

Class 14

Task 1. Translate into English

Последовательность цепочек, перегруппировывать виды, переносить (нести) ферменты, изменчивость генов, сохранять сходство, определять нуклеотид, соответствовать требованиям наследственности, объединять (совмещать) разнообразие, благодаря наследственности, адаптироваться к явлению, проявление отбора, обнаруживать нуклеиновую кислоту,

Task 2. Answer the questions to the topic “Inheritance” using the prompts:

- 1) How many sets of genetic information does the offspring have? – Children have from both parents.
- 2) How are new species formed? - New species are formed by adaptation...
- 3) What properties help the species adapt to the changing demands of the environment? - Variety and selection help...
- 4) What is the paradox of inheritance? - The paradox of inheritance is the ability to combine..... needed to preserve useful characteristics withnecessary for evolution
- 5) What substances compose DNA? - DNA contains the pentose sugar which is always and the organic bases except for
- 6) Do different species possess the same DNA? - All species have and produce different enzymes
- 7) What is a gene? - Gene is a part of molecule

Informative reading.

Task 3. Read the text to find the answers to the following questions:

- 1) Which of the 7 features of the population are based on the ability to sustain necessary traits and keep the genetic information constant? Illustrate your point of view with the examples based on the life of any species.
- 2) Which of the features of the population are based on the ability to change and adapt? Illustrate your point of view with the examples based on the life of any species.

To exist – существовать,
existence - существование
mechanism – механизм, способ
to evolve – развивать(ся), возникать
evolution – развитие, совершенствование
findings – результаты, данные
to survive – выживать
population – (здесь) биол. популяция
to affect – влиять, поражать
to resist – противостоять
progeny – потомство
constancy – постоянство, неизменяемость

tendency – тенденция, склонность

constant – постоянный, неизменный

to compete – состязаться, соревноваться, конкурировать

to breed (bred, bred) – размножать(ся), давать приплод, разводить животных

favourable – благоприятный, подходящий

Evolution through natural selection (Darwin / Wallace)

Evolution is the process by which new species are formed from pre-existing ones over a period of time. Every organism is subjected to a process of selection, based upon its suitability for survival. Quite independently, Charles Darwin and Alfred Wallace developed the same theory on the mechanism of evolution. As a result, they jointly presented their findings to the Linnaean Society in 1858. The essential features of Darwin's theory are:

1. Overproduction of offspring. All organisms produce large numbers of offspring. If they survived, it would lead to a geometric increase in the size of any population. But there are a lot of factors that affect the health of the population. In order to resist the negative factors, living things have a tendency to produce sufficient progeny.

2. Constancy of numbers. Despite the tendency to increase numbers due to overproduction of offspring, most populations actually maintain relatively constant numbers.

3. Struggle for existence. Darwin deduced that members of the species were constantly competing with each other in an effort to survive. In this struggle for existence only a few would live long enough to breed.

4. Variation among offspring. The sexually produced offspring of any species show individual variations so that generally no two offspring are identical.

5. Survival of the fittest by natural selection. Among the offspring there will be some better able to withstand the environmental conditions. That is, some will be better adapted ('fitter') to survive in the struggle for existence. These types are more likely to survive long enough to breed, while those less well adapted fail to do so.

6. Like produces like. Those that survive to breed are likely to produce offspring similar to themselves. The advantageous characteristics that gave them the edge in the struggle for existence are likely to be passed on to the next generation.

7. Formation of new species. Over many generations, the individuals with favourable characteristics will breed, with consequent increase in their numbers. The development of a number of variations in a particular direction over many generations will gradually lead to the evolution of a new species.

II. Grammar

Task 4. Change the voice of the sentence. *E.g.* - Nuclei regulate the activities of a cell. – The activities of a cell are regulated by nuclei.

1. Robert Hooke discovered units of tissues. 2. Cells will perform all vital physiological functions. 3. The extracellular fluid surrounds the cell. 4. A cell membrane separates the cytoplasm from the extracellular fluid. 5. The genes will encode proteins. 6. A cell copies its genetic information. 7. Mutations killed the cell. 8. Mutations provide a mechanism of development. 9. Students will view the cell under a microscope. 10. All cells performed similar functions. 11. A double membrane bounds nuclei. 12. The inner membrane anchored chromosomes. 13. Nucleoli manufacture ribosomal RNA. 14. Biological molecules made up living things. 15. Living organisms will synthesize organic molecules. 16. Carbon atoms form many bonds. 17. Students study organic compounds. 18. Cells compose all tissues. 19. The applicants passed the last exams several days ago.

Task 5. Make the sentences negative and interrogative. Ask general, special and subject questions.

1. Biology was studied by scientists many years ago. 2. Microscope will be used by students at practical classes. 3. The cells were killed by mutations. 4. New properties are acquired by nucleoli. 5. Nutrition for the cell is provided by the medium. 6. Exams were passed successfully yesterday. 7. Cells will be compared by students at the next class.

Task 6. Work in pairs. One of the students says what he (or someone else) does\did\will do, the other student rephrases the information in passive voice. Mind the verbs that can't be used in passive!

- Ex. S1 - My friend passed 3 exams last year.
 S2 - Three exams were passed last year.
 S1 - I will get excellent marks next class.
 S2 - Excellent marks will be got next class.