



Exam VSBO PKL 2025

period 1
Wednesday May 21
7.30 -10.00

Biology

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

This exam comes with a work booklet.

Write down all answers in the work booklet.

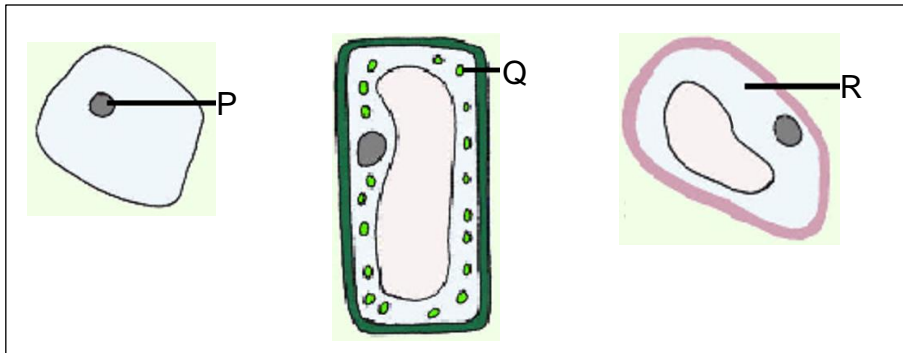
This exam consists of 48 questions.

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.

Cells

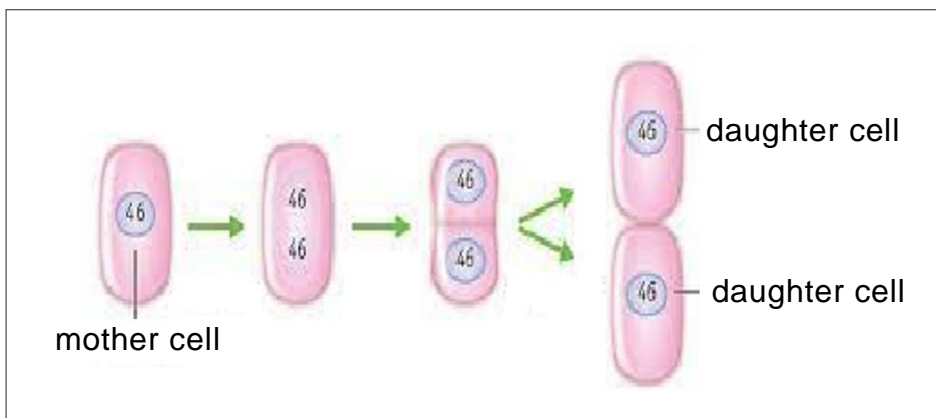
- 2p 1 Here below are drawings of three types of cells.



Letter P, Q and R each shows a part of the cell.

→ Which letter points to a cell nucleus and which letter points to cytoplasm?

- 1p 2 The picture below represents the division of a cell.



The cytoplasm has a function during cell division.

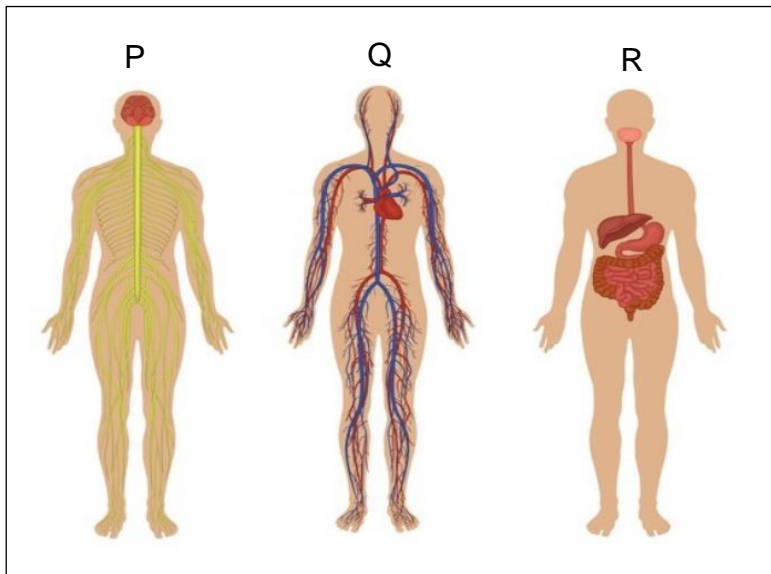
→ What function is that?

The cytoplasm

- A creates additional chromosomes.
- B makes a copy of the cell nucleus.
- C ensures the growth of the daughter cells.
- D splits the mother cell into two daughter cells.

Organ systems

- 2p 3 Below, three organ systems, P, Q and R are shown.

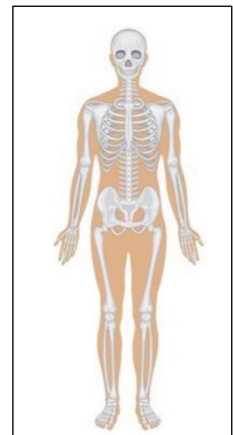


→ Write the names of these three organ systems in the work booklet.

- 2p 4 The picture to the right represents the skeletal system.

The table in the work booklet mentions functions of organ systems.

→ For each function, indicate whether it **is** or **is not** a function of the skeletal system. Use X-marks.



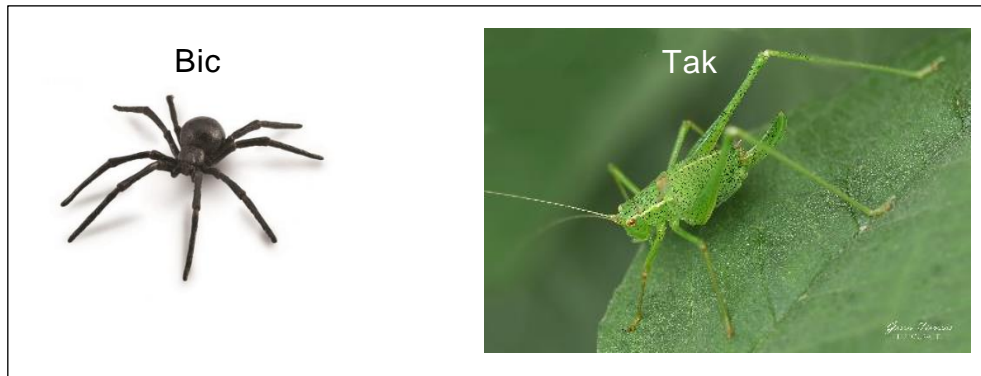
- 2p 5 The box below contains a sentence about the cooperation between two organ systems A and B. The names of these organ systems have been left out.

Organ system A gives impulses to organ system B so that the body can move.

→ What two organ systems are these? Write down the names.

Order

- 2p 6 The pictures below show Bic and Tak.



One of these two organisms is a spider and the other is an insect.

→ Which one, Bic or Tak, is the spider and which one is the insect, and why?

- 2p 7 The picture of Tak shows that it has adapted to its environment in more than one way.

→ Write down two adaptations shown in the picture.

Plants

- 2p 8 The prickly pear is a plant of the Caribbean. This plant has characteristics that show that the plant has adapted to the dry climate of the Caribbean.

The table in the work booklet mentions three characteristics of the plant.

→ For each characteristic, indicate whether it **is** or **is not** an adaptation to the dry climate. Use X-marks.



1p 9 One form in which the prickly pear has adapted is having few stomata.

→ What is the advantage of having few stomata?

- A get more sunlight
- B get less sunlight
- C more evaporation of water
- D less evaporation of water

2p 10 To the right is a picture of a cassava plant.
This picture shows different parts of the plant.

→ What parts are those?
Write down **the correct** names.



1p 11 Certain parts of a seed plant, such as the cassava plant, serve as nutrients for humans.

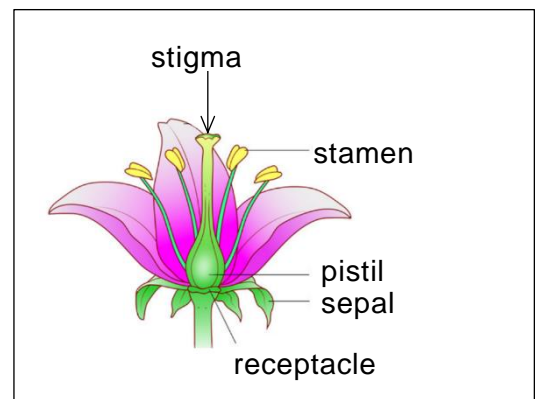
→ Which part of the cassava plant provides **starch** as a nutrient for humans?

- A the leaves
- B the flowers
- C the stem
- D the roots

1p 12 To the right you see a drawing of a flower. One of the parts of the flower is the stigma.

→ What is the stigma needed for?
The stigma is needed for the ...

- A color of the plant.
- B pollination of the plant.
- C photosynthesis of the plant.
- D gas exchange of the plant.



2p 13 The root of a plant is of great importance for the survival of the plant.

In the table in the work booklet, four statements are made about the functions of the root of the plant.

→ For each function, indicate whether it **is** or **is not** a function of the skeletal system. Use X-marks.

1p 14 A plant transports water, glucose and minerals.
Transport takes place through xylem vessels and through phloem vessels.
There is transport upward from the roots and there is transport downward from the leaves.

→ What applies to the transport of water with glucose through a plant?

Water with glucose goes via ...

- A phloem vessels upward to the leaves.
- B xylem vessels upward to the leaves.
- C phloem vessels downward to the roots.
- D xylem vessels downward to the roots.

2p 15 In the leaves of a plant there are stomata.
Below are two statements about how a stoma behaves.

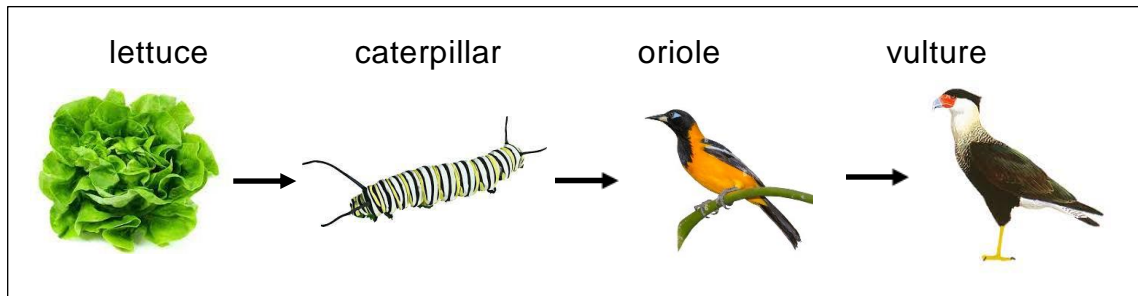
- I. During the day, the leaf collects the necessary ... **(1)** ... through the stomata, which is used for photosynthesis.
- II. When it is dark, the stomata are ... **(2)** ... to prevent ... **(3)**

The following list of words is given: **oxygen, closed, combustion, transport, carbon dioxide, sunlight, open, evaporation**

→ Which three words must be filled in at (1), (2) and (3) to make these statements true statements?

Ecology

- 2p 16 A food chain is represented in the picture below.



In the work booklet, there are two statements about the vulture.
In each statement there are **choice words**.

→ In each statement, underline the **choice word** that makes the statement a true statement.

- 1p 17 Read the text below about the Christoffel Park Curaçao and the deer.

The Curaçao deer is found in the Christoffel Park. During the dry period, these deer come to drink water at the water troughs of the Savonet Plantation House. Deer are herbivores.

During a long dry period, many trees have fewer leaves, which causes the deer to have less food to eat. The deer is then weaker, which makes it more likely to die from a bacterial infection.



Below are four statements about this text and about biotic and abiotic factors.

Only one of these statements is true.

→ Which statement is that?

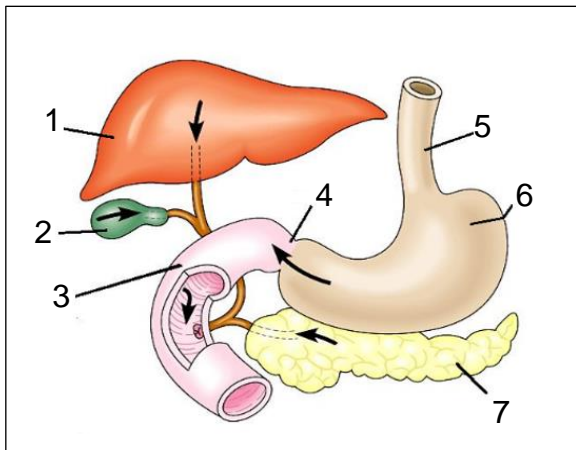
- A The water is a biotic factor.
- B The Curaçao deer is a biotic factor.
- C The tree is an abiotic factor.
- D The bacteria is an abiotic factor.

Food and digestion

- 2p 18 In the table in the work booklet, three statements about functions of the digestive system are listed.

→ At each statement, indicate whether the statement is **true** or **false**.
Use X-marks.

- 2p 19 In the picture below, organs of the digestive system are represented. They are numbered 1 through 7.



In the table in the work booklet, the gallbladder, the liver and the pancreas are listed.

→ Which numbers are used in the picture to indicate these three organs?
Fill in the correct numbers.

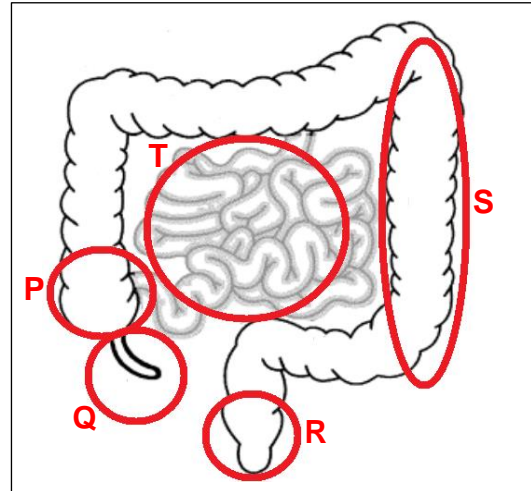
- 1p 20 Five parts of the intestines, P, Q, R, S and T, are circled in red in the picture to the right.

Nageli has an appendix infection. In an appendix infection, one of the circled parts is inflamed.

→ Which part is that?

The part in circle ...

- A P.
- B Q.
- C R.
- D S.
- E T.



- 1p 21 Elfried, the grandfather of Nageli, was operated on urgently. The surgeon had to remove both his gallbladder and his bile duct.

→ What is the consequence for Elfried now that he no longer has a gallbladder?



Because Elfried no longer has a gallbladder, he will ...

- A digest less fat.
- B digest less sugar.
- C digest less proteins.
- D digest less fibers.

- 2p 22 Nageli gets diarrhea when she drinks cow's milk. When someone gets diarrhea, the intestines do not work properly. The work booklet contains a sentence with two groups of **choice words**. The sentence must tell what is wrong with the intestines.

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

- 2p 23 Nageli drinks little milk and therefore does not get certain minerals, such as calcium.
Elfried, Nageli's grandfather, eats few high-fat foods.

Below are two statements about the function of nutrients for humans. In each statement, two words have been omitted.

I: Calcium is a ... (1) ... that is necessary for ... (2)

II: Fat is a ... (3) ... that is necessary for ... (4)

Choice words given are:

building material, fuel, combustion and **strong bones**.

→ In the work booklet, make each statement a true statement.
Do so by filling in the four choice words in the correct places.

- 1p 24 One function of fat is to provide energy.
Elfried now eats less fat. In order to still get enough energy from his diet, he now has to eat a larger amount of other nutrients.

→ Instead of fat, write down another **nutrient**, that Elfried can eat for this result.

- 1p 25 Plant-based products contain dietary fiber. For years Elfried has eaten few plant-based products, such as vegetables and fruit. Elfried eats almost only animal products such as butter, cheese, eggs and meat. This eating habit of Elfried has a great chance of having a certain effect.

→ Which effect is that?

The effect that Elfried will have problems with his ...

- A liver.
- B intestines.
- C pancreas.
- D oral cavity.

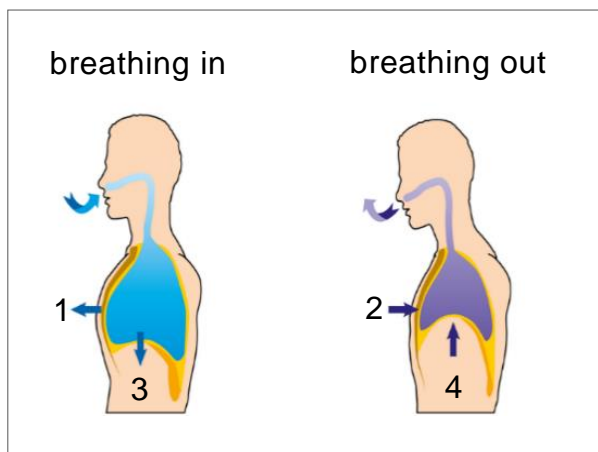
Respiration

- 2p 26 Smoking is an addiction that has bad consequences for the smoker. An example of such a bad consequence is developing a condition such as lung cancer.

In the table in the work booklet, three other conditions that a person can develop are listed.

→ Indicate which other condition people **do** and which they **do not** develop as a result of smoking. Use X-marks.

- 1p 27 The picture below is about the movements of the diaphragm and ribs during respiration.



Arrows 1 and 2 indicate in which direction the ribs move.

Arrows 3 and 4 indicate in which direction the diaphragm moves.

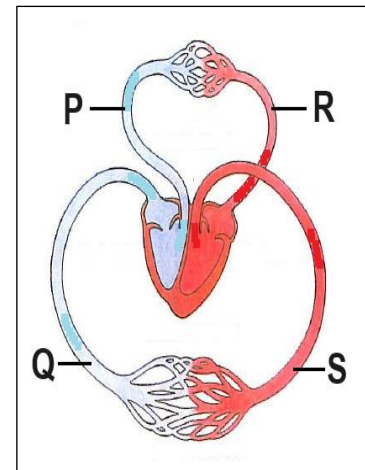
The work booklet contains two statements. One about the intercostal muscles and one about the diaphragm muscles. Both statements must yet be completed.

→ Complete the two statements correctly. Fill in: **tense** or **relaxed**.

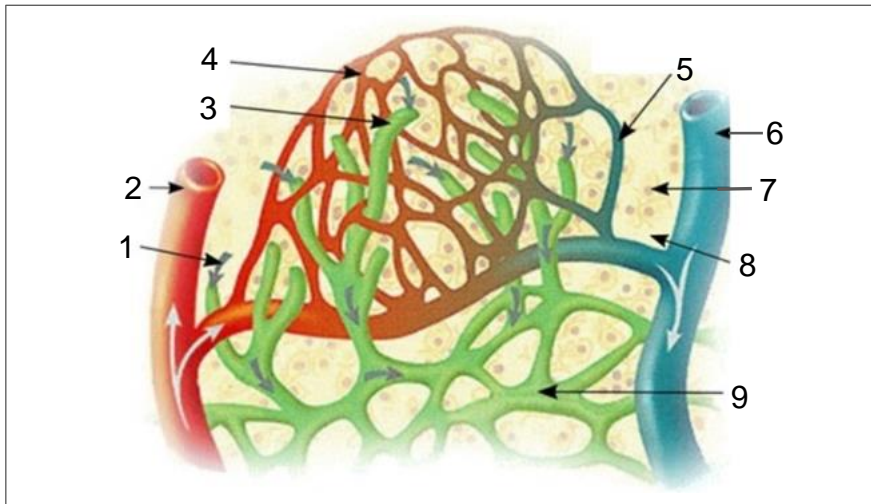
Circulation

- 2p 28 The image on the right illustrates blood circulation. Letters P, Q, R, and S points to different blood vessels.

→ In the work booklet, write down the names of these blood vessels.



- 2p 29 The picture below represents a part of an arm muscle.



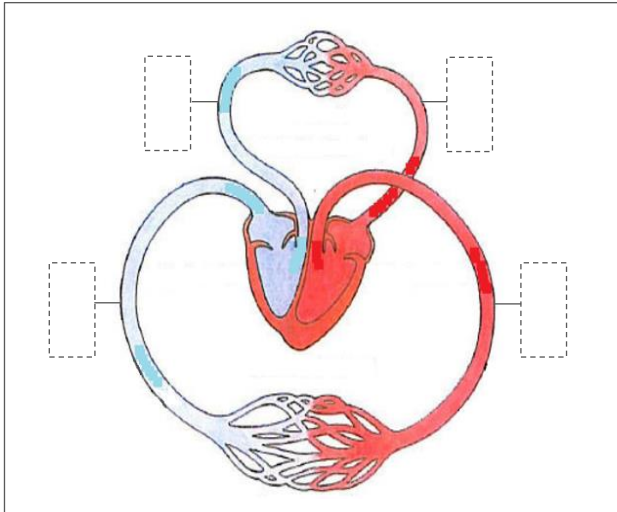
Blood vessels, capillaries, and lymphatic vessels, which are colored red, green, and blue, run through the organ. The colors red and blue have to do with the amount of oxygen in the blood vessel.

The numbers 1 through 9 each point to a part of this organ.

In the table in the work booklet, three parts are mentioned.

→ Which numbers points to these parts? In the table, write the corresponding numbers. You are allowed to write more than one number to a part.

2p **30** The picture below shows a schematic representation of blood circulation.



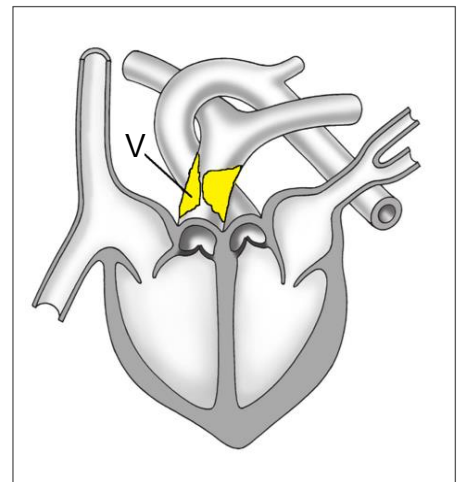
A dotted rectangle is drawn next to each blood vessel. Alicia draws an upward arrow (↑) or a downward arrow (↓) in each rectangle. The drawn arrows indicate the direction of blood flow through the blood vessel.

→ In the work booklet, draw Alicia's four arrows in the correct directions.

1p **31** After a medical examination of Alicia, it turns out that she has a blocked blood vessel. In the picture to the right, letter V point to the blockage.

→ Which of Alicia's blood vessels is blocked?

- A** the aorta
- B** the pulmonary artery
- C** the coronary artery
- D** the cerebral artery



Protection

- 1p 32 Nageli is going on vacation to the tropical rainforest in Brazil. Before her departure, she will receive a vaccination so that antibodies against yellow fever are produced in her body.

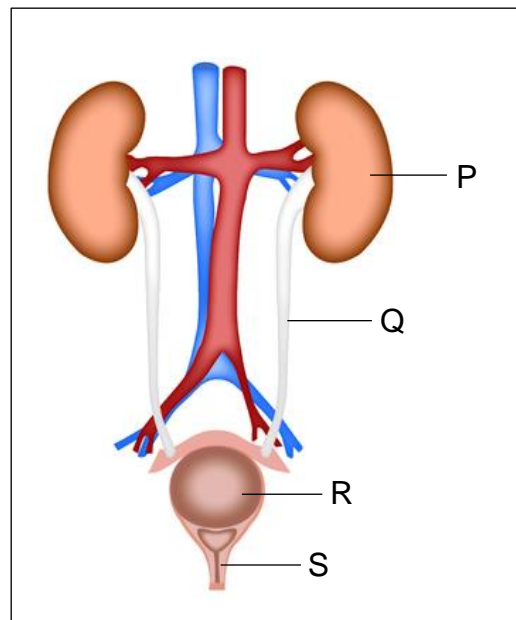
The work booklet contains a statement about vaccination. The statement contains **choice words**.



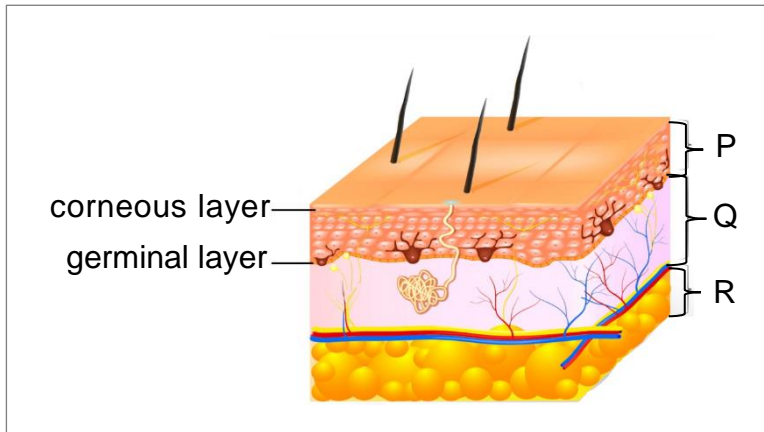
→ In the work booklet, underline the **choice word** that makes the statement a true statement.

- 2p 33 To the right, the letters P, Q, R and S point to four organs in the picture. One of these organs removes waste products from the blood.

→ Which organ is that? Write down the correct letter and name.



- 2p 34 The picture below shows a drawing of the skin. In the drawing, the skin is divided into three layers, P, Q and R.



→ In the work booklet, write down the names of the layers P, Q and R.

- 2p 35 In the picture at question number 34, the corneous layer and the germinal layer are parts of layer P.

The table in the work booklet contains three statements about layer P.

→ At each statement, indicate whether it is **true** or **false**. Use X-marks.

Regulation

- 2p 36 Joshua feels something strange on his jeans pocket. He immediately turns around and sees a man walking away. Afterward he notices that his phone is gone.



The work booklet contains two statements about Joshua and stimuli. There are **choice words** in each statement.

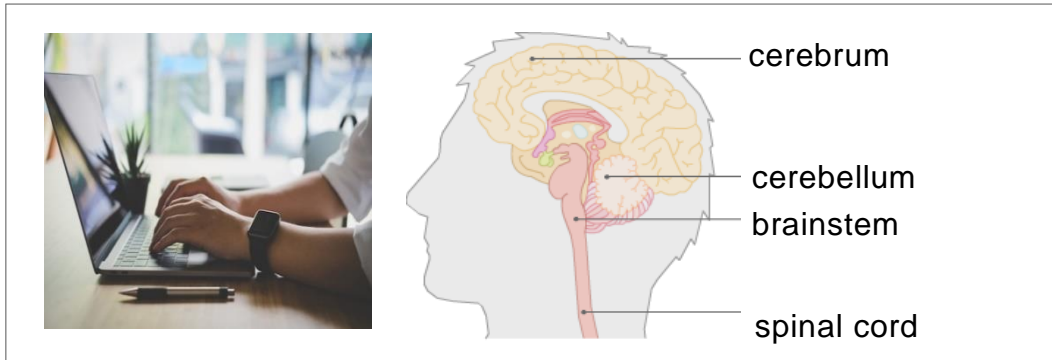
→ In each statement, underline the **choice word** that makes the statement true.

- 2p 37 Two types of nerve cells are:
sensory nerve cells and **motor nerve cells**.

The table in the work booklet mentions three actions by Joshua.

→ At each action, indicate which nerve cell or nerve cells are used in that action. Use X-marks.

- 1p 38 Darsinio is typing an email. The picture below shows the four parts of the central nervous system.



A part or parts of the central nervous system are active while typing.

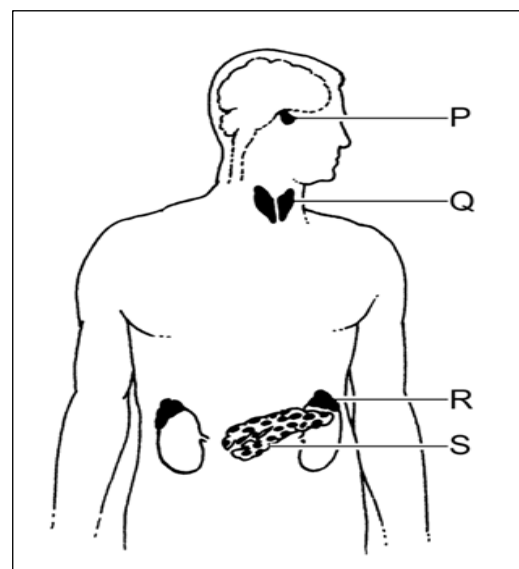
→ Which part or parts are those?

- A only the cerebrum
- B only the cerebrum and the cerebellum
- C only the cerebrum and the cerebellum and the brainstem
- D the cerebrum and the cerebellum, the brainstem and the spinal cord

- 2p 39 In the picture to the right, the letters P, Q, R and S point to endocrine glands.

The table in the work booklet contains statements about these endocrine glands.

→ At each statement, indicate whether the statement is **true** or **false**. Use X-marks.

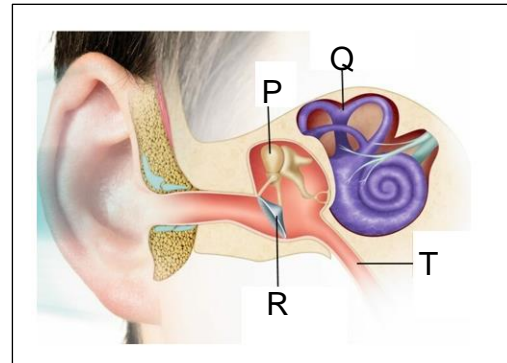


Senses

- 2p **40** In the picture to the right, the letters P, Q, R and T point to four parts of the ear.

The table in the work booklet mentions six parts of the ear.

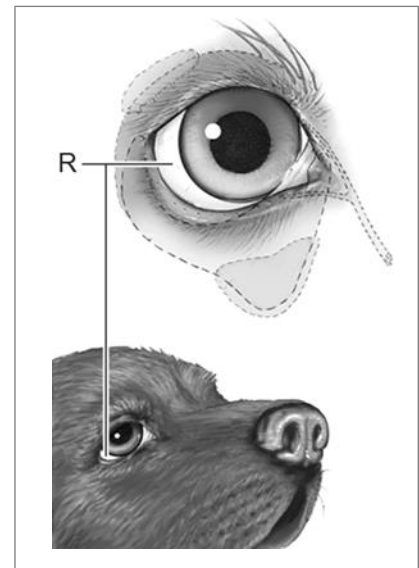
→ Write the letters P, Q, R and T next to the corresponding parts. Two boxes remain empty.



- 1p **41** In the picture to the right, the letter R points to the sclera of the eye of the dog Tauro.

→ What is the function of the sclera?

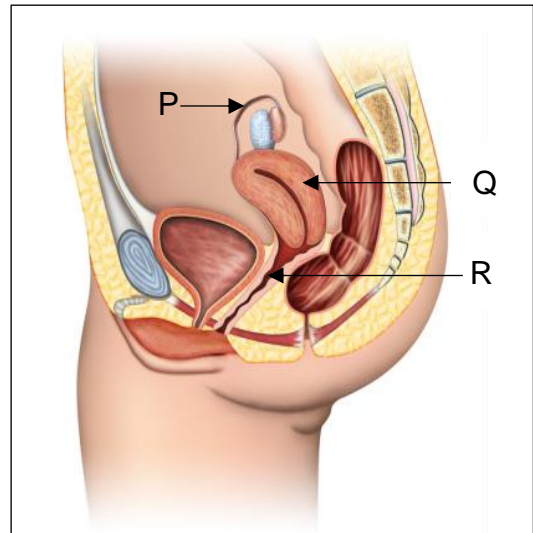
- A** Keep drops of sweat out of the eye.
- B** Produce tears for the eye.
- C** Give strength to the eye.
- D** Spread tear fluid over the eye.



Reproduction

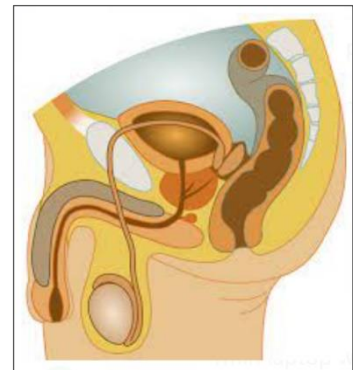
- 2p 42 The picture to the right shows the female reproductive system. The letters P, Q, and R point to three parts of the system.

→ In the work booklet, write down the names of parts P, Q and R.



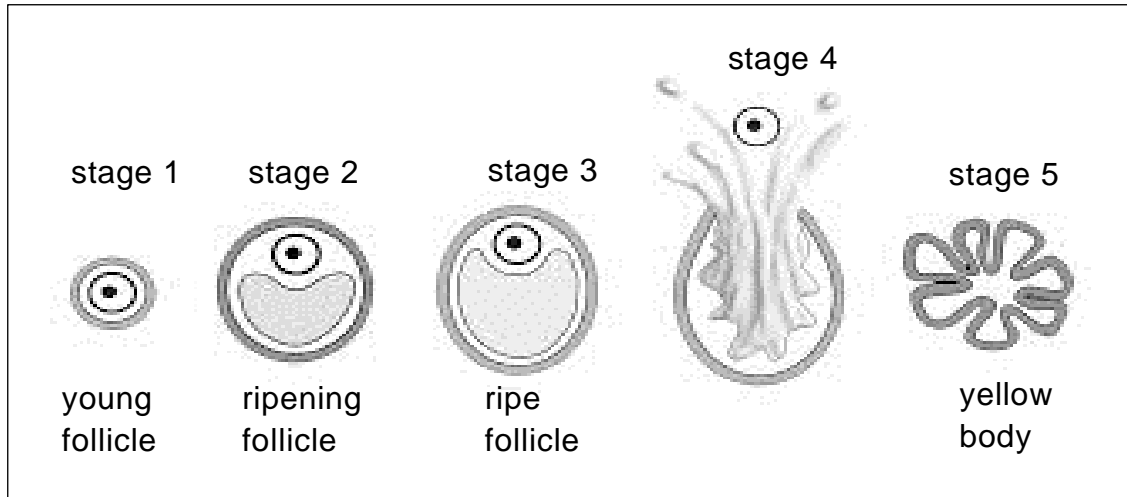
- 2p 43 During ejaculation, sperm cells leave the epididymis. These sperm cells go outside. Three parts that these sperm cells first pass through are:
the urethra, the sperm duct and the prostate.

There is a diagram in the work booklet.



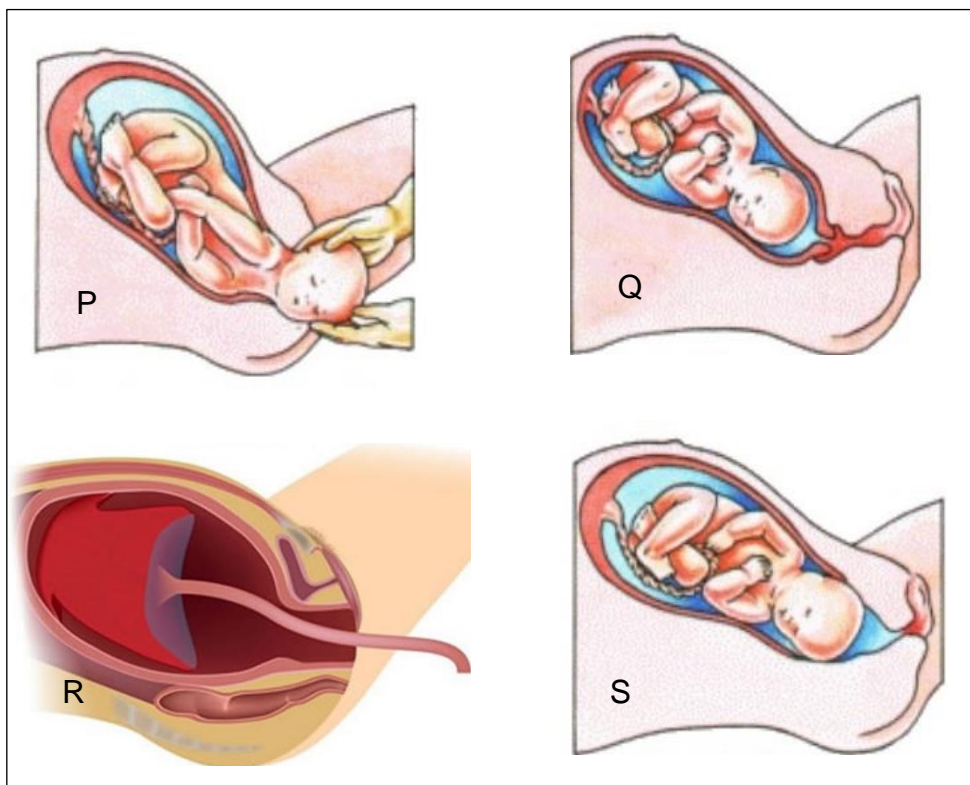
→ In what order do the sperm cells pass through these three parts?
Write down the correct order in the work booklet.

- 1p 44 The picture below shows five stages of the ripening and the further development of a follicle.



→ What is stage 4 called?

- 1p 45 Altogether, pictures P, Q, R and S below show a part of a pregnancy, the delivery.



The pictures are placed next to each other in random order.

→ In the work booklet, indicate the correct order of the delivery.
Fill in the letters in the correct places.

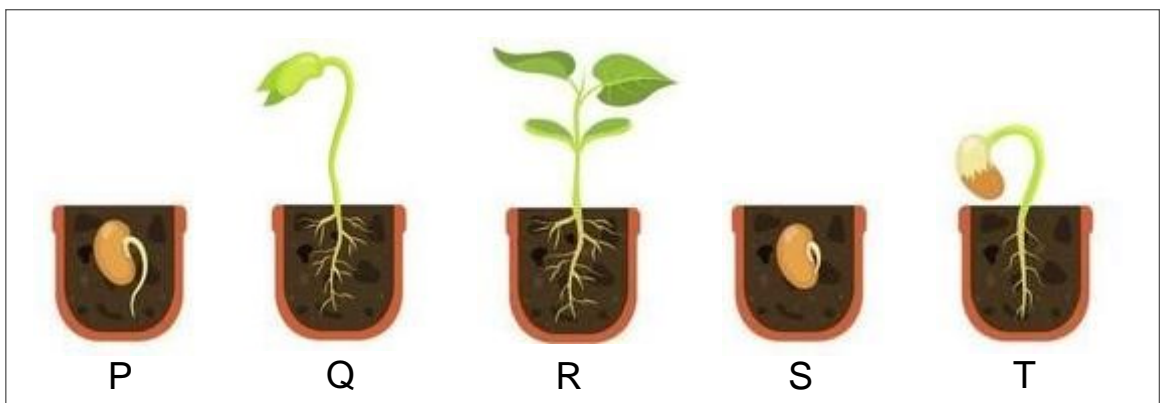
- 1p 46 Below are two statements about the Nuvaring.
- I. Nuvaring ensures that NO ovulation takes place.
- II. Nuvaring releases sex hormones into the blood.
- What applies to these statements?

- A only statement I is correct
- B only statement II is correct
- C statements I and II are both correct
- D statements I and II are both incorrect



Reproduction in plants

- 1p 47 The picture below shows part of the life cycle of a seed plant in five stages, P, Q, R, S, and T.

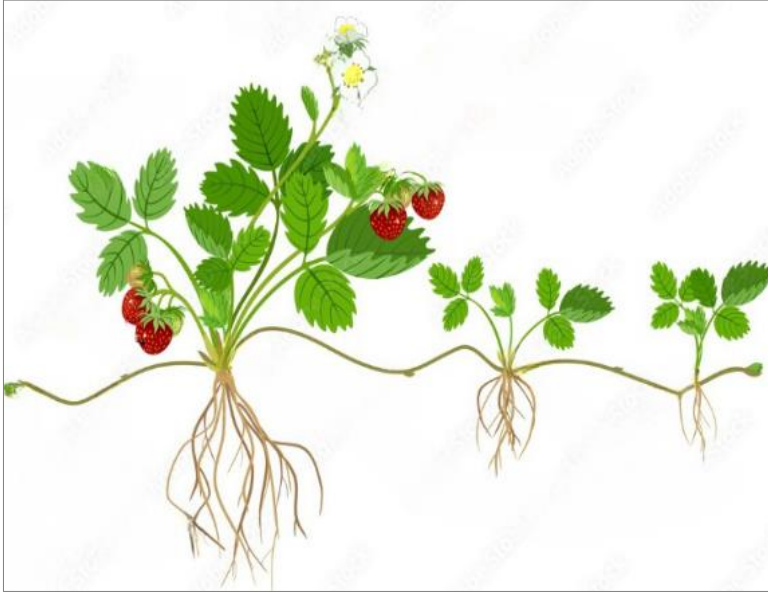


These pictures are NOT in the correct order of the germination process.

→ In the work booklet, indicate the correct order of the germination process. Fill in the letters in the correct order.

..... → → → →

1p 48 The picture below shows how a plant reproduces asexually.



→ Which form of asexual reproduction does this picture show?

- A tubers
- B cuttings
- C runners
- D rhizomes