



Exam VSBO PKL

2026

period 1

Wednesday May 20

7.30 - 10.00 a.m.

Biology

This exam comes with a work booklet and an appendix.

Write down all answers in the work booklet.

This exam assumes that organisms are healthy and in normal situations.

This exam consists of 48 questions.

You can score a maximum of 76 points for this exam.

Before each question number it is stated how many points can be scored with a correct answer.

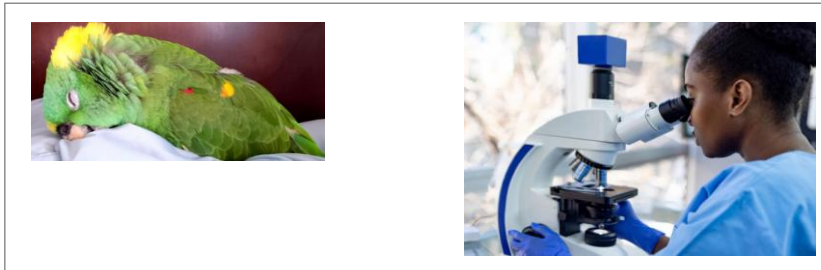
Loeka the parrot

- 2p 1 The parrot in the picture to the right is named Loeka and she is always alone in her cage. Because she is **always alone**, she can NOT demonstrate a specific life characteristic (can not do it).

→ Which life characteristic is that and mention two other life characteristics that she CAN demonstrate.



- 1p 2 Loeka has been sick for a while and has diarrhea.



The lab assistant looks at cells from Loeka's feces under the microscope. She sees different types of cells.

For example, a group of cells with **a nucleus**, but **no cell wall**.

→ What type of cells are the cells in this group?

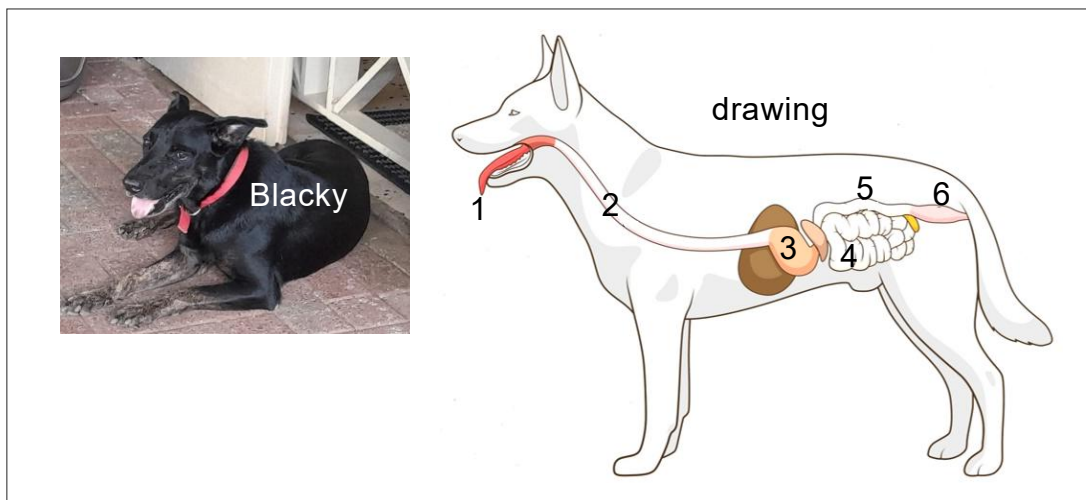
- A bacteria
- B animal-based cells
- C fungus cells
- D plant-based cells

- 1p 3 Loeka's food contained bacteria. These bacteria ended up alive in her intestines. As a result of this, Loeka got an infection in her intestines. The bacteria should actually have been killed in one of the organs after the oral cavity.

→ Which organ is that?

Blacky, Tisha's dog

- 2p 4 Below is a photo of Blacky, Tisha's dog. Tisha created the drawing of Blacky that is next to it. In her drawing she numbered six organs with numbers 1, 2, 3, 4, 5 and 6.



Blacky's digestive system has the same organs as the human digestive system. The numbers 1, 2, 3, 4, 5 and 6 indicate the sequence in which food passes through the digestive system.

→ Write down the numbers 1, 2, 3, 4, 5 and 6 for the corresponding organs of the digestive system. Do this in the work booklet.

- 1p 5 Tisha, Blacky's owner, is moving to The Netherlands. She is taking Blacky with her. In The Netherlands, the ambient temperature is lower than on Curaçao, which causes it to be cooler there.



→ Compared to Curaçao, what happens to the amount of combustion in Blacky's body?

In The Netherlands, the amount of combustion in Blacky's body will ...

- A become zero.
- B stay the same.
- C become greater.
- D become less.

- 2p 6 Part of the Blacky's teeth is shown in the picture to the right. Dogs, such as Blacky, are carnivores.

The work booklet contains two statements about the teeth of a carnivore. Each statement contains **choice words**.



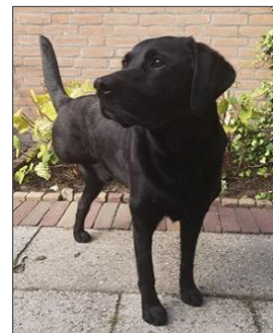
→ Underline the choice word in each statement that makes the statement become a **true statement**.

- 2p 7 Blacky only has three paws. Tisha is not sure if Blacky was born this way.

Just as every organism, Blacky has certain characteristics.

A characteristic of an organism can be:

- **hereditary**,
- an **environmental factor** or
- a **hereditary**, as well as **environmental factor** .



The table in the work booklet mentions characteristics which have to do with Blacky.

→ Write an X-mark next to each characteristic to indicate what applies to it: **hereditary** or **environmental factor**.

Write an X-mark for both **hereditary** and **environmental factor** if both are possible.

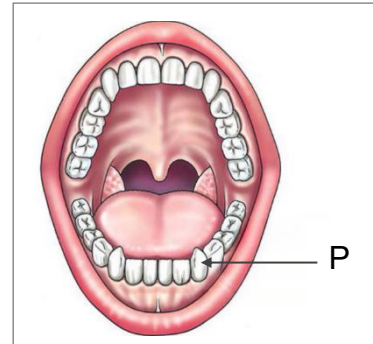
Teeth

- 1p 8 The teeth of a human are represented in the picture to the right. P points to a tooth.

The work booklet contains a sentence about the name and function of tooth P.

The sentence contains two groups of **choice words**.

→ Underline the correct **choice word** in each group.



- 2p 9 The table in the work booklet contains three statements about fluoride.

→ Write an X-mark next to each statement to indicate if it is **true** or **false**.

Nutrition

- 2p 10 The body needs minerals, such as fluoride.

Below are two statements about minerals the body needs. The names of the minerals have been omitted for (1) and (2) in the statements.

The mineral that is needed for a strong skeleton is ... **(1)** ...

The mineral that is needed for the production of red blood cells is ... **(2)** ...

→ Write down the two minerals that have been omitted for (1) and (2).

- 1p 11 Saliva is produced in the mouth. Saliva contains an enzyme. This enzyme starts the digestion of a certain nutrient from in the oral cavity.

→ Which nutrient is digested by this enzyme?

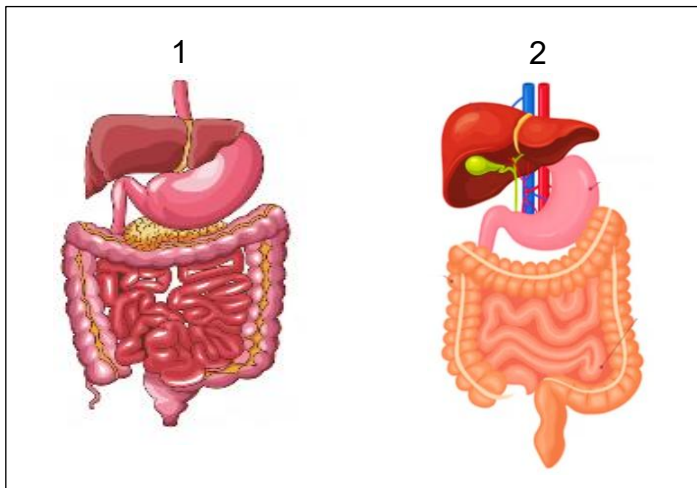
- A proteins
- B starch
- C minerals

- 3p 12 The table in the work booklet mentions three nutrients.

→ Write an X-mark next to each nutrient to indicate what function the nutrient has. More than 1 X-mark per row is possible.

The digestive system

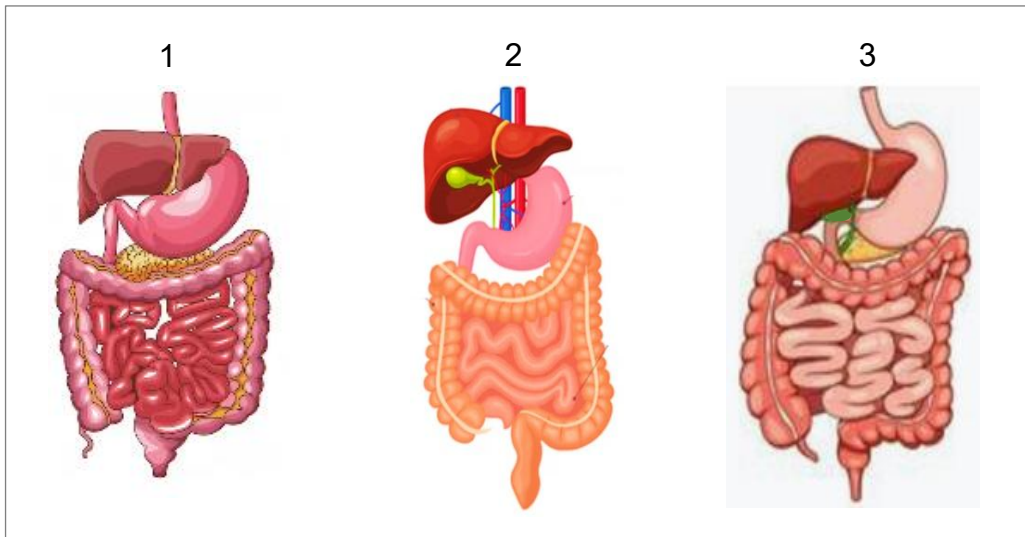
- 1p 13 Organs of the digestive system are represented in pictures 1 and 2 below.



→ In which picture(s) can both the **esophagus** and the **duodenum** be seen?

- A only in picture 1
- B only in picture 2
- C in both pictures.
- D in none of the two pictures.

1p 14 Organs of the digestive system are shown in the three pictures below.



→ In which picture or pictures are the **pancreas**, the **liver** and the **gall bladder** (all three) shown?

- A only in picture 1
- B only in picture 2
- C only in picture 3
- D in all three of the pictures

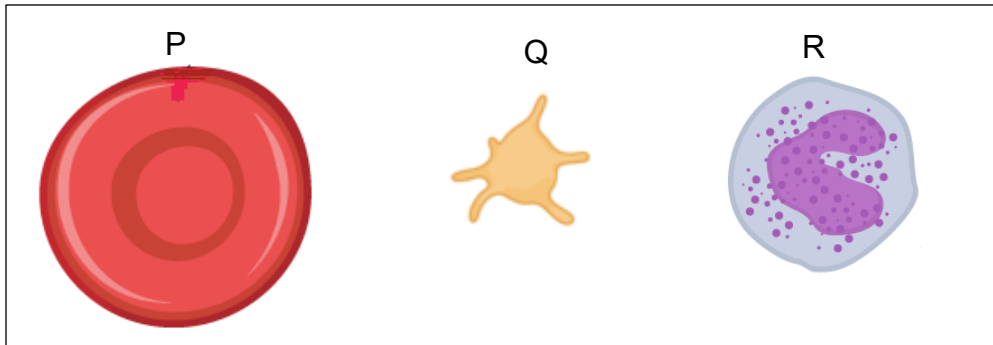
2p 15 The box below contains a sentence about digestion in the digestive system. Words have been omitted in the sentence for (1), (2) and (3).

The digestion of ... **(1)** ... begins in the oral cavity and goes to the stomach via the esophagus. The digestion of ... **(2)** ... begins in the stomach. The ... **(3)** ... ensure(s) that digestion takes place faster.

→ Write down the correct words for (1), (2) and (3).
Choose from: **proteins**, **enzymes**, **starch**, **fats**

Blood parts

- 2p 16 The pictures below show drawings of three blood parts P, Q and R.



→ Write down the names of parts P and Q, and write down the function of part R.

- 1p 17 Blood parts, such as white blood cells are made in a part of the bones.

→ In which part of the bones are white blood cells made?

- A in the bone cells
- B in the cartilage cells
- C in the yellow bone marrow
- D in the red bone marrow

Blood circulation

1p 18 The heart of a dog is part of the blood circulation in its body.

→ Complete the sentence correctly in the box below.

The heart of a dog ensures transport of blood with ...

- A oxygen to the lungs.
- B oxygen to the muscles.
- C waste matter to the liver.
- D waste matter to the rectum.

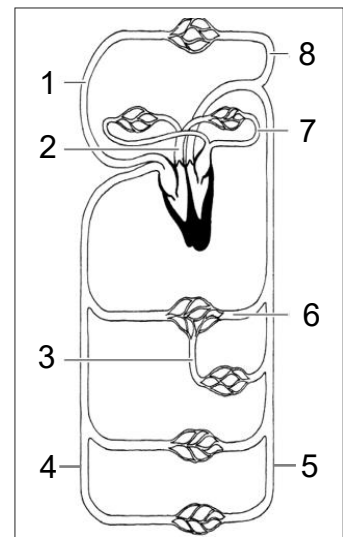
2p 19 The work booklet contains three statements about blood transport.

→ Write an X-mark next to each statement to indicate if it is **true** or **false**.

1p 20 The picture to the right shows a drawing of human blood circulation.

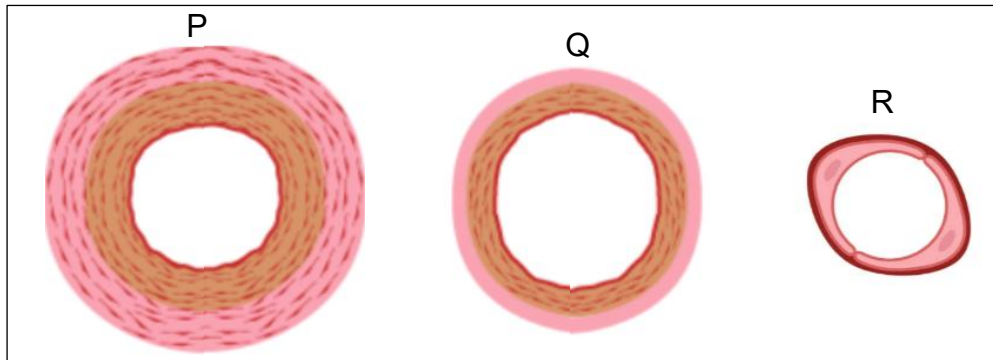
→ Which two numbers indicate blood vessels of the lesser circulation?

- A 1 and 8
- B 2 and 7
- C 3 and 6
- D 4 and 5



Blood vessels

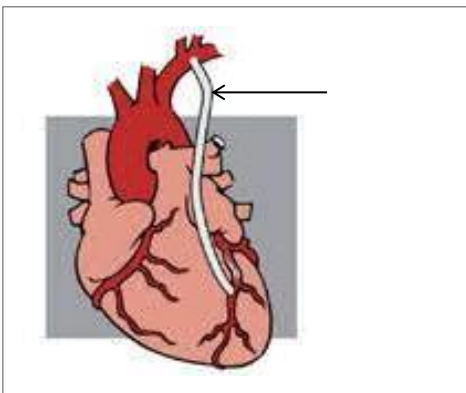
- 2p 21 Pictures P, Q and R show the cross-sections of three blood vessels below. Of a vein, of an artery and of a capillary.



The work booklet contains a statement about an artery with two groups of **choice words**.

→ Underline the choice word in each group that makes the statement become a **true statement**.

- 1p 22 A surgeon has performed a bypass surgery on a patient.



For this, he removed a piece of a blood vessel from another part of the body, to use it as a bypass.

The piece of blood vessel, which he used as a bypass, has valves.

→ Which of the following is a blood vessel with valves?

- A a mammary artery
- B a renal capillary
- C a leg vein

2p 23 Below is a description of the development of a heart attack.

The explanation contains three open spaces (1), (2) and (3).

In a heart attack, a ... **(1)** ... has become blocked. Because of this, part of the heart muscle no longer gets any ... **(2)** ... and ... **(3)** This part of the heart muscle then dies.

→ Write down the correct three words for (1), (2) and (3).

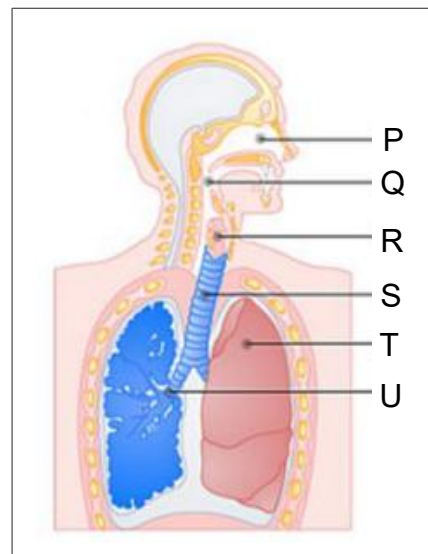
Choose from:

carbon dioxide, coronary vein, antibodies, coronary artery, nitrogen, nutrients and **oxygen**.

The respiratory tract

2p 24 The letters P, Q, R, S, T and U point to six organs in the picture to the right. They are the organs of the respiratory tract.

→ Write down the names of the organs P, Q, S and U.



1p 25 When a person has bronchitis, the mucous membranes in their airways are inflamed. This causes the person to cough. When coughing, a **mucous mass** is brought up through the trachea into the pharynx.

→ What is that **mucous mass** made up of?

A only of mucus

B only of mucus and dirt

C of mucus, dirt and disease-causing bacteria

2p 26 In a person with bronchitis, breathing is different than normal.
Below are two statements about this.

I. In bronchitis, the alveoli take up less oxygen than normal.

II. Bronchitis pollutes the air we breathe.

→ What applies to these statements?

A only I is true

B only II is true

C both I and II are true

D both I and II are false.

Regulation

1p 27 Ramilo is not able to pay attention long in class.
For this the doctor has prescribed a medication for him.
The medication is meant for a specific organ in Ramilo's body.

→ Which organ is that?

A the heart.

B the liver.

C the muscles.

D the brains.

1p 28 Humans and animals have reflexes. Three examples are:
a pupil reflex, a knee-jerk reflex and a swallowing reflex.

→ What is a reflex?

A reflex is ...

A a conscious, quick reaction.

B a NON-conscious, quick reaction.

C a way to not feel pain.

D a way to not make impulses.

2p 29 Read the following about the female mosquito.

When a female mosquito is hungry, she feeds herself with blood from another organism. She also needs the blood for reproduction. The scent that comes from the skin of an organism, helps the mosquito determine the correct direction. As soon as she gets to her target, she pierces the skin to suck up the blood.



Three events with the mosquito are mentioned in the table in the work booklet. To the mosquito, these events are stimuli. The stimulus can be: an **internal stimulus** or an **external stimulus**.

→ Write an X-mark next to each event to indicate if the stimulus is an **internal stimulus** or an **external stimulus**.

2p 30 Jenna is writing in the classroom.
The airconditioning is running too high and at a certain moment, it becomes too cold for Jenna.
Jenna feels cold.

The table in the work booklet contains four sentences about what happens when you say: "Jenna feels cold".
The sentences are not in the correct sequence.



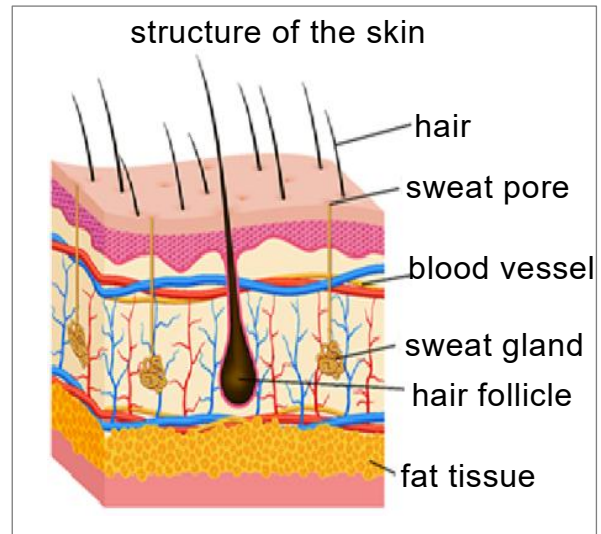
→ Indicate the correct sequence of events in the 'sequence number' column. Write down these numbers 1, 2 and 3 in the correct spaces.

Name and function of parts

- 2p 31 The structure of the skin is represented to the right.

Two functions of skin parts are:

- (1). Give nutrients and oxygen to the skin.
- (2). Cool off the skin.

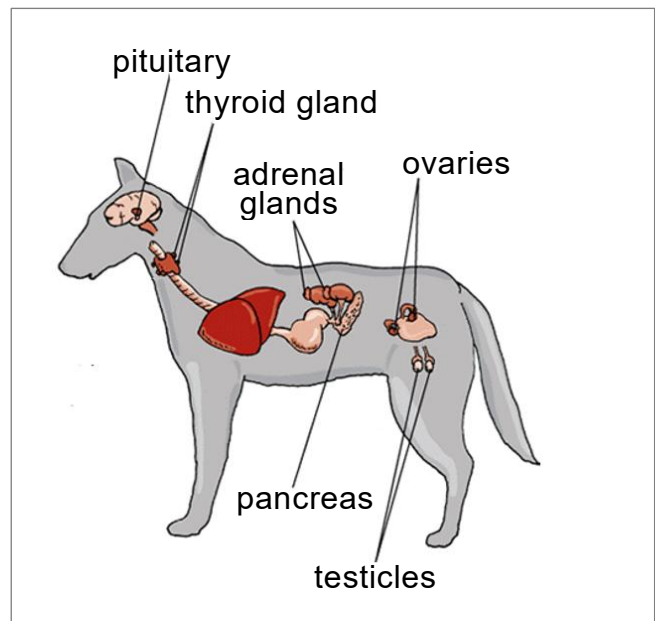


→ Write down the names of the two skin parts that carry out these two functions.

- 2p 32 Here to the right is a drawing of Lorenzo's dog.

Names of organs, such as **pancreas**, are indicated in this drawing.

The box below contains a sentence, in which two words have been omitted for (1) and (2).



The pancreas is part of the ... (1) ... **system** and the pancreas ensures the production of ... (2) ... so that the dog has a proper sugar level in the blood.

→ Write down the two words that have been omitted for (1) and (2).

The body

2p 33 Several developments take place during the stages of life of a human.

A few of these developments are mentioned in the table in the work booklet.

→ In which stage of life do these developments take place?
Write down the correct stages of life.

2p 34 Below you see the activities of three cousins, Jordan, Ruël and Yannick.

 Jordan	 Ruël	 Yannick
airco in room: 20°C	soccer on Curaçao: 30°C	soccer in The Netherlands 20°C

Jordan, gaming in an airconditioned room with 20° Celsius.

Ruël and Yannick playing soccer outside.

Ruël on Curaçao with 30° Celsius.

Yannick, in The Netherlands with 20° Celsius.

These three boys have been busy in this way for 30 minutes already.

The table in the work booklet contains statements about the energy consumption of these boys in those 30 minutes.

→ Write an X-mark next to each statement to indicate if it is **true** or **false**.

- 1p 35 The picture below shows three containers of urine which patients turned in at a lab.

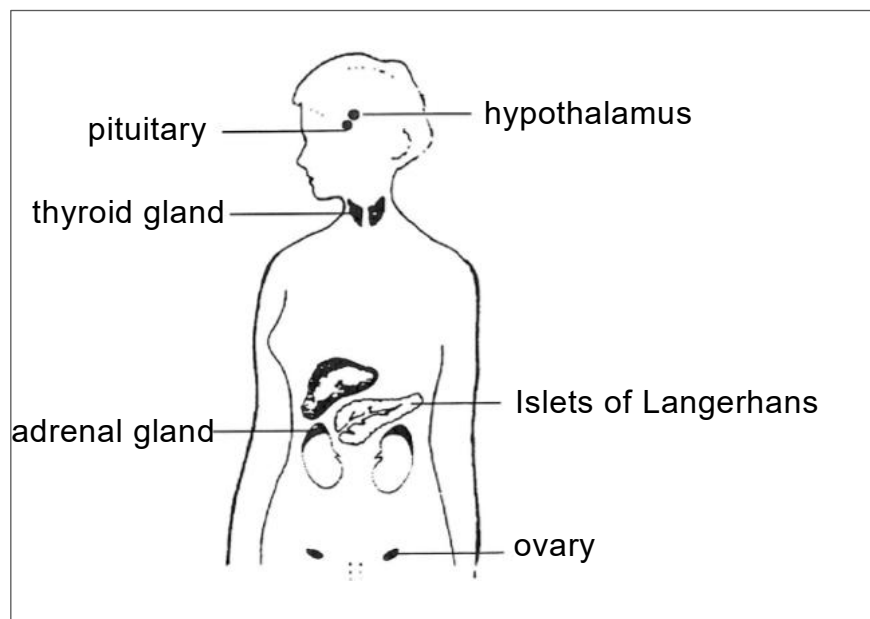


The color of the urine gives information about the person who the urine belongs to.

→ What **is** and what is **not** information that the color of the urine gives?
Write X-marks to indicate this in the table in the work booklet.

- 1p 36 Jessie's body weight has only increased recently.
After examination it appears that one of Jessie's hormone glands is not functioning properly. This causes the amount of combustion in her body to be/become less.

The image below shows hormone glands.



→ Which of Jessie's hormone glands is not functioning well?

Reproduction

- 2p 37 Andy and Gina are taking the same Biology classes. They are talking to each other about their homework on secondary sexual characteristics.

Two secondary sexual characteristics are the same in both of them.



→ Which two secondary sexual characteristics are those?

- 2p 38 Gina and Andy make several statements. Their statements are in the table in the work booklet.

→ Write an X-mark next to each statement to indicate if it is **true** or **false**.

- 1p 39 Dilation is the first stage of childbirth.

→ What comes out first?

- A the baby
- B the amniotic membrane
- C the amniotic fluid
- D the umbilical cord

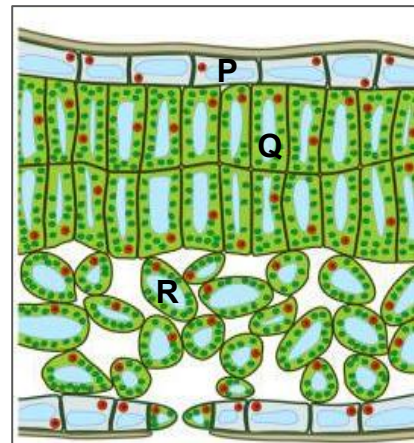
Plants

- 2p 40 A drawing of a cross-section of a leaf is shown to the right. Three types of cells appear in the drawing:

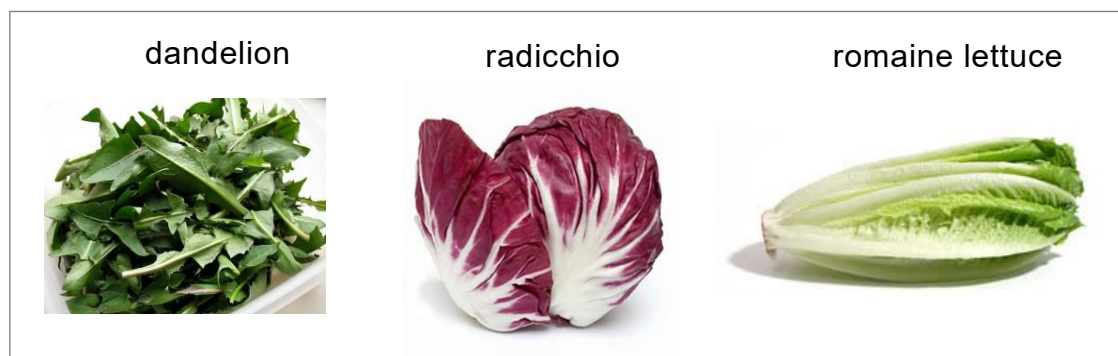
- The cell with letter P.
- The cell with letter Q.
- The cell with letter R.

The work booklet contains statements about these cells.

→ Write an X-mark next to each statement to indicate if it is **true** or **false**.



- 1p 41 For lettuce to grow, the plant must do photosynthesis. The pictures below show three types of lettuce.



When exposed to the same amount of sunlight, one of these three does the most photosynthesis.

→ Which and why?

- A Dandelion, because it is greener (darker).
- B Dandelion, because it is the only one with points.
- C Radicchio, because it is the most red.
- D Romaine lettuce, because it is flatter.

- 2p 42 The students of Teacher Lynch have conducted the following experiment:
Put living leaves in water with food coloring and let them stay that way for a day.
The picture to the right shows the result of their experiment.



Based on their experiment, they then filled in the open spaces (1), (2) and (3) in the sentence in the box below.

This experiment demonstrated that the leaf absorbs ... (1) ... , which is transported via the ... (2) ... to the ... (3)

→ Write down what should be filled in for (1), (2) and (3).

Choose from: **water, xylem vessels, stems, phloem vessels, cells, roots, energy-rich substances.**

- 1p 43 Four stages in the life cycle of a plant are:
germination, growth, bloom and death.

→ Which of these stages are shown in this picture?

- A only germination and bloom
- B only bloom and death
- C only growth and death
- D germination, growth and bloom



- 2p 44 Dispersal of seeds can take place in different ways. For example, dispersal via **the wind**, via **the fur of an animal** or via the **intestinal tract of an animal**.

Three types of seeds are shown below. A pegasaya plant seed, a kapok tree seed and a kinip fruit seed.



These three types of seeds are mentioned in the table in the work booklet.

→ Indicate for each type of seed how the dispersal takes place. Write X-marks.

Determination and classification

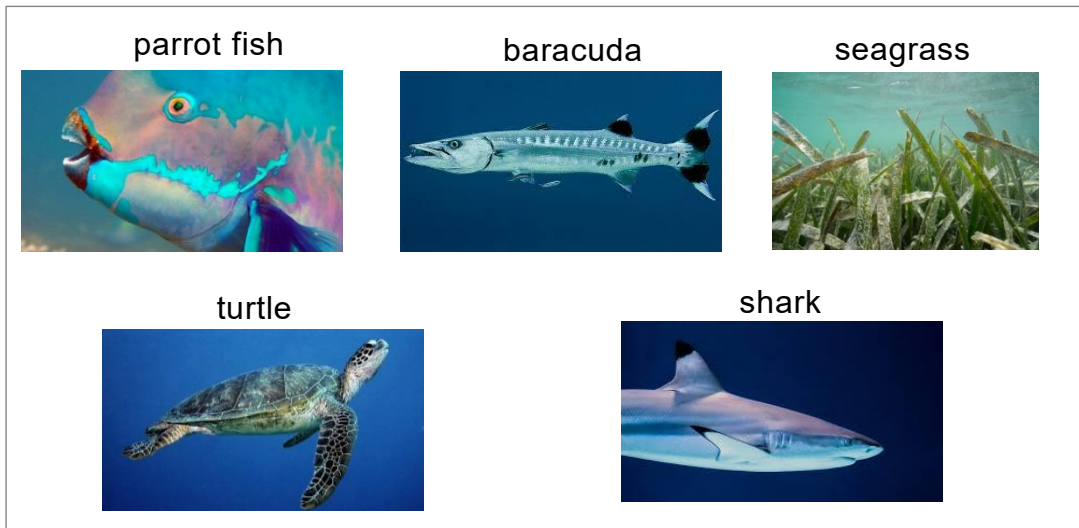
- 2p 45 The card below contains info about an animal in Sharnice's garden.

The animal has bald, leather-like skin and an internal skeleton.
The animal has 4 legs and it has dark stripes on its side.

The name of the animal is not stated. The appendix contains a search card. The search card contains step numbers, such as: **1a**, **1b** and **2a**.

→ What is the name of the animal?
Write down the step numbers in the correct sequence and the name of the animal.
Use the search card.

2p 46 Below are pictures of five organisms that live under water.



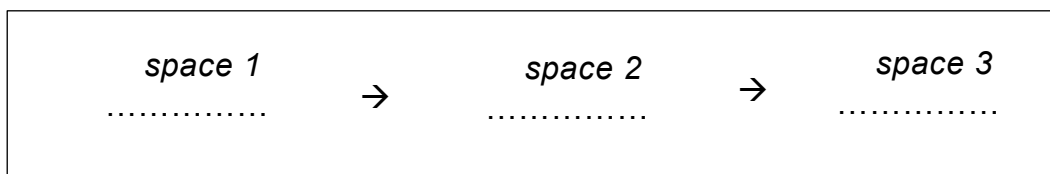
The parrot fish and the turtle are planteaters.

The work booklet contains a drawing of an incomplete food web.

→ Complete the food web correctly. Write down the names of the other four organisms in the correct places in the food web.

Ecosystems

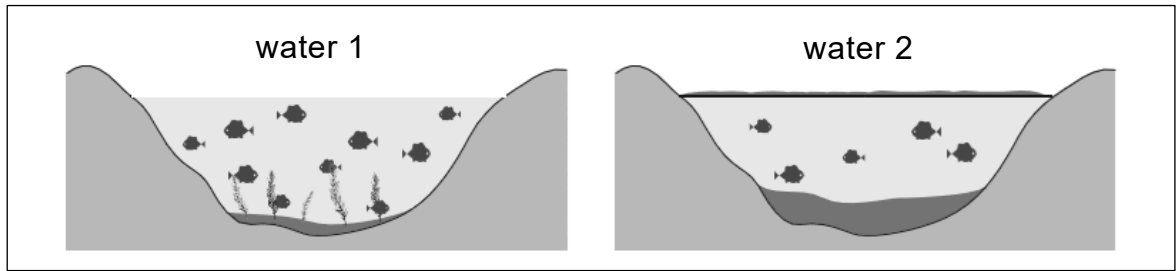
1p 47 Below is a drawing of an empty food chain.



→ In which space or spaces in this chain can an animal be placed?

- A** only in space 1
- B** only in space 2
- C** in spaces 1 and 2
- D** in spaces 2 and 3

1p 48 Drawings of two ecosystems are shown below, **water 1** and **water 2**.



Characteristics water 1

- Temperature of the water: 25 °C.
- Clear water with much oxygen.
- Several water plants grow there.
- More fishes than in water 2.

Characteristics water 2

- Temperature of the water: 25 °C.
- Water is always covered with floating leaves of a water plant.

→ Write down an abiotic factor why more fishes live in water 1 than in water 2.