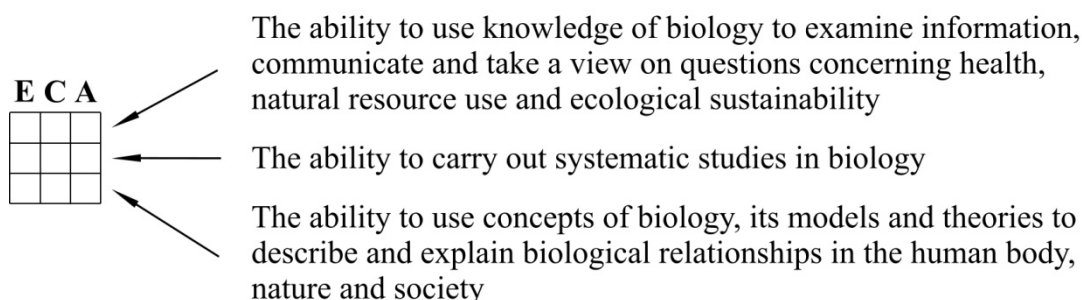


This test will be re-used and is therefore protected by Chapter 17 paragraph 4 of the Official Secrets Act. The intention is for this test to be re-used until 2013-06-30.

NATIONAL TEST IN BIOLOGY 2013

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.



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 _____

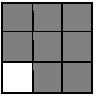
Girl

Boy

Your answers must be written on separate sheets of paper, NOT on the question paper. The question paper must be returned to your teacher together with your answers.

1. During the history of Earth and life, there have been several big changes.

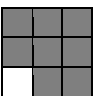
Which one of the alternatives **A-D** describes the time order of the changes?



- A. Oxygen was produced → Photosynthesis evolved → Life was established on land
 - B. Photosynthesis evolved → Life was established on land → Oxygen was produced
 - C. Oxygen was produced → Life was established on land → Photosynthesis evolved
 - D. Photosynthesis evolved → Oxygen was produced → Life was established on land
2. During running, the body's leg muscles are working. Co-operation with other organs in the body is necessary for the muscles in the leg to function.

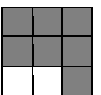


- a) Give an example of **one** organ in the body and **describe** how this organ contributes to the function of the leg muscles.

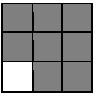


If the muscles are going to function, there is combustion (cellular respiration) in the cells.

- b) Explain what is needed for the combustion and what is produced from it.

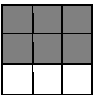


3. Match each disease **A-D** with the right description **1-4**.



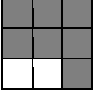
- A. Chlamydia** **1.** Caused by virus. Often free from symptoms for many years, but the immune system is weakened. There is no treatment to cure, but there are medical drugs that keep the level of viruses on a low level.
- B. AIDS** **2.** Caused by bacteria. Often no symptoms, but it can smart when urinating. Treated with antibiotics.
- C. Gonorrhoea** **3.** Caused by virus. Symptoms are warts close to the genitals. There is no treatment for cure, but it is possible to freeze or burn the warts. It is also possible to use vaccine against some types of viruses.
- D. Condyloma** **4.** Caused by bacteria. Symptoms with yellowish, bad smelling leucorrhoea, smarting pain when urinating and pain in the throat. Treated with antibiotics.

4. Dimples in the cheeks are caused by a dominant gene. A woman with dimples gets a baby with a man who has not dimples. Will their children have dimples? Motivate your answer.

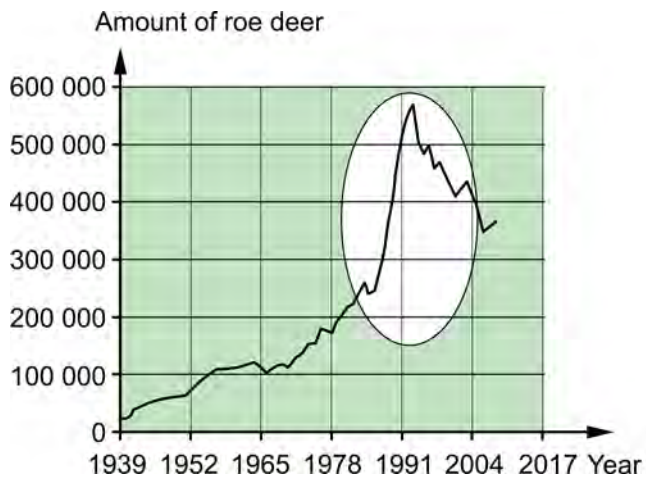


5. It is important for the human body to sleep. Lack of sleeping for a shorter period of time gives temporary symptoms like, for instance, tiredness and less ability to concentrate. Lack of sleeping for a longer period, several months, gives larger influences on the human body.

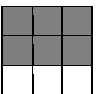
Reason about how lack of sleeping for a longer period can influence the human body.



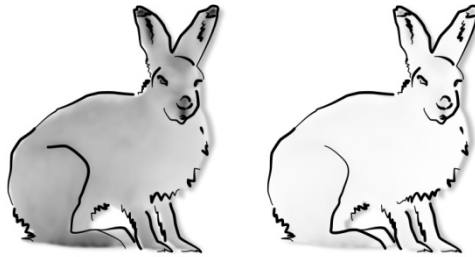
6. The population size of roe deer varies from year to year. The variation can be caused by different factors, for example *competition* or *hunting*. Still, none of the two mentioned factors can explain the obvious rise and fall in the population of roe deer shown in the diagram.



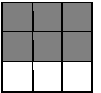
Reason about **other** factors that might have caused the big rise **and** fall in the population of roe deer.



7. Alpine hare is a common species in Sweden. During summer, the alpine hare has brown fur colour. During winter, most alpine hare in the south of Sweden have a grey fur colour while the alpine hares in the north of Sweden most commonly have white fur colour. Alpine hares' different fur colour during winter is an adaption to the environment.



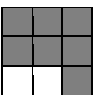
Use knowledge about evolution and natural selection to explain why most of the alpine hares in the north of Sweden have white fur colour in the winter.



8. The Austrian biologist Karl Landsteiner devoted his research to the immune system in the blood and presented in 1901 the AB0-system.

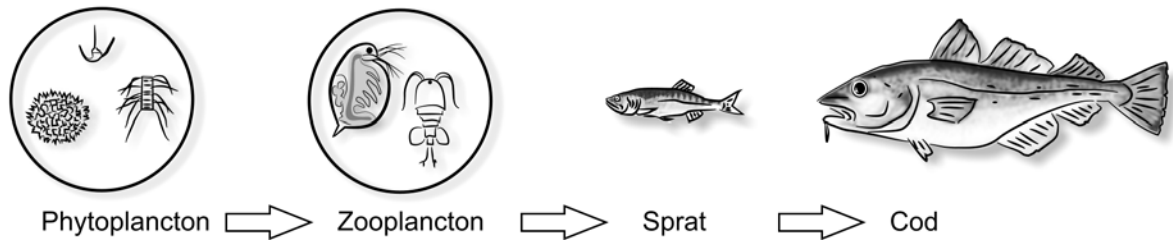
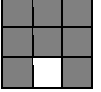


- Explain what the AB0-system implies.
and
- Describe the influence of this discovery on human living conditions.



9. During summer, the Baltic Sea often suffers from algal bloom. Algal bloom is a rapid increase of phytoplanktons that makes the water muddy and discoloured. Besides eutrophication, algal bloom is caused by the reduced amount of cod in the sea.

- a) Use the picture of the food chain and explain why there will be algal bloom when the amount of cod is reduced.



The amount of cod in the Baltic Sea has been reduced these last decades. Human influence might be the cause.

- b) How can human activities cause a reduction in the amount of cod?
- c) Propose an action and explain how it can contribute to increase the amount of cod. Mention both advantages and disadvantages from this action.

