

MITOSIS LESSON

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WHAT IS THE CELL CYCLE????

- The cell cycle is like life cycle of the cell.
- There are two sections in the cell cycle and they are interphase and mitosis.

WHAT IS INTERPHASE????

- Interphase is the longest phase in the cell cycle and it is the time when the cell is not dividing.
- There are three phases in Interphase and they are G1 (Growth 1), S (Synthesis) and G2(Growth 2).
- Growth 1 is when the cell grows, makes needed organelles and cytoplasm to make the cell function correctly. It also performs normal functions such as makes proteins, aid in body functions, etc.
- Synthesis is when the chromosomes replicate and now the cell has two sets of DNA.
- Growth 2 is when the cell prepares for mitosis and it makes double of all the organelles so both of the cells have enough organelles.

WHAT IS CELL DIVISION

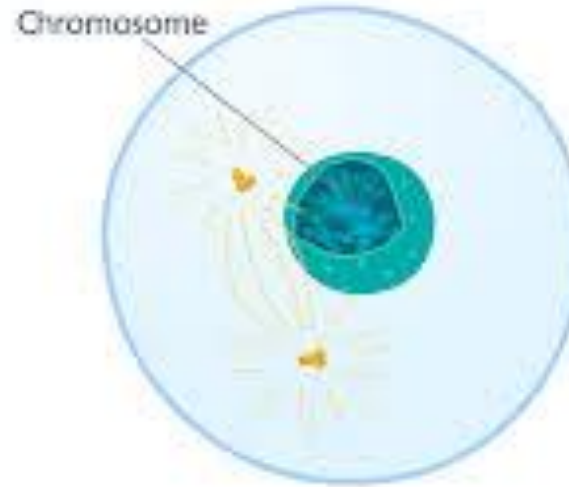
- Cell division is when the cell divides.
- One is Mitosis and the other one is cytokinesis

WHAT IS MITOSIS?????

- There are two parts of cell division. Mitosis is when one cell (the parent cell) divided into two daughter cells. Mitosis is also called the M phase.
- There are 4 steps in Mitosis: Prophase, Metaphase, Anaphase, and Telophase.

WHAT IS PROPHASE??

- Prophase is when the chromosomes condense, the nuclear envelope and nucleolus disappear, and centrosomes go to the opposite sides of the cell.

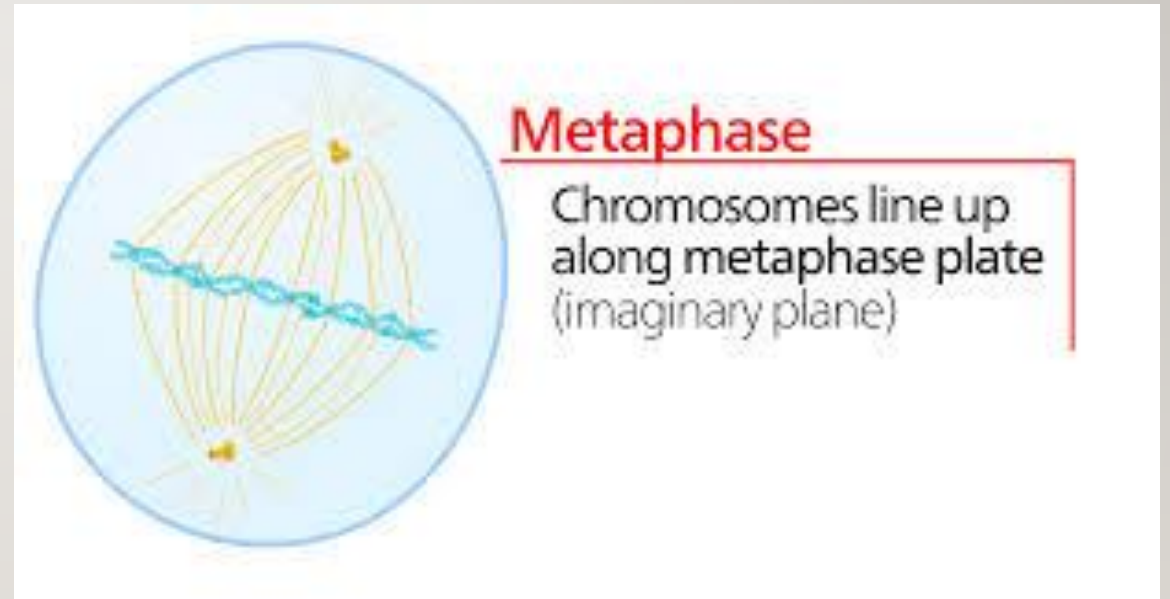


Prophase

Chromatin condenses into chromosomes
Nucleolus disappears

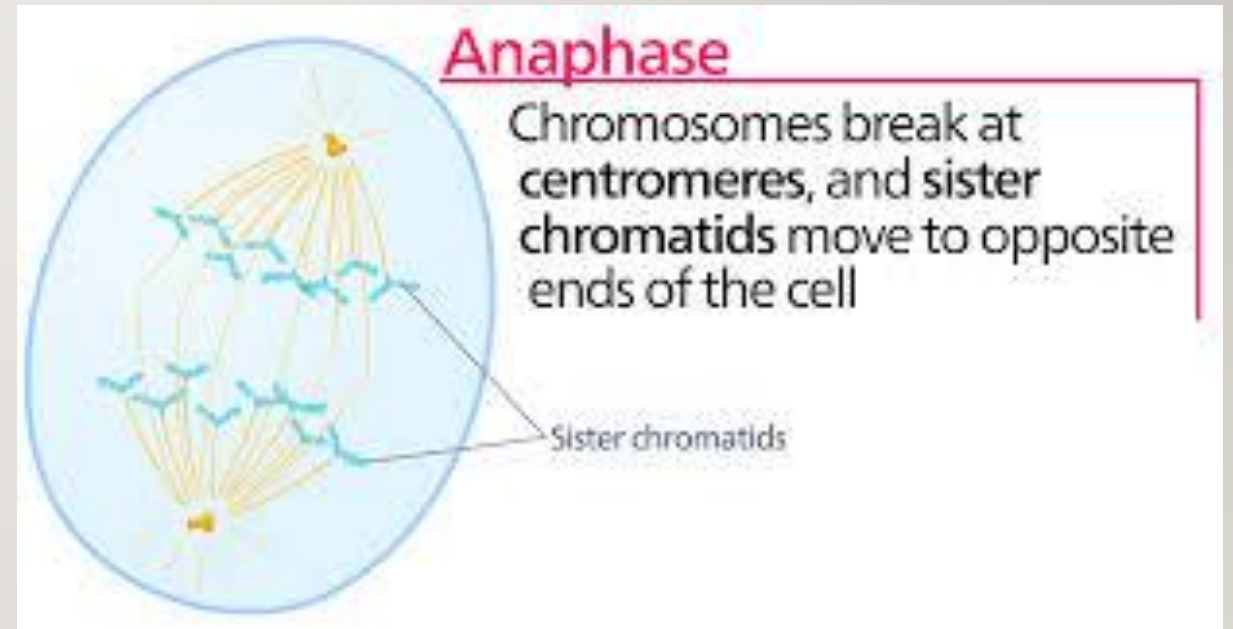
WHAT IS METAPHASE??

- Metaphase is the second phase of mitosis.
- In metaphase, the chromosomes migrate into the middle of the cell, (the middle of the cell is the metaphase plate). The spindle fibers attach to the kinetochore (special place that the spindle fibers can connect) of the centromere.



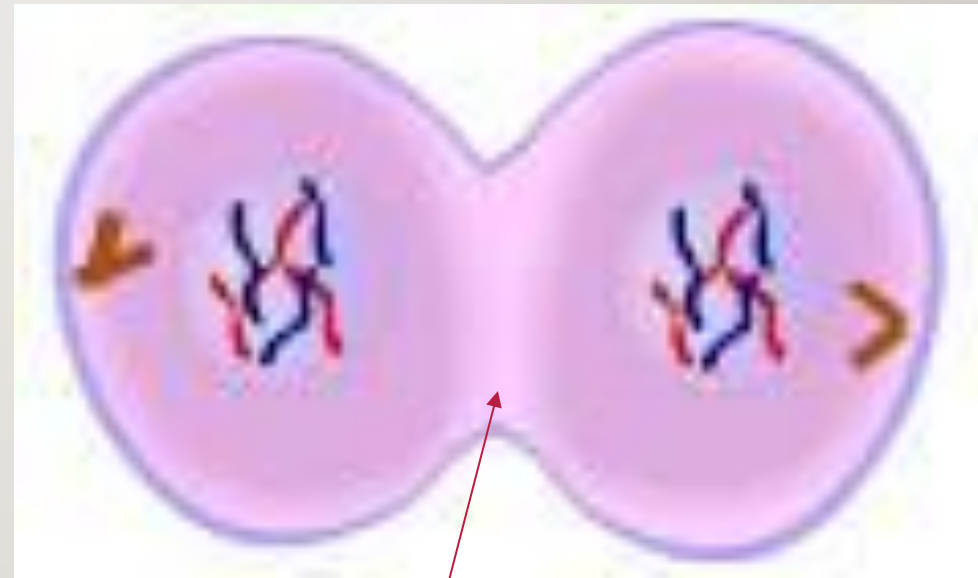
WHAT IS ANAPHASE??

- Anaphase is the third phase of mitosis.
- Anaphase is when each sister chromatid is pulled apart by the spindle fiber meaning half of the chromosome is pulled to opposite sides of the cell.



WHAT IS TELOPHASE??????

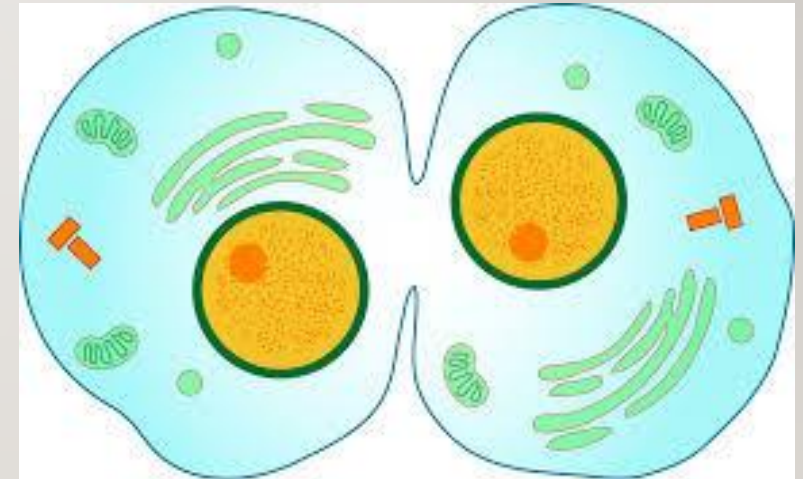
- Telophase is the last phase of mitosis
- It is when the nuclear envelope reappears around the chromosomes and cleavage furrow (animals) or cell plate (plants) begin to form



Cleavage Furrow

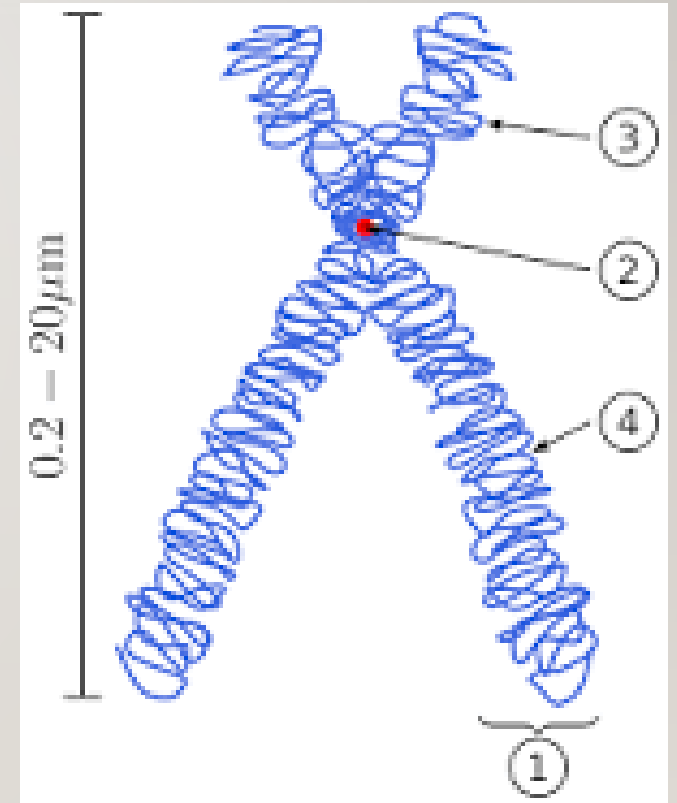
WHAT IS CYTOKINESIS

- Cytokinesis is the second part of cell division and it is when cleavage furrow or cell plate is complete and the cytoplasm splits.
- Chromosomes begin to unravel again into chromatin



DIFFERENT TYPES OF CHROMOSOMES

- DNA is stored in chromosomes and there are many forms of chromosomes.
- During interphase and before replication, the DNA is in the form of chromatin.
- During prophase, the chromatin condense into visible chromosomes and it can be seen using a microscope
- If the DNA was not condensed, then the replicated DNA would be very hard to separate
- In the picture of a condensed chromosome , 2 is the centromere and one half of the chromosome is the sister chromatid.



HAVE ANY OTHER QUESTIONS??

- If you have any questions, then feel free to contact us by email (STEMinate@gmail.com) or phone (804-291-7885 / 804-366-8101 / 804-655-7282)
- If you don't understand something, go to the Mitosis video in Khan Academy or Amoeba Sisters