

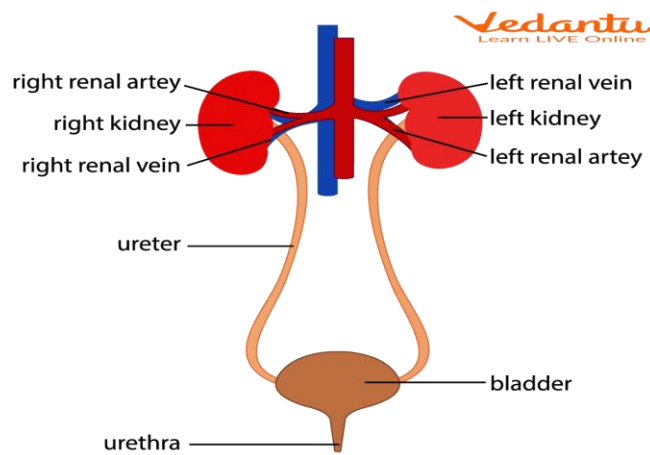


UNITED NATIONS SCHOOL I.E.D.  
PREPARATORY WORKSHOP  
SECOND TRIMESTER  
BIOLOGY 7°  
Copy and solve in the notebook

DELIVERY DATE JULY 15

NAME \_\_\_\_\_ GRADE \_\_\_\_\_ DATE \_\_\_\_\_

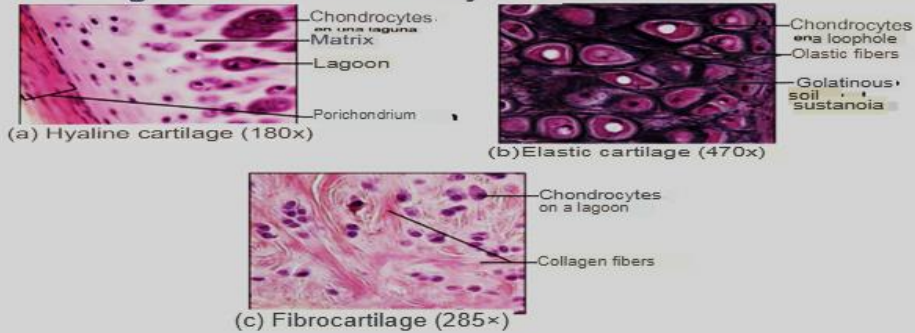
1. As a result of their metabolic processes, plants produce substances that are not essential for their maintenance, but they are not metabolic waste either. These substances are called secondary metabolites and play an important role in the plant's defense against attack by herbivores and also have medical and industrial applications. Which are these substances?
2. Which are the correct order of the process of following function?



3. Look the following graphic and answer, what are the living cells present in the three types of cartilage?

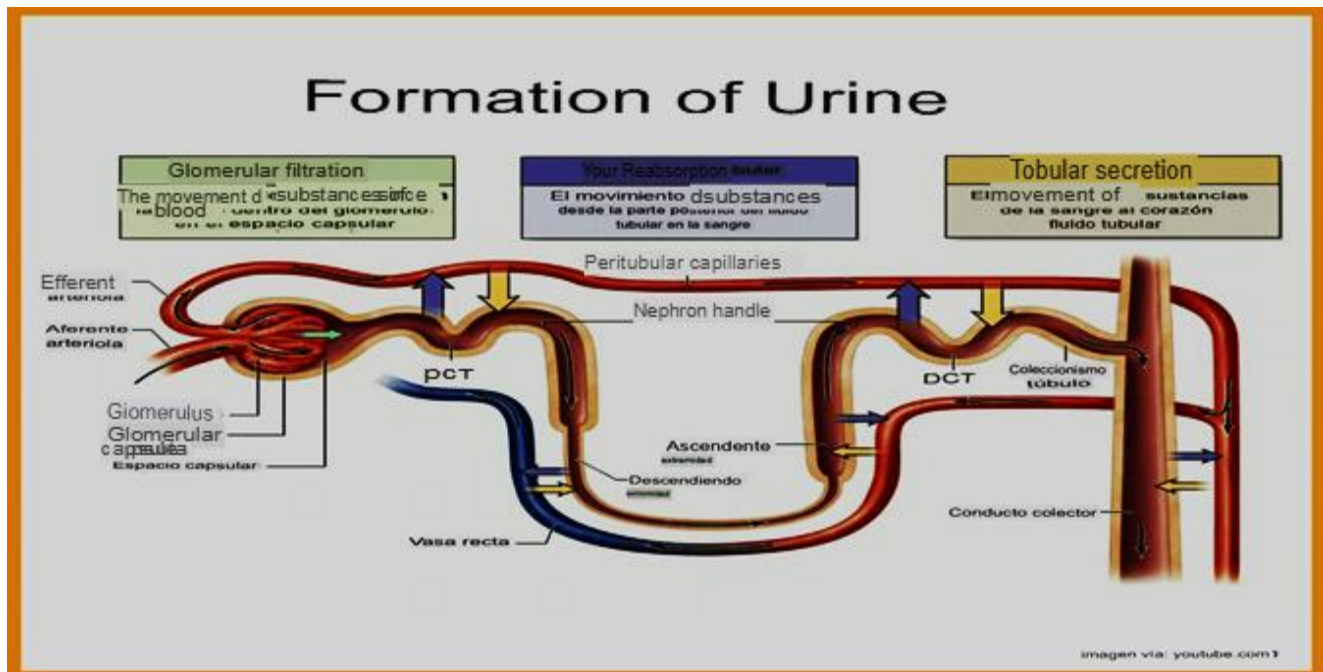
# Types of cartilage

## Cartilage in the Adult Body



The muscles of the human body are divided into three main types: skeletal, cardiac and smooth muscles. Skeletal muscles are attached to bones and allow voluntary movement, such as walking or lifting objects. They are found throughout the body, from large muscles like the quadriceps in the legs to smaller ones like the muscles in the fingers. Cardiac muscles make up the heart and are responsible for pumping blood throughout the body involuntarily. Finally, smooth muscles are found in the walls of internal organs and perform functions such as contraction of the intestine to facilitate digestion. These three types of muscles work together to keep the human body functioning properly.

4. What type of muscle is primarily associated with voluntary movement?
5. Observe the following diagram and describe the stages of urine formation.



6. Metabolism is the set of chemical processes that sustain life in cells. It is divided into anabolism and catabolism. Anabolism involves reactions that build complex molecules from simpler ones, such as protein synthesis, and requires energy. Catabolism, on the other hand, breaks down complex molecules into simpler ones, releasing energy, as in the breakdown of glucose to produce ATP. Each type of metabolism has crucial functions: anabolism supports tissue growth and repair, while catabolism provides the energy necessary for cellular activities. Both processes are interconnected and are regulated to maintain the energy balance of the body.

What does metabolism refer to?

7. The following statements talk about different types of reactions, classify each one according to whether it is anabolism or catabolism.
- A. Substances present in cells are degraded and release energy
  - B. It is the synthesis of substances that the cell needs to live
  - C In this reaction, glycogen is formed from glucose.
  - D. The synthesis or manufacturing of proteins that occurs on cellular ribosomes

Osteoporosis is a disease that weakens bones, making them brittle and more prone to fractures. This condition occurs when the body loses too much bone, makes too little bone, or both. Although it mainly affects postmenopausal women, it can also develop in men and younger people with certain risk factors. Osteoporosis often progresses without symptoms until a fracture occurs, usually in the hip, spine, or wrist. Prevention and treatment of osteoporosis include lifestyle changes such as a diet rich in calcium and vitamin D, regular exercise and, in some cases, specific medications.

8. What is the most direct consequence of osteoporosis on bones?
9. What demographic is most commonly affected by osteoporosis?

Aquatic vertebrates face the continuing problem of osmoregulation. Freshwater fish take in water by osmosis and eliminate a large volume of dilute urine. Marine bony fish lose water through osmosis and compensate for this loss by drinking sea water and eliminating salt through the gills. They only produce small amounts of urine with a high concentration of salts (hypertonic). Marine cartilaginous fish retain large amounts of urea, which allows them to capture water by osmosis through the gills; This allows them to excrete urine low in salts (hypotonic).

10. To compensate for the loss of fluid, what many marine bony fish do?

11. Which organisms capture water by osmosis?

12. Rigor mortis is the tightening of muscles due to lack of ATP after death. This process begins one to two hours after death and takes 10 to 12 hours to complete. Stiffness usually starts in the upper part of the body and progresses towards the lower part. Firstly, it affects the small fibers of the face; they follow the medium-length fibers of the neck, chest and arms; finally, the longest fibers. As time progresses, rigor mortis gradually decreases, in the same order in which it developed, and disappears completely after 24 to 36 hours.

If a victim is found with the facial muscles relaxed but the rest of the body rigid, what time death will most likely have occurred approximately?