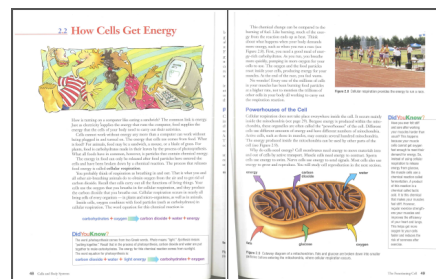
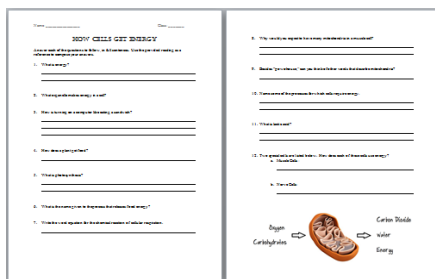
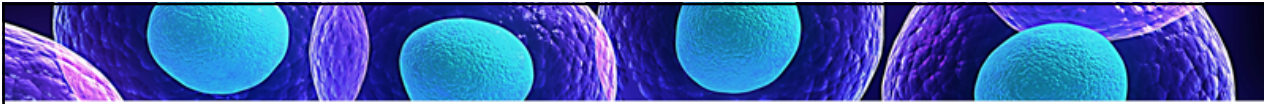


Cell Energy

Please obtain a copy of the worksheet "How Cells Get Energy" and borrow a reading sheet. Follow the instructions on the question sheet.



When you are done the worksheet, please return the reading sheet. Following that, I recommend that you use any remaining time to continue to study your cell organelles. You may use the digital flashcards on FlashCardMachine.com or you may borrow my paper flashcards. If you borrow the flashcards, please take proper care of them. We will take up the answers to your worksheet at the end of class.



How Cells Get Energy

1. What is energy?

Energy is the ability to do work. When referring to cells, energy is what allows a cell, or the organism as a whole to perform the actions that it needs to do in order to meet its needs.

2. What organelle makes energy in a cell?

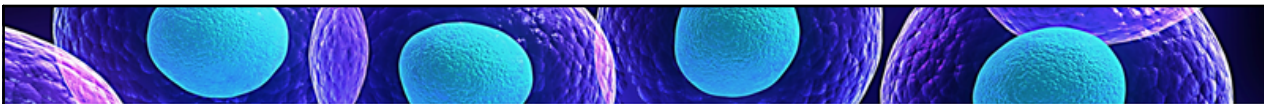
The mitochondria makes energy in a cell.

3. How is turning on a computer like eating a sandwich?

Turning on a computer is like eating a sandwich because both have to do with energy. When you turn on a computer you are supply electricity to it, which allows it to perform its functions. The food that you eat, such as a sandwich, provides the energy you need to perform your activities.

4. How does a plant get food?

A plant will get its food through the process of photosynthesis.



5. What is photosynthesis?

Photosynthesis is a process that occurs in plants, by which carbon dioxide and water are combined to produce carbohydrates, with oxygen being a by-product. This process uses energy from the sun.

6. What is the name given to the process that releases food energy?

The name of the process that releases food energy is called cellular respiration.

7. Write the word equation for the chemical reaction of cellular respiration.

The word equation for the chemical reaction of cellular respiration is:

carbohydrates + oxygen \longrightarrow carbon dioxide + water + energy

8. Why would you expect to have many mitochondria in a muscle cell?

Muscle cells would be expected to have many mitochondria because they are very active cells. Energy is required for activity, so muscle cells would need many to meet the energy demand.



9. Besides "powerhouse," can you think of other words that describe mitochondria?

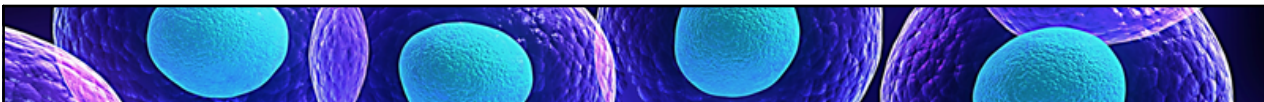
Besides "Powerhouses," mitochondria can be described as "energy factories," "power plants," or "batteries" (or more accurately, battery chargers)

10. Name some of the processes for which cells require energy.

Cells require energy for many things, some of which are: moving materials in and out of the cells, movement, changing shape, growth, or reproduction.

11. What is lactic acid?

Lactic Acid is a chemical that makes your muscles feel stiff. It is produced when cells do not get enough oxygen, and instead of cellular respiration they use fermentation to release energy from sugars.



12. Two special cells are listed below. How does each of these cells use energy?

a. Muscle Cells:

Muscle cells use energy to help them contract (change shape).

b. Nerve Cells:

Nerve cells use energy to send signals, communicating information throughout your body.

Note: The biggest mistake made from using this information is saying that "Photosynthesis is when plants use sunlight to make energy." and assuming that is it. Plants still have mitochondria, that is where the plants get their energy. The sunlight is used to make carbohydrates, which are then taken apart in the process of cellular respiration. Photosynthesis packs the energy, cellular respiration releases it. Both processes are done by plants, animals only do cellular respiration.

Attachments

2-13 Cell Energy.pdf

2-13 Cell Energy Reading.pdf