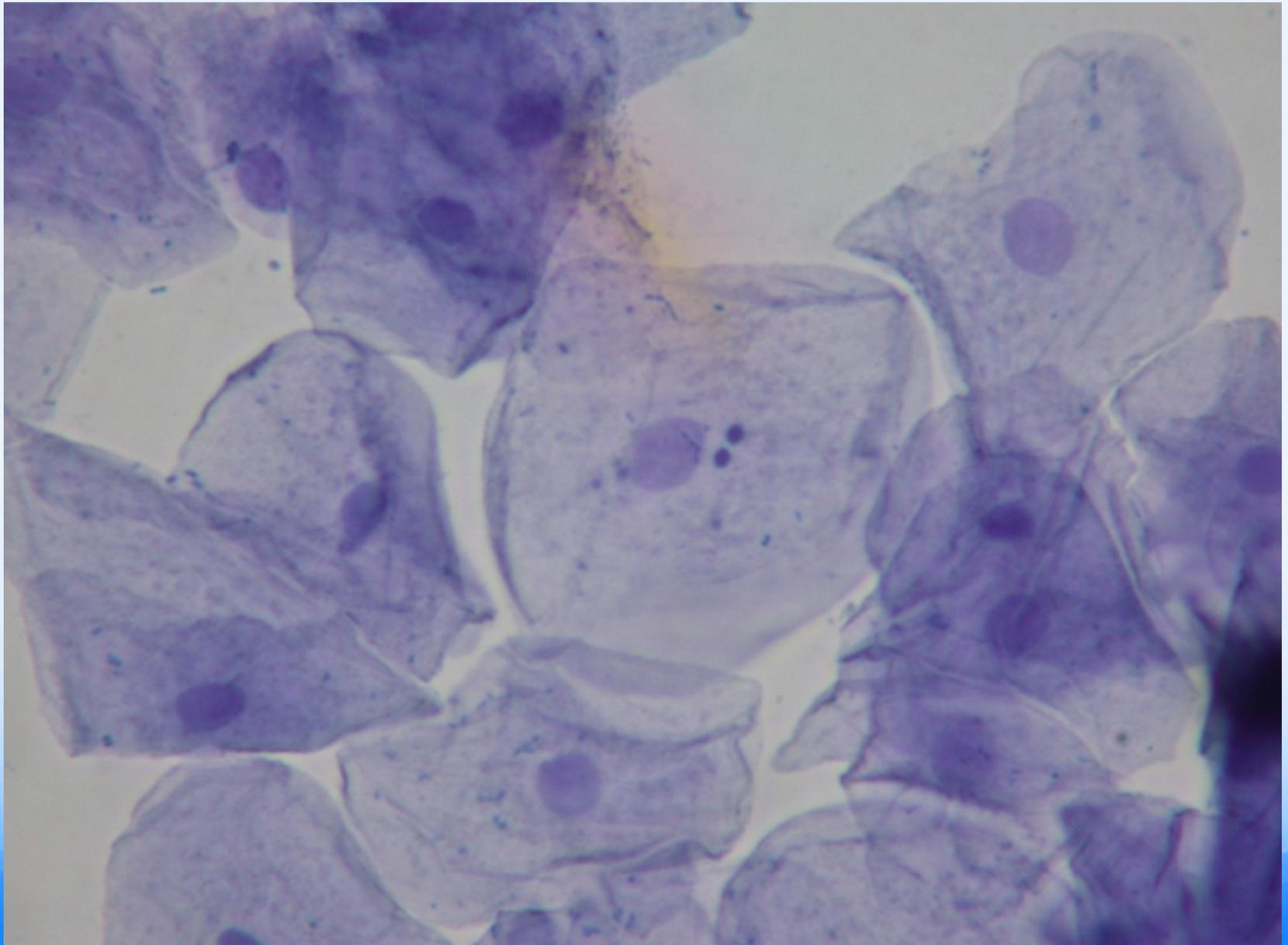
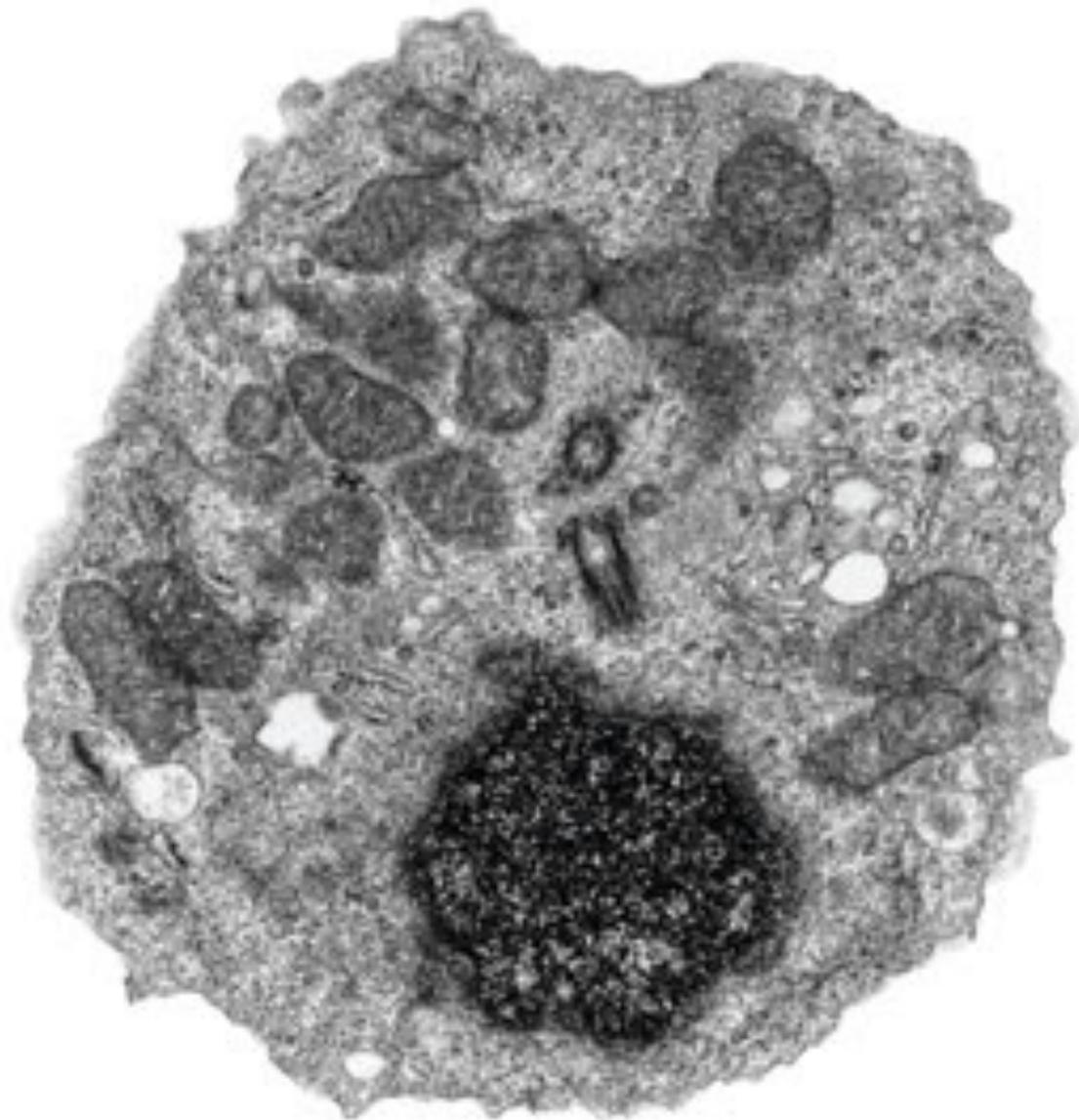


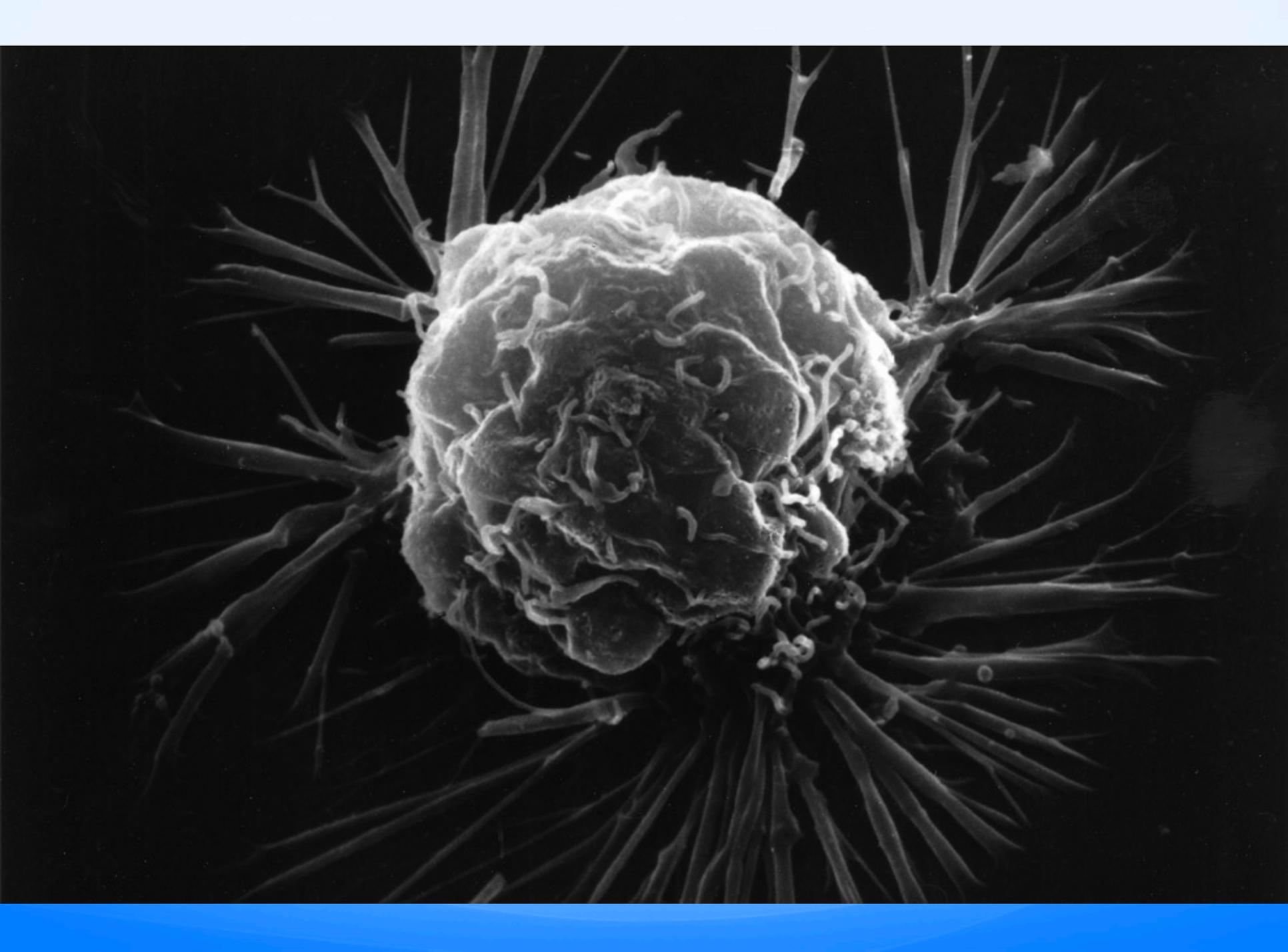
# Cell Theory Presentation

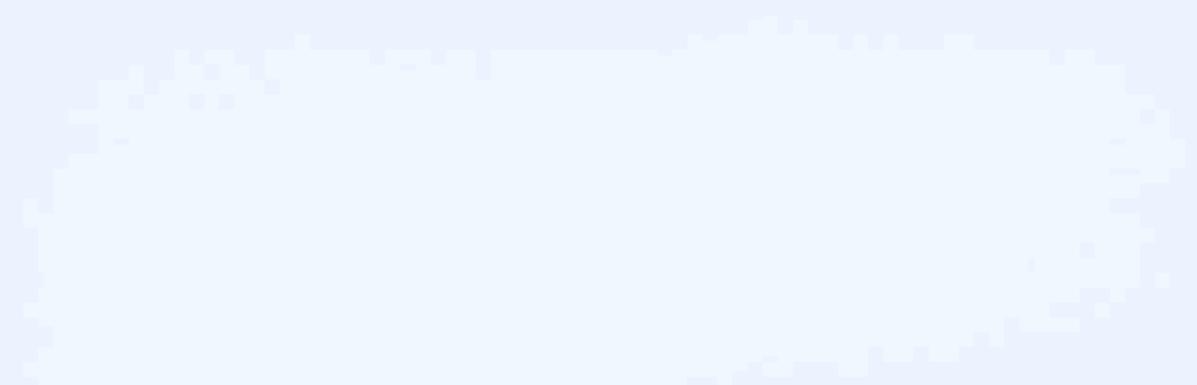
# Bellringer

- You will be taking a short test to see what you know at the beginning of the class period.
- Please make sure you have a pencil
- Your group should also have a whiteboard, a whiteboard marker, and something to erase with.







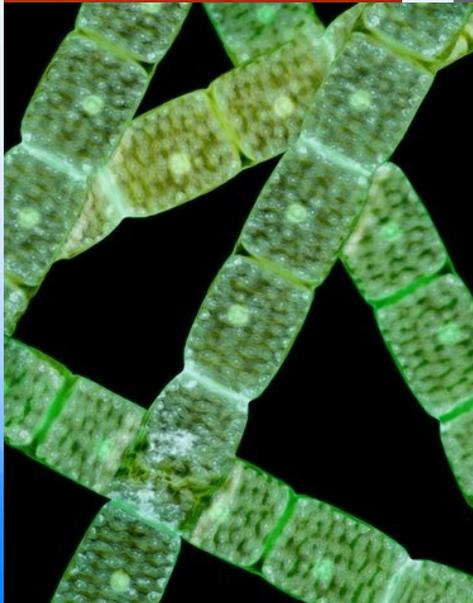
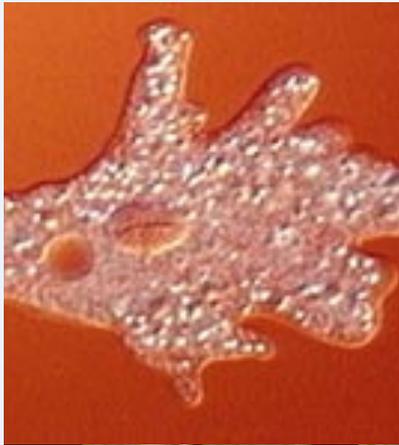


Video- “The Wacky History  
of Cell Theory”

# Cell theory- what is it?

- There are 3 basic tenets of cell theory-
- 1. All organisms are composed of one or more cells.
- 2. The cell is the basic unit of life in all living things.
- 3. All cells are produced by the division of preexisting cells.

# “All organisms are composed of one or more cells”



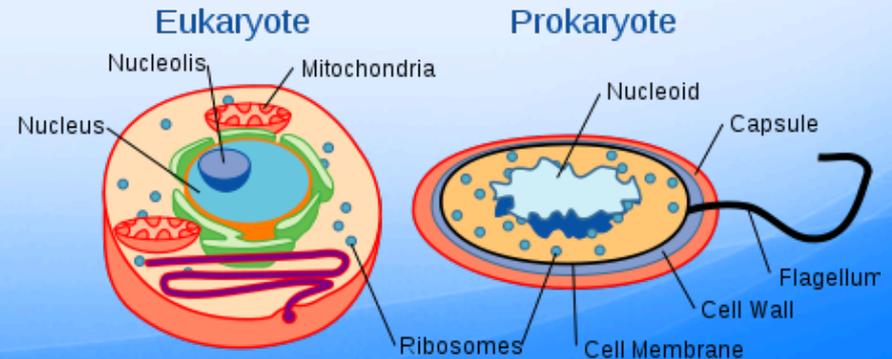
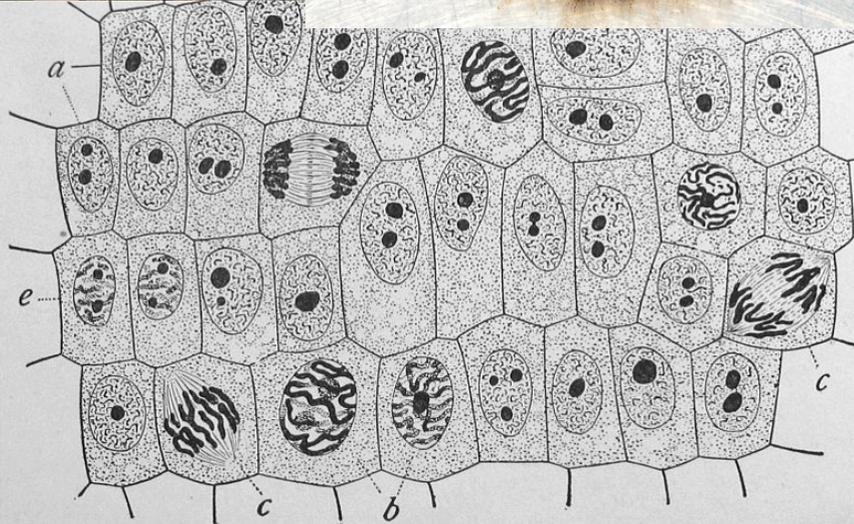
All living things are made up of cells!

Some organisms are UNICELLULAR- like amoebas.

Others are MULTICELLULAR- like plants, animals, and humans.

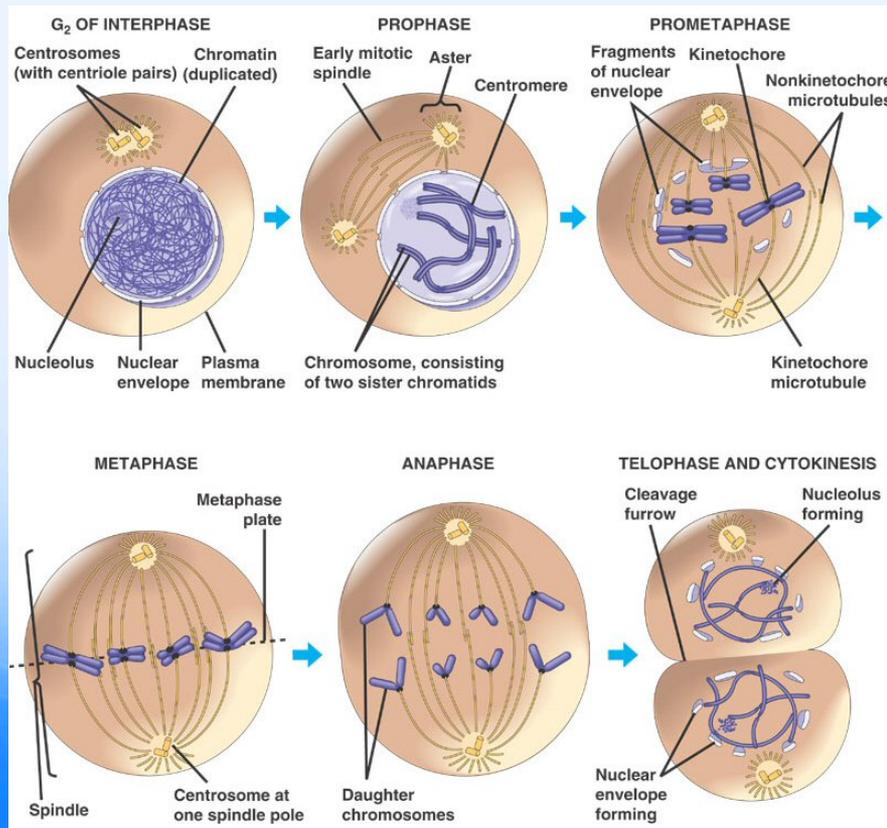
# “The cell is the basic unit of life in all living things”

- Every living thing is made of cells.



# “All cells are produced by the division of preexisting cells.”

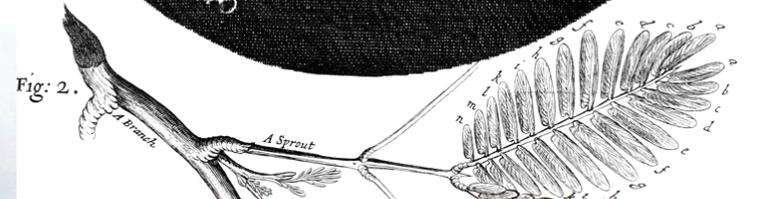
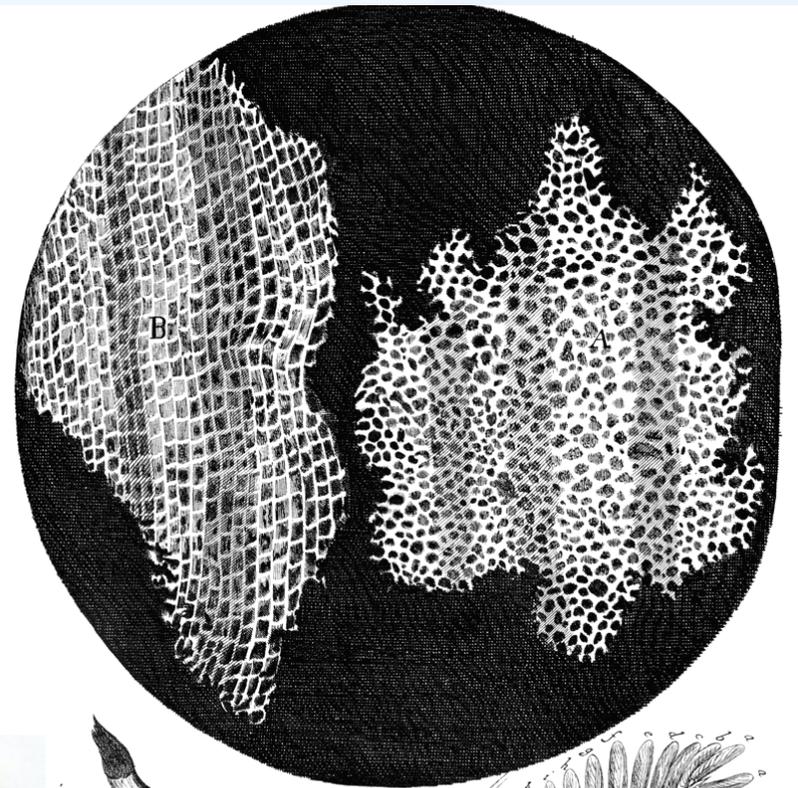
- All this means is that cells can only come from other cells. They don't appear out of nowhere!



How did we  
discover cells?

# Robert Hooke (1665)

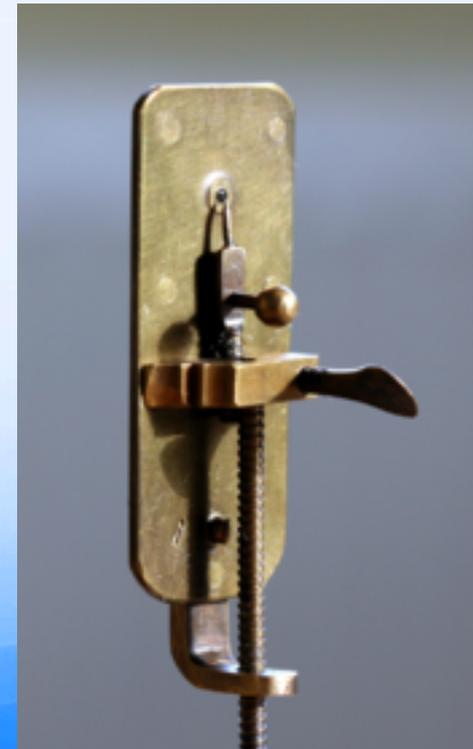
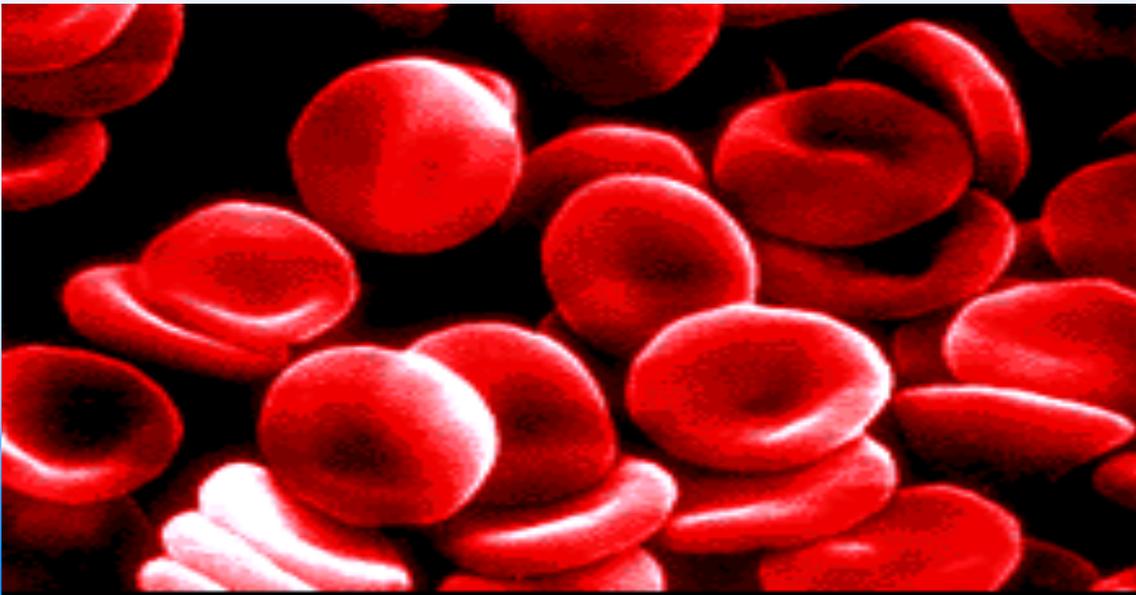
- Robert Hooke looked at cork under a very low quality microscope.
- He called what he saw “cells” because they looked like the cells in a monastery or a prison.
- He didn't know WHAT they did or what they were for- and he thought they existed only in plants and fungi





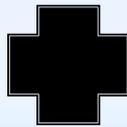
# Anton van Leeuwenhoek (1673)

- Leeuwenhoek () used a crude microscope to look at pond scum and discovered single celled organisms that he called “animalcules”
- He also observed blood cells from many animals



# Nothing big happened until 1838- why?

- “Spontaneous generation”!



Dirty clothing

+

corn husks

=

mice?

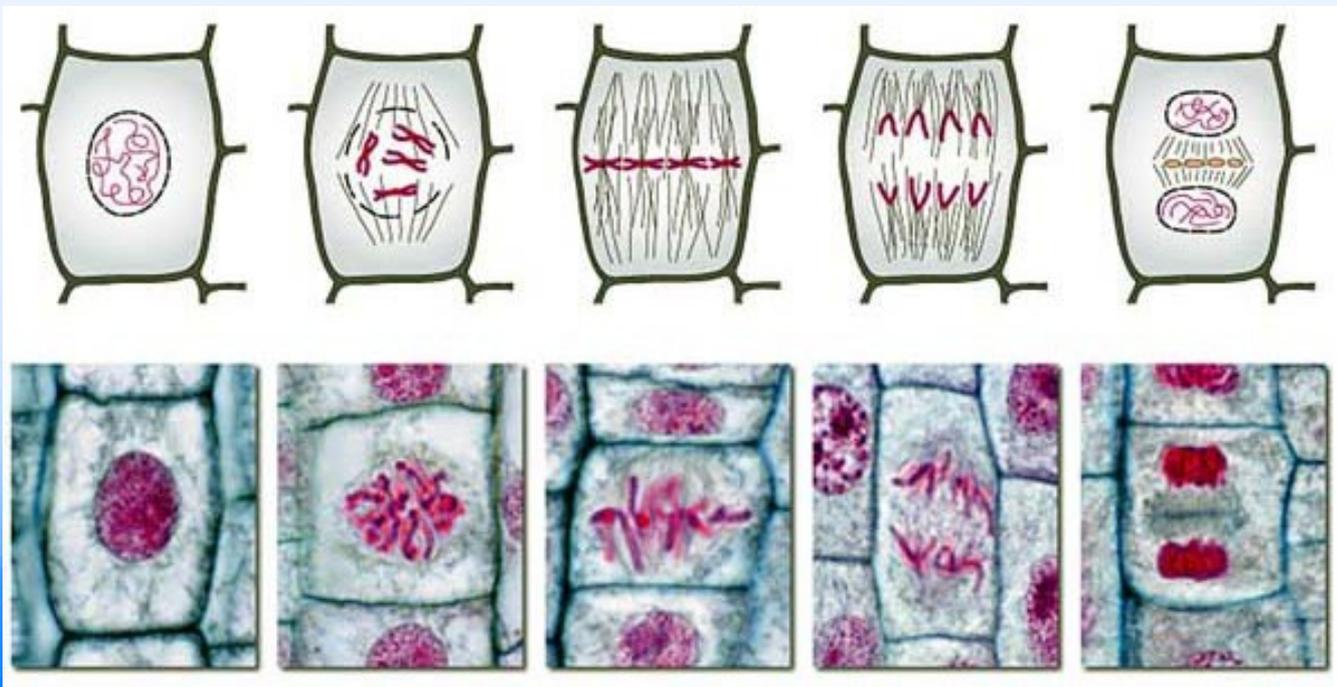
# The development of cell theory

- Matthias Schleiden (1838) said “All plants are made of cells”
- Theodor Schwann (1839) said “All animals are made of cells”
- The first two tenets of cell theory!



# The development of cell theory

- Rudolf Virchow spent most of his life studying cells, and in 1858 he declared that cells can only arise from other cells
- The third tenet of cell theory!



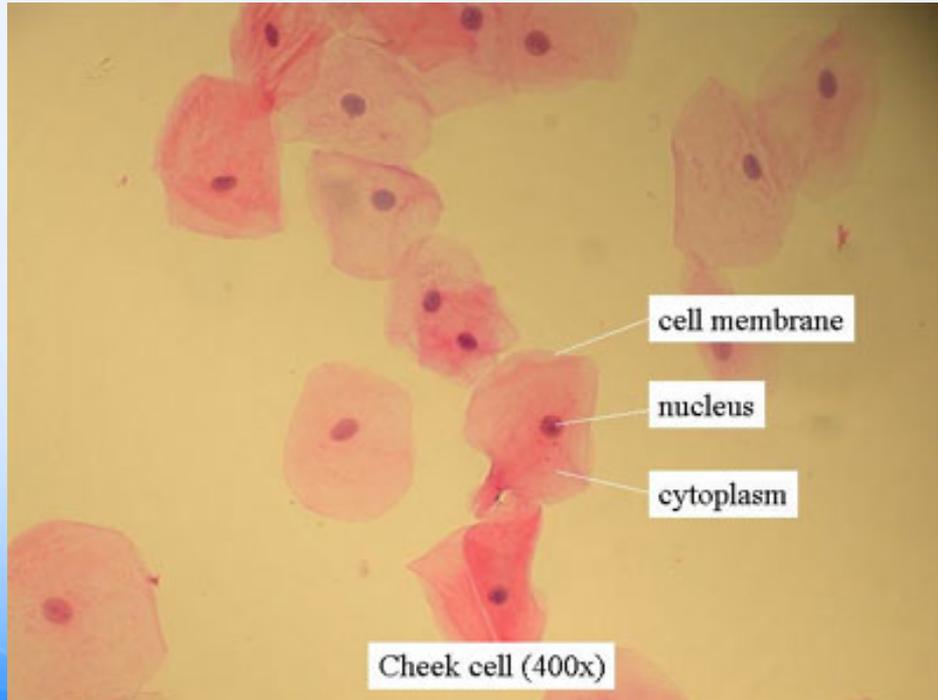
How do we  
look at cells?

# 3 different kinds of microscopes

- Compound microscopes- the kind of microscope you are used to seeing
- Scanning Electron Microscope (SEM)- creates a 3D image
- Transmission Electron Microscope (TEM)- looks at very, very small specimens at high magnifications

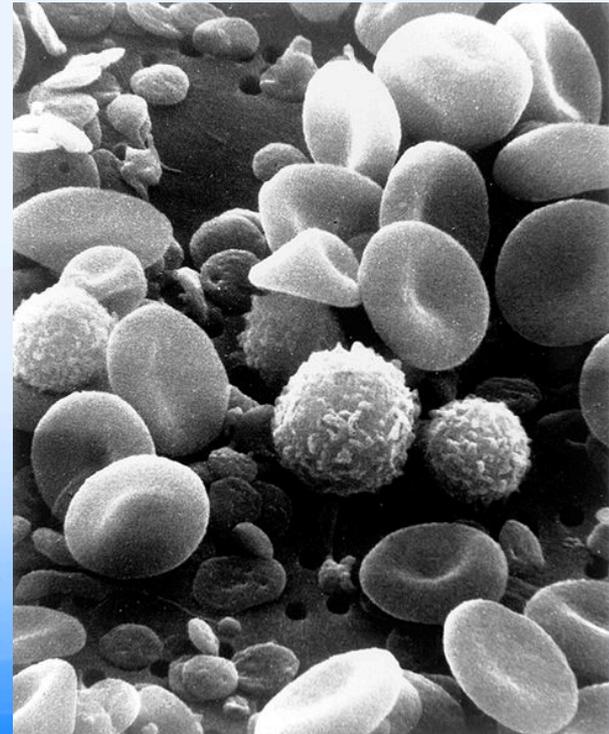
# Compound microscopes

- These are called “light” microscopes because they use a light to illuminate the image



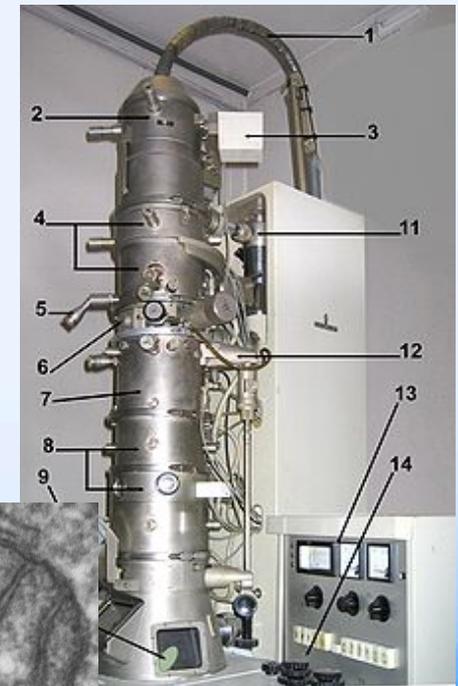
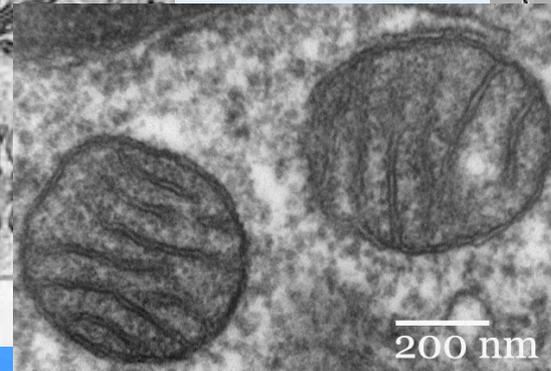
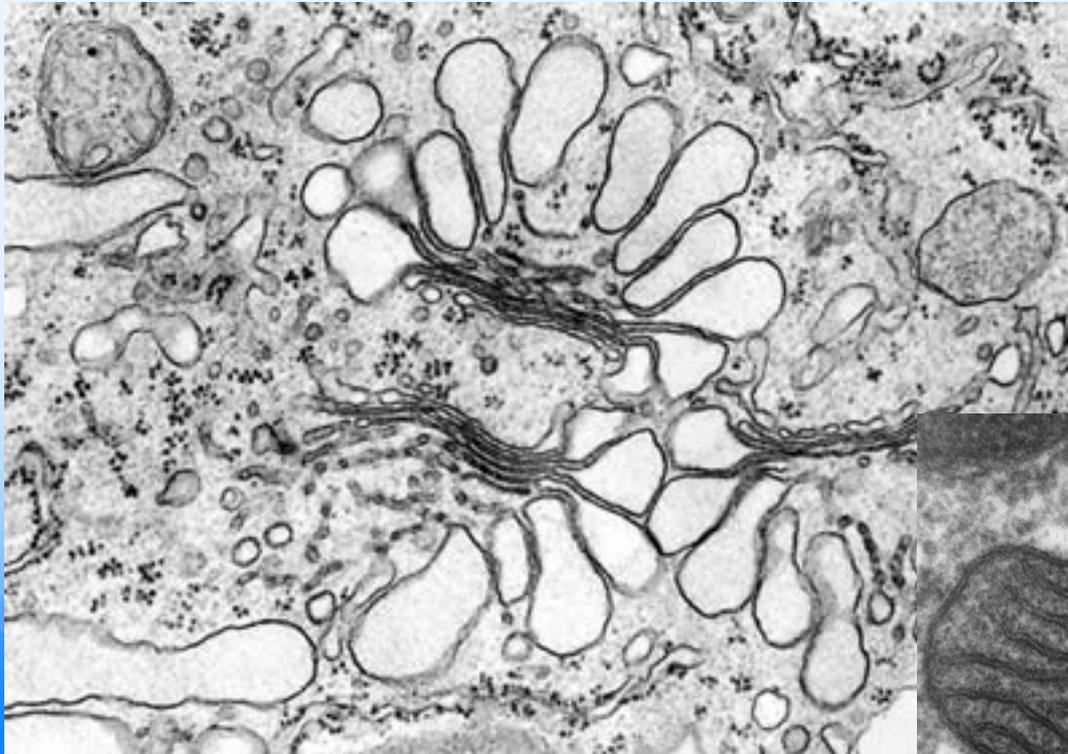
# Scanning Electron Microscopes (SEM)

- SEM microscopes use electrons to image a sample with a beam of light and gives a 3D image
- Samples are coated in gold and imaged in black and white



# Transmission Electron Microscopes (TEM)

- Transmission electron microscopes also use electrons, but they can look at very thin or small materials in 2D



# Sources

- [http://www.teachersdomain.org/assets/wgbh/tdc02/tdc02\\_vid\\_singlecell/tdc02\\_vid\\_singlecell\\_1.jpg](http://www.teachersdomain.org/assets/wgbh/tdc02/tdc02_vid_singlecell/tdc02_vid_singlecell_1.jpg)
- [http://1.bp.blogspot.com/\\_rYYcdMsVqUE/TUAd1AE9Q3I/AAAAAAAAABo/U6yRX5qGajM/s1600/B302322-Spirogyra\\_algae%25252C\\_light\\_micrograph-SPL.jpg](http://1.bp.blogspot.com/_rYYcdMsVqUE/TUAd1AE9Q3I/AAAAAAAAABo/U6yRX5qGajM/s1600/B302322-Spirogyra_algae%25252C_light_micrograph-SPL.jpg)
- <http://en.wikipedia.org/wiki/File:Wilson1900Fig2.jpg>
- [http://en.wikipedia.org/wiki/File:African\\_elephant\\_warning\\_raised\\_trunk.jpg](http://en.wikipedia.org/wiki/File:African_elephant_warning_raised_trunk.jpg)
- [http://en.wikipedia.org/wiki/Cell\\_\(biology\)](http://en.wikipedia.org/wiki/Cell_(biology))
- <http://cantorsbiologyblog.blogspot.com/2011/02/mitosis-somatic-cell-division.html>
- [http://www.savillbiology.com/Cell\\_division2.jpg](http://www.savillbiology.com/Cell_division2.jpg)
- [http://upload.wikimedia.org/wikipedia/commons/thumb/f/fa/Cork\\_p1160013.jpg/220px-Cork\\_p1160013.jpg](http://upload.wikimedia.org/wikipedia/commons/thumb/f/fa/Cork_p1160013.jpg/220px-Cork_p1160013.jpg)
- [http://en.wikipedia.org/wiki/Antonie\\_van\\_Leeuwenhoek](http://en.wikipedia.org/wiki/Antonie_van_Leeuwenhoek)
- [http://t0.gstatic.com/images?q=tbn:ANd9GcRnw4JNcDi5zEPEn\\_IRgwBHyFPAaa8ay7hsGGx0JFyiBzrRxDoM\\_g:nhne-pulse.org/wp-content/uploads/2010/12/mice.jpeg](http://t0.gstatic.com/images?q=tbn:ANd9GcRnw4JNcDi5zEPEn_IRgwBHyFPAaa8ay7hsGGx0JFyiBzrRxDoM_g:nhne-pulse.org/wp-content/uploads/2010/12/mice.jpeg)
- [https://docs.google.com/viewer?a=v&q=cache:8XEKT9FhO5IJ:www.worldofteaching.com/powerpoints/biology/The%2520Cell%2520Theory.ppt+cell+theory+powerpoint&hl=en&gl=us&pid=bl&srcid=ADGEESgrh8FtMd4jBQrtUZaJq-8ASG3nZU3hRCm1Bp00F59e7MS-e-yv71Sle9YikiNm9c1Eh-eAFxVo4NoAjrP8NNOtgK0vXqJTdQV6Mb9ynUCLOEvPSPtaozYWEMsYaSSLPUtLR7zm&sig=AHIEtbRldmE63tZt5fjnNvHrZGnb\\_zfdda](https://docs.google.com/viewer?a=v&q=cache:8XEKT9FhO5IJ:www.worldofteaching.com/powerpoints/biology/The%2520Cell%2520Theory.ppt+cell+theory+powerpoint&hl=en&gl=us&pid=bl&srcid=ADGEESgrh8FtMd4jBQrtUZaJq-8ASG3nZU3hRCm1Bp00F59e7MS-e-yv71Sle9YikiNm9c1Eh-eAFxVo4NoAjrP8NNOtgK0vXqJTdQV6Mb9ynUCLOEvPSPtaozYWEMsYaSSLPUtLR7zm&sig=AHIEtbRldmE63tZt5fjnNvHrZGnb_zfdda)
- <http://schoolworkhelper.net/wp-content/uploads/2011/02/cheekcell.jpg>
- [http://upload.wikimedia.org/wikipedia/commons/thumb/a/a4/Misc\\_pollen.jpg/788px-Misc\\_pollen.jpg](http://upload.wikimedia.org/wikipedia/commons/thumb/a/a4/Misc_pollen.jpg/788px-Misc_pollen.jpg)
- [http://en.wikipedia.org/wiki/Scanning\\_electron\\_microscope](http://en.wikipedia.org/wiki/Scanning_electron_microscope)