

Chapter 3

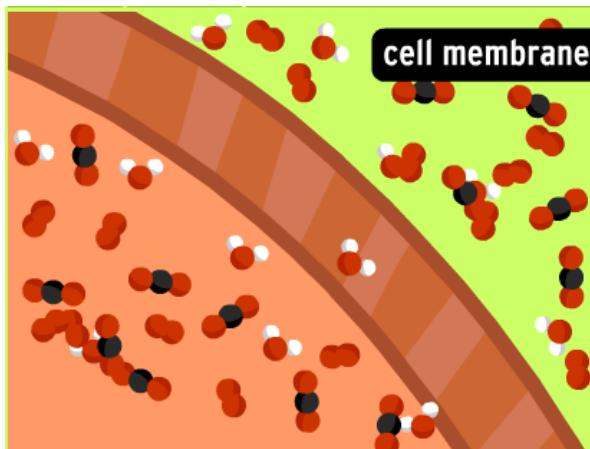
How does material pass into and out of cells?

Material enters and leaves the cell through the **cell membrane**

3 Methods of movement:

1. **Diffusion**
2. **Osmosis**
3. **Active Transport**

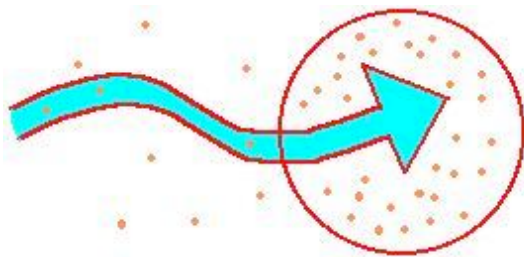
Diffusion: the process by which molecules of a substance move from areas of higher concentration of that substance to areas of lower concentration of that substance.



Passive Transport

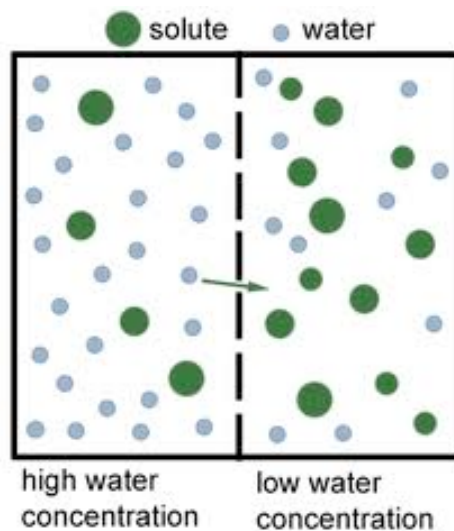
It is responsible for the movement of nutrients and other substances across the cell membrane.

Osmosis: Diffusion of water into or out of the cell.
Also moves from higher to lower concentration.



**High concentration of water to
a low concentration of water.**

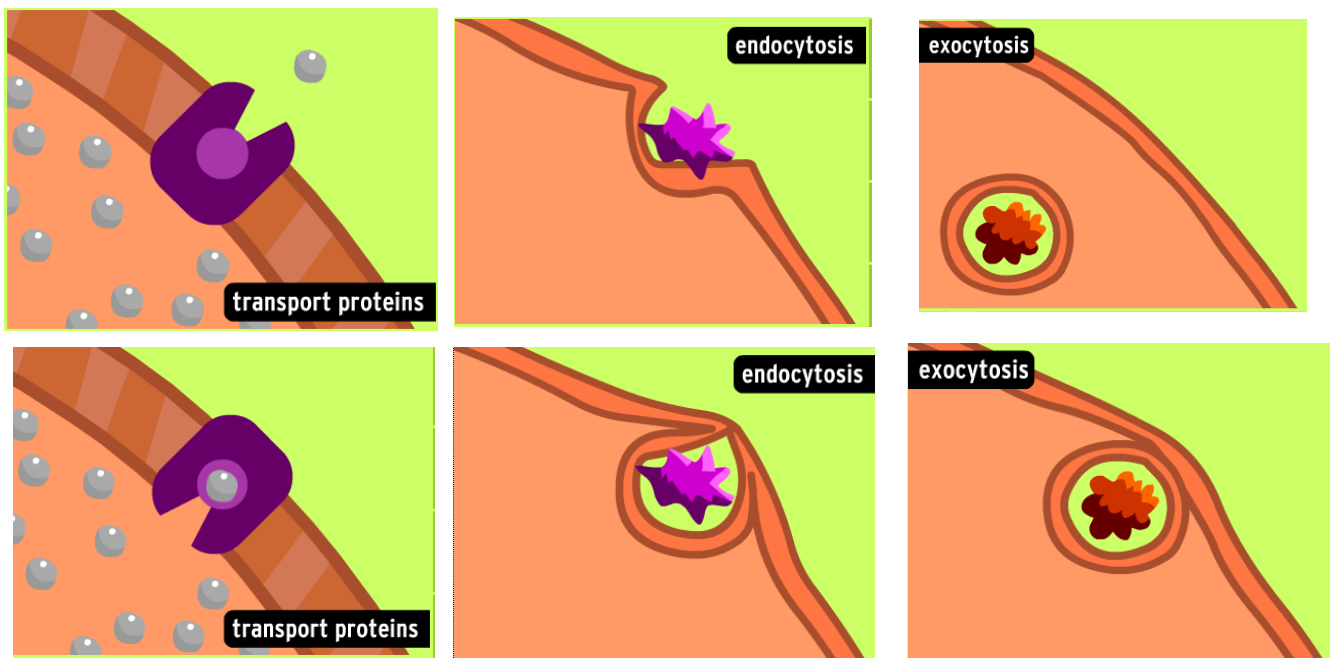
• = salt or sugar



Active Transport:

If the substance is not permeable or the levels of concentration do not allow diffusion, then active transport is used.

Requires cell to use own energy to move materials in and out of cell.



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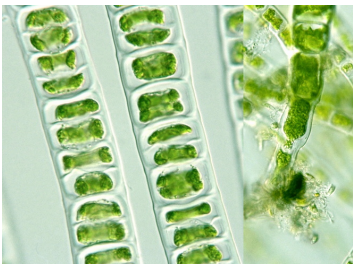
How Do Cells Grow?

Cell Growth

It depends on if the organism is single celled or multicellular.

Before we go on to how we grow lets go back over what single celled and multicellular means!


Single celled organism: an organism that only contains one cell.
If that cell dies so does the organism!



Algae Cells



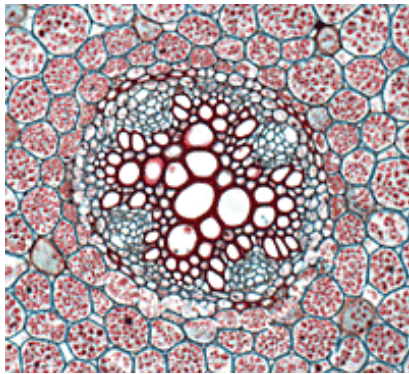
Single Cells - Paramecium

 <http://www.teachersdomain.org/resource/tdc02.sci.life.stru.singlecell/>

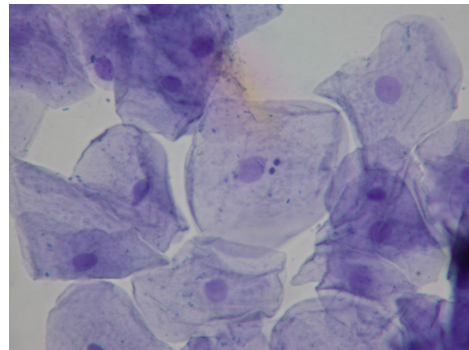
Single celled organisms can grow only by increasing the size of its cell.

Therefore a singled-celled organism is limited to how large it can grow since a cell can only get so big.

Multicellular organism is when an organism has
at least 2 or more cells.
(LIKE YOU)

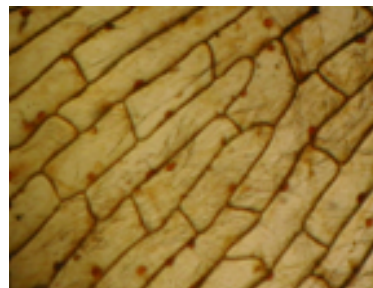


Dicot Cells
(type of plant)

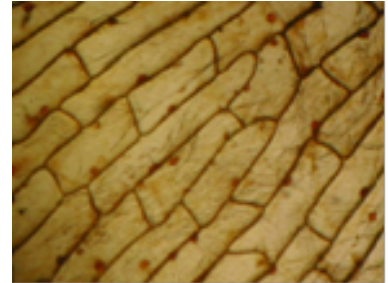
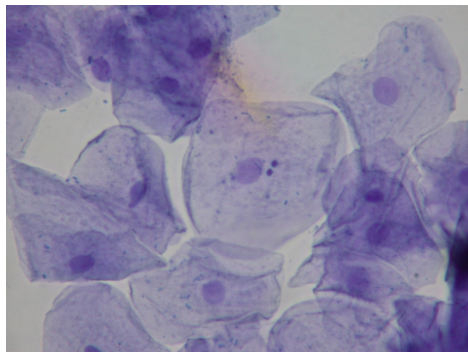
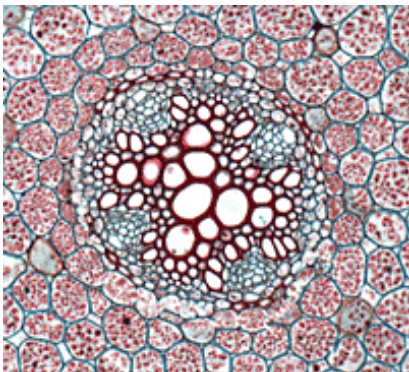


Cheek Cells

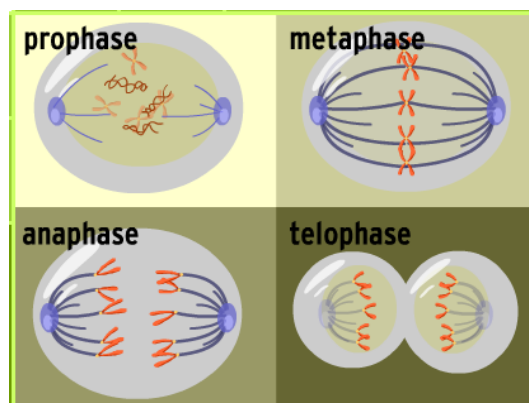
Onion cells





Multicellular organism grow by cell division. This leads to an increase in cells and an increase in the size of multicellular organisms.



Mitosis is the process of cell division that forms two new nuclei. It is how the cell divided itself.



 <http://www.teachersdomain.org/resource/tdc02.sci.life.stru.dnadivide/>

 <http://www.brainpop.com/science/cellularlifeandgenetics/mitosis/>

So the growth of multicellular organisms is due to both

increase in cell size and
increase in the cell number.

We can conclude that
the **larger** the multicellular
organism is the **more** cells it has.

Which has more cells a cat or an elephant? Explain your answer.

