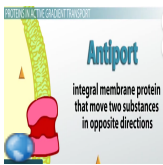


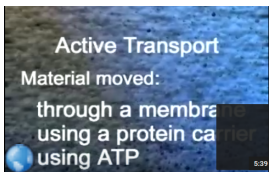
Active Transport

Water, carbon dioxide and oxygen are small enough particles to DIFFUSE in and out of the cell membrane's small holes.

However cells require more than the above particles to survive and these particles cannot be obtained by diffusion alone.



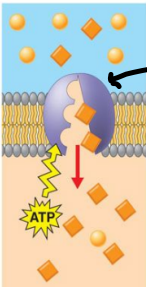
Example) Our cells need a large amount of glucose for energy. To meet this need glucose must move from an area of low concentration (outside cell) to an area of high concentration (inside cell). This is reverse of the usual movement, thus requires energy. (think of it like pushing a car uphill rather than letting it roll downhill)



By examining the cell, with powerful microscopes, scientist have discovered that there are large particles embedded in the cell membrane. These particles act as gates and control what enters or leaves the cell.

Active Transport

Active transport



1) **Carrier Proteins**- are large particles in the cell membrane, a protein that controls the passage of a substance into or out of the cell.

2) **Active Transport**- The process by which a protein attaches to a substance, uses energy to move it through the cell membrane, and release it on the opposite side of the membrane.

How Cells Get Energy

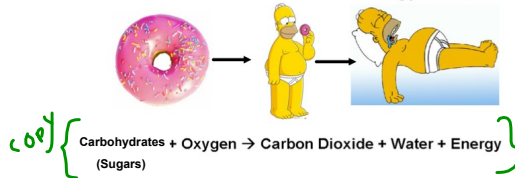
-Food supplies the energy that the cells of your body need to carry out their activities. Food for animals may be meat, grass or berries. For plants, food is the carbohydrates that they make in their leaves by photosynthesis.

-After the food particles enter the cell then it can be broken down by cellular respiration to release its energy.

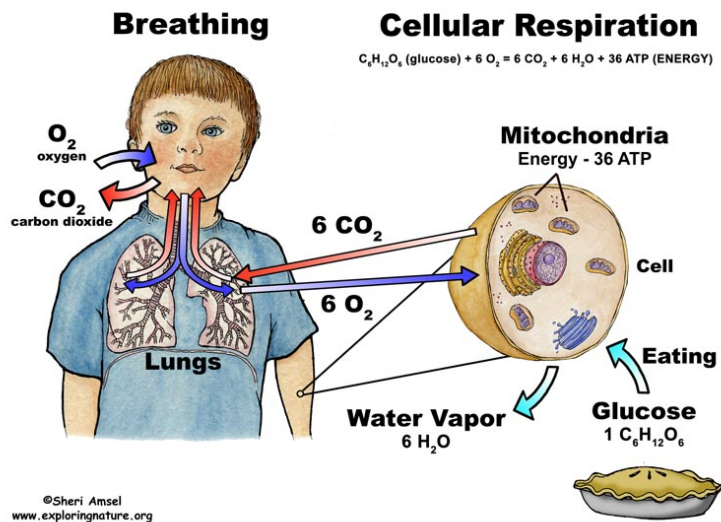
Cellular Respiration- in cells, is the process that releases food energy. Carried out in the mitochondria.

Cellular Respiration

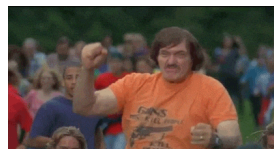
The process in which sugars (glucose) are converted into usable energy (ATP).



Respiration- For animals breathing in oxygen is where our cells get the O₂ for our cellular respiration



Think about when you run. As you run you begin to breathe in more oxygen which reacts with the food in your body and produces many chemical reactions of cellular respiration. Thus producing lots of energy by the millions of cells in your body and you then feel HOT.



-Different cells use different amounts of energy and different numbers of mitochondria. Ex) Muscles need energy to contract, nerve cells need energy to send signals

Copy the diagram 2.9 PAGE 49 "Cutaway diagram of mitochondria" into your notes include the description underneath.

