoles when they are born.
   c. viviparous.

7. These are arthropods:
   a. worm, snail and wasp.
   b. wasp, crab and starfish.
   c. spider, centipede and shrimp.

8. Some types of livestock are...
   a. pigs, cows, and dogs.
   b. cows, sheep and goats.
   c. hamsters, cows and sheep.

Check your answers
- Correct the answers you got wrong.
- Write in your notebook the lessons you need to practise again.

Think like a zoologist
Imagine you work in a zoo. You are telling some school children what people obtain from animals. Make a list of all the animal groups you know. Then, give one example from three different groups of an animal that benefits people. It can be as food, as transport, as a companion...

- Arthropods: Bees give us honey and wax.