Mean median mode worksheets grade 10

When we talk about the cell, the morphological and functional unit of all living organisms, we cannot fail to note the difference that exists between animal cells and plant cells. These are two eukaryotic cells that differ from prokaryotic cells in size (about ten times larger than prokaryotic cells) and are characterized by very specific and often complex internal disunity. Let's see some more details below to highlight the differences between animal cells and plant cells. Animal cages are very different from plants. First, the animal cell, like all cells, is characterized by the presence of a cell membrane. The membrane is a thin coating that protects the cell from the external environment. However, it, as in the vegetable wall, does not have a cell wall, which still represents an additional barrier to the external environment. In addition, there are no plastics and vacules in animal cells. These are organelles typical of plant cells. Inside the cell we see the presence of centrioles. They are present in most animal cells, which perform an important function during mitosis processes and which allow the orderly arrangement of cell organs. Animal cells have the presence of lysoso, or organelle, used mainly by the digestive system of the cell. They allow the subsequent destruction and degradation of foreign molecules and the macromolecule enters the cell. Animal cells also have certain appendages of cells called flagella. They allow any cellular movement. Finally, they are characterized by the presence of micropinocyte wacules, which can cover waste substances (through a process called pinocytosis). Read also Why don't you drink pork milk? Plant cells Plant cells are a type of eukaryotic cell. Therefore, it is characterized by the presence of a part that guarantees absolute stiffness and the ability to maintain the shape of the cell itself. The wall of plant cells we mentioned earlier consists of the vast majority of polysaccarids, especially cellulose. It, in turn, is divided into three successive layers defined by the names: the median blade; The primary wall the secondary part. The plant's cage boasts the presence of plastics. They allow biosynthesis to function with fatty acids, amino acids and starch, as well as their metabolic functions such as known chlorophyll photosynthesis. Then there are the plasmids: these are the channels that connect the neighboring cells. Vakulas: the main function of which to allow and maintain the so-called cellular turre. In the plant cell, especially important, are the so-called chloroplasts used in the important process of photosynthesis chlorophyll (the process of survival to ensure the nutrition of the plant), where light energy is captured by chlorophyll pigments (and not only) and subsequently converted into chemical energy. Chlorophyll photosynthesis Plant cells unlike animal cells, however, can not boast the presence of centriols that allow the animal to orderly arrangement of cell organs. Before we know in detail what is the difference between an animal cell and a plant cell, let's remember that we are talking about eukaryotic cells that belong to organisms that belong to the Dominion Eukaria (proteists, fungi, animals and plants). Eukaryotic cells have fundamental characteristics that distinguish them from prokaryote cells, which have a simpler structure (Fig.1): their genetic material is encased in the real nucleus of the cell, the cytoplasm contains several specialized organelles, each of which is delimitated by the plasma membrane of eukaryotic cells, performs a wide range of functions due to the presence of proteins inserted into it. (Figure 1) Representation of prokaryote cell (dx) and animal eukaryote (sx). Note that the first is a simple structure without organelles and there is not a nucleus, but a central mass, which forms the nucleus. In general, the animal cell and the plant cell differ in different characteristics. In fact, shape and size are different, and despite the similarities between organelles from both possessed, plant cells have special specialized structures because - unlike animals - they can perform photosentitic reactions. The shape and size of an animal's cell size varies from 10 to 30 microns, while plant cell sizes can be up to 100 microns. Typically, therefore, the plant cell turns out to be larger than the animal's cell. This situation is caused by the presence of the structure of plant cells of the plant called vacuole. Often vacuol is so extensive that it limits the cytoplasm to the edge of the cell because it consists of most of the water, which leads to an increase in the volume of the cell itself. In this respect, a relatively large cell is at a disadvantage because the substances get and exit the cell through its surface. The larger the surface area increases to increase cell volume and the slower the metabolism from within and vice versa. This situation could lead to the fact that the cell will no longer be able to exchange and thus keep its metabolic processes active when faced with death (Figure 2). In the plant cell we do not see this phenomenon, because the cytoplasm and the nucleus move to the outskirts directly with the vacuole, which facilitates the exchange of substances between the inside and the outside of the cell. What happens if the cell increases in volume? The metabolic need of a cell depends on its volume, while the amount of metabolism is proportional to the surface. Using the example of the image, we understand how it is already difficult to maintain an active metabolism and metabolism when the volume (up to 8 times) and surface area increase (up to 8 times) (from 6 mm area to 24 mm area). If the cell grew even more, all its metabolic activity would be impossible to withstand. As for the shape, however, the plant cell has a tighter structure almost cubic to the presence of the cell wall while this animal is not forced by any structure behind the cytoplasmic membrane and therefore has no particular shape. The structures common between animal cells and animal plant cells and plant cells, as part of multicellular eukaryotic organisms, have some common structures that we go to list and explain: The nucleus: it is the central part of the cell. It is the structure that contains the genetic material and is separated from the cytoplasm due to the presence of a nuclear membrane, which is covered with pores, which allow from the selection of substances that from cytosol reach the nucleus. Endombran system: RER (Rugoso Endoplasmatic Reticulum) and REL (Smooth Endoplasmatic Network). The first is responsible for the modification of proteins synthesized by ribosomes found on its surface and RNA; the second, on the other hand, has no ribosome on the surface and is responsible for the synthesis of membrane lipids. Golga Complex: a structure formed by a stack of membranous tanks where there is no ribosome. This complex or device is responsible for the reception of proteins modified by RER and further chemical modification of RER. Ribosomes: They are very important organelles for protein synthesis because they encode the information brought by RNA and collect amino acids. They have two units; more (50s) and less (30s) mitochondria: they are organelles, very important in terms of the energy metabolism of cells. They are formed by an internal matrix separated by two membranes, one smooth outer and internal, which is folded to form cytoskelet ridges: it is a system of threads and tubes (microtrubokons, intermediate filaments and microfilaments) that support the shape of the cell and help its movement through the mechanism of reduction of the cytoplasmic membrane: a structure formed by a double phospholipid layer and whole grain membrane of proteins. It has a fundamental function of isolating and protecting cellular and genetic information by selectively entering molecules. The specialized structure of the Animal Cage has specialized organelles that are absent in plant cells: Lysosomes (Figure 3). Lysosomes are membrane-delimital bubbles originating from the Golga apparatus, which contain digestive enzymes that can digest some complex molecules, such as proteins, lipids and polysaccarides. They are blisters that can also be digested by other organelles that have stopped working in a process defined as autophagy. They are also capable of carrying out the process of phgocytosis or certain specific cellular types (such as white blood cells) covering cell fragments or pathogenic substances in order to worsen them. Hydrolytic enzymes present in animal cell lysosomes can only be activated when the pH is about 5; thus, the inner environment of these organelles is acidic. (Figure 3) Anatomy of lysosome. The lysosoma of the vesic is formed by a double lipid layer, inside are acidic hydrolytic enzymes. In the plant cage there are three specialized structures that are not present in animal cells. Outside to the inside is a cell wall, chloroplasts and vacuole. 1) Cell wall: it is an extracellular structure, as it is the outermost part of the cell. It is formed by cellulose fibers that increase as the plant grows and often in woody plants amplified by lignin. On the surface of the wall there are small channels called plasmodesms that allow the transit of ions and small molecules from one cell to another. The two plant cells are also connected to each other thanks to a polysaccharide layer of pectin called a median blade that forms between the walls of two plant cells. The main functions of the cell wall are three: structural support, balances the pressure of vacuole, protects against intrusion agents such as bacteria and fungi. 2) Chloroplasts (Figure 4): disc-shaped organelles surrounded by an internal and outer membrane. The central region is called the stroma, which is formed by a system of membranes named after tilacoids. Tilacoid membranes have the function of absorbing light energy and converting it into chemical energy due to the presence of chlorophyll, a pigment that gives the color a green color. The resulting chemical energy is then used by enzymes present in the stroma to produce carbohydrates and nutrient molecules. These are the organelles where photosynthesis of chlorophyll occurs. Chloroplasts belong to the family of plastids. There are other plastics in the plant cell, such as amyloplasts, that store starch and chromoplasts that give a red or yellow color to ripe fruits or leaves in autumn. (Figure 4) Chloroplast Anatomy. The picture shows the internal and external membranes and tilacoid membranes that you pile on top of each other to form a grain. 3. Vacuol: This is a large vesle that can represent up to 90% of the volume of the plant cell causing movement to the edges of the organelles and nucleus. The cage may be even more empty, but usually we find one large central vacuole. This paddle is covered with a membrane called tonoplast, which contains the proteins responsible for the transit of various molecules. Vacuol functions: storage of salts, organic acids, sugars, pigments; degradation of biological molecules for the presence of certain enzymes; Protection from pathogens for the presence of specialized molecules; physical support of the cell for the pressure that is created inside it. Animal cell (see above) and Vegetable Cell (see below) in comparison. Summing up the animal and plant cells of eukaryotic cells i.e., Those cells that belong to organisms included in the Eukarya Dominion (proteists, fungi, animals and plants of animals and plant cells differ in different characteristics. In fact, shape and size are different, and despite the similarities between organelles from both possessed, plant cells have special specialized structures the size of animal cells varies from 10 to 30 microns while plant cells can reach up to 100 microns so that the plant cell turns out to be larger than an animal cell. This situation is related to the presence of a plant cell structure called vacuol As for the shape, the plant cell has a tighter structure almost cubic to the presence of the cell wall while this animal is not forced by any structure behind the cytoplasmic membrane and therefore has no specific shape. Animal and plant cells, both part of multicellular eukaryotic organisms, have some common structures: Core, Endomembrane System, Golgi Complex or Apparatus, Ribosomes, Mitochondria, Cytoskeleton, Cytoplasmic Membrane Animal Cell has specialized organelles that are absent in plant cells: Lysosomes. These are membrane-delimital bubbles originating from the Golgi apparatus, which contain hydrolytic digestive enzymes in the internal environment of acid In the plant cell are three structures that are not present in animal cages. Outside to the inside is a cell wall, chloroplasts and vacuole. Cell Wall : This is an extracellular structure because it is the outer part of the cell. It is formed by cellulose fibers, on the surface there are small channels called plasmodesm, they are connected to each other thanks to a polysaccharide layer of pectin called the median lamella Cloroplasti : They are disco-shaped organelles surrounded by the inner and outer membrane. The central area is called stroma, which is formed by a system of membranes named after tilacoids, where chlorophyll is present, a pigment that captures sunlight to initiate chlorophyll photosynthesis chloroplasts belong to the plastic family. There are other plastics in the plant cell, such as amyloplasts, which store starch and chromoplasts that give a red or yellow color of ripe fruit or leaves in the fall of Vacuol : This is a large large scale that can represent up to 90% of the volume of plant cell. This paddle is covered with a membrane called tonoplast. See the entire biology section We finally leave you some links that you might be interested in: What is a proteome? What is anabolicism? What does cytology study? Learn from us