Biology

Delprov A1

engelsk version

ÅRSKURS 9

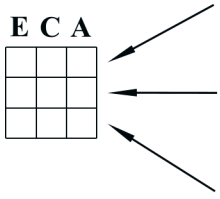
Elevens namn och klass/grupp

Skolverket

NATIONAL TEST IN BIOLOGY
2019

The national test gives you a chance to show what you know about biology.
On the right of each question you will find a symbol that tells you which of three abilities you can demonstrate in your answer.

The rows in the symbol describe these different abilities.



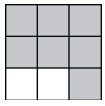
The ability to use knowledge of biology to examine information, communicate and take a view on questions concerning health, natural resource use and ecological sustainability.

The ability to carry out systematic investigation in biology.

The ability to use concepts of biology, its models and theories to describe and explain biological relationships in the human body, nature and society.

For each row you will be able to show your knowledge at three different levels: E, C and A.

For example, the table on the right indicates that the question allows you to show that you can use concepts of biology, its models and theories to describe and explain biological relationships in the human body, nature and society at level E and C.



Your answers to the questions should be clearly written so that other persons can read your text and understand your meaning. Therefore it is important that you show all your work.

Time allowed: 75 minutes

Name: _____

School: _____ Class: _____

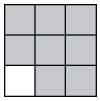
Date of Birth: Year _____ Month _____ Day _____

Your answers must be written on separate sheets of paper. The question paper must be returned to your teacher together with your answers.

1. Photosynthesis and cellular respiration are two chemical reactions in all green plants.

In the two boxes below are six statements A–F about photosynthesis and cellular respiration.

Each box has a correct statement. Choose one correct statement from each box.

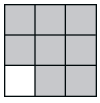


Box 1
- **A.** Photosynthesis occurs only when it is light.
- **B.** Photosynthesis occurs only when it is dark.
- **C.** Photosynthesis occurs both when it is light and dark.

Box 2
- **D.** Cellular respiration occurs only when it is light.
- **E.** Cellular respiration occurs only when it is dark.
- **F.** Cellular respiration occurs both when it is light and dark.

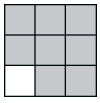
2. A human pregnancy lasts approximately 40 weeks. In the beginning of the pregnancy, a placenta is formed connected to the foetus through an umbilical cord.

State a function of the placenta.



3. Eutrophication is an environmental problem causing, for example, an increase of vegetation in lakes.

One of the alternatives A–D describes a reason for eutrophication. Which one?



- **A.** Release of oil from boats.
- **B.** Release of nutrients from yards.
- **C.** Release of Sulphur dioxide from industries.
- **D.** Release of Carbon dioxide from cars.

4. During the 1920s, all wolves were extinct in the Yellowstone national park in the US. In 1995, wolves were reintroduced to the national park.

Researchers then studied how the wolves made an impact on the ecosystem of the national park. Researchers found, for example, more small birds in the national park.

Before 1995

- No wolves
- Many red deer
- Few bushes and broadleaved trees
- Few small birds

After 1995

- Many wolves
- Few red deer
- Many bushes and broadleaved trees
- Many small birds

Wolves – carnivores 

Red deer – herbivores 

Bushes and broadleaved trees 

Small birds – seedeaters 

Use your knowledge about food chains to explain why there were more small birds in the national park after the wolves were reintroduced.

5. Some genetic diseases depend on recessive alleles on the X chromosome.

Boy

Sex chromosomes X Y

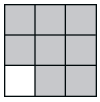
Girl

Sex chromosomes X X

Explain why diseases caused by recessive alleles on the X chromosome are more common for boys.

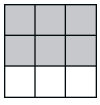
6. During the 1850s, the nurse Florence Nightingale worked at a military hospital. Florence taught the staff that it was important to wash their hands between each visit with patients. This led to a decrease in patient mortality.

Explain why patient mortality decreased when the staff washed the hands between each visit with patients.



7. Regular pulse-increasing activity, for example biking to school, gives a stronger heart and an increased blood volume in the body. This leads to improved physical condition.

Explain why the physical condition is improved by



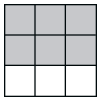
- a stronger heart

  and

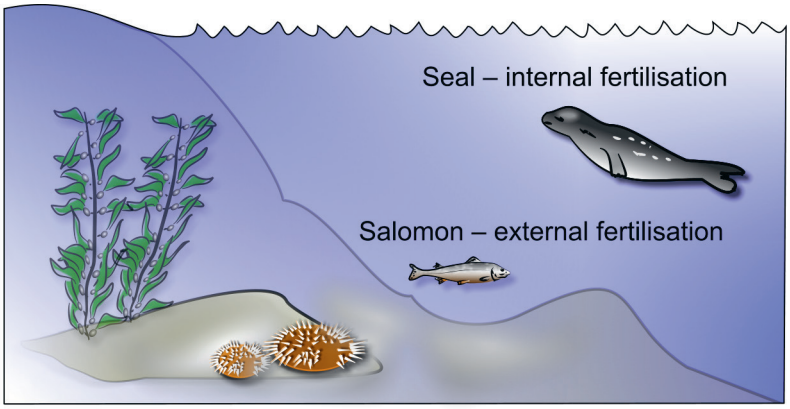
- an increased blood volume in the body.

8. About 10 000 years ago, humans started to farm crops that consist of a large amount of starch, for example wheat. In human saliva there is an enzyme which breaks down starch into sugar. The human body´s ability to break down starch has developed through evolution.

Explain how the human body's ability to break down starch may have developed through evolution. In your explanation, start from the four concepts: genetic diversity, natural selection, genetics, and time.



9. Reproduction can happen through external fertilisation or internal fertilisation. Several fishes, for example salmon, have external fertilisation which means that the egg is fertilised outside of the female's body. Seals have internal fertilisation which means that the egg is fertilised inside the female's body.

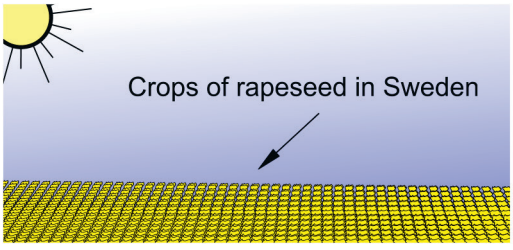


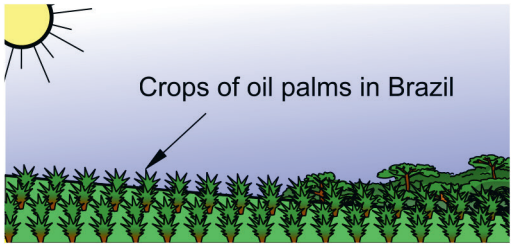
- State one advantage and one disadvantage of external fertilisation. Explain in which way this is an advantage and a disadvantage for the species.

  or

- State one advantage and one disadvantage of internal fertilisation. Explain in which way this is an advantage and a disadvantage for the species.

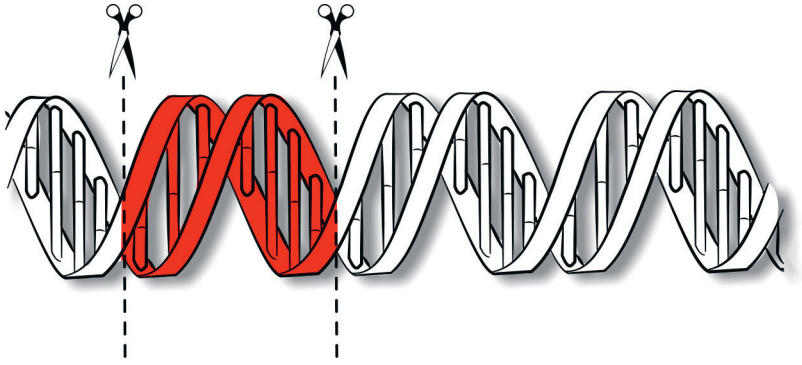
10. Vegetable oils are found in many products we use every day, for example in foodstuff and cosmetics. Rapeseed oil and palm oil are examples of vegetable oils. To handle the growing demand for vegetable oils, larger crops of rapeseed and oil palms are needed.





Reason about two effects in two steps that larger crops of rapeseed and oil palms can have on the environment.

11. Within gene technology, there are methods to change or add genes to the DNA molecule.



a) Within the food industry, gene technology is used to change or add genes to the DNA molecule in, for example, plants. Give one example.

b) Explain how the use of gene technology to change or add genes to the DNA molecule can influence the living conditions

- of the individual

  and

- from a larger societal perspective.

UMEÅ UNIVERSITET

Institutionen för tillämpad utbildningsvetenskap