Guided Notes - Cell Cycle

According to the cell theory, cells come from pre existing cells.

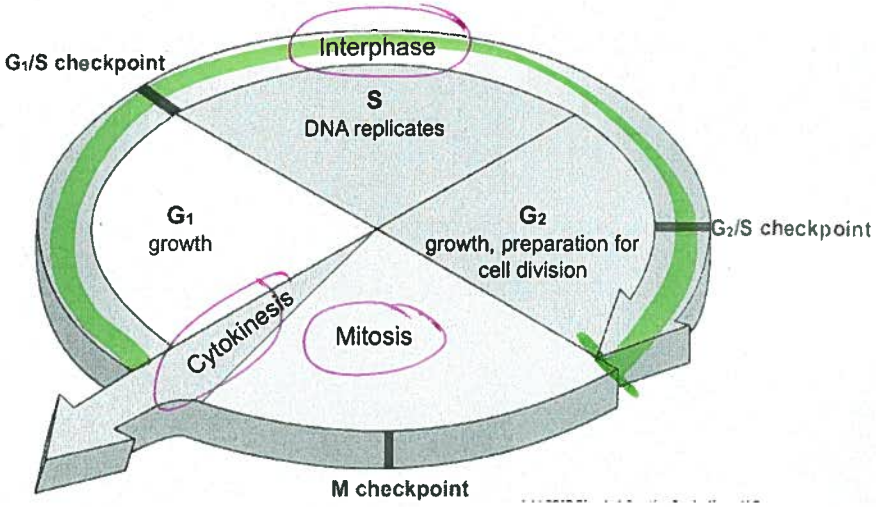
The cell cycle is the life of a cell.

Cell Cycle

- Occurs in 3 main stages.

1. Interphase
2. mitosis
3. Cytokinesis

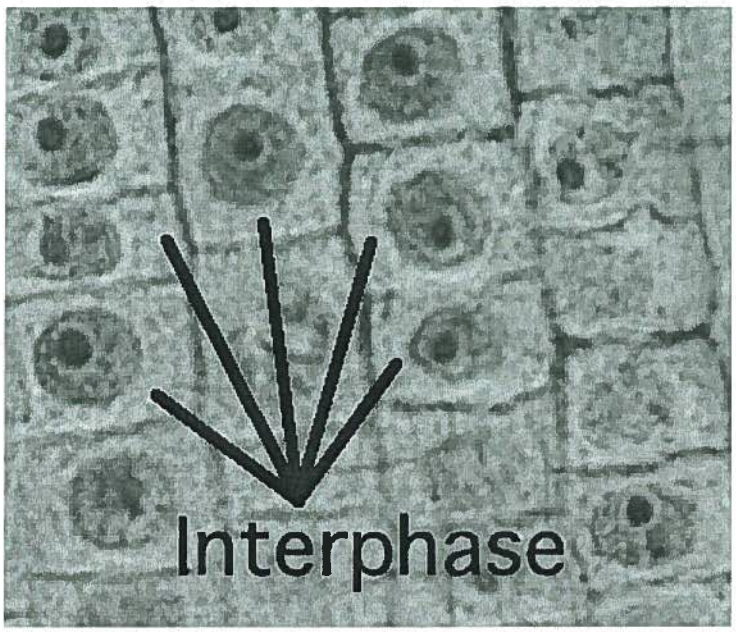
- Used for growth, repair and reproduction for single celled organisms. "asexual"



INTERPHASE - 1st Stage of the Cell Cycle

- Cells spend most of their life in Interphase.
- Cells perform their function/job in Interphase.
- Cells grow in the G1 phase.
- Cells make copies/replicate their DNA in the S phase.
- Cells prepare to divide in the G2 phase.
- There are 3 checkpoints, controlled by cyclin and CDK to make sure the cell is ok to continue and later divide.

Cells in Interphase, the nucleus is visible and the DNA inside is in Chromatin form (string like).

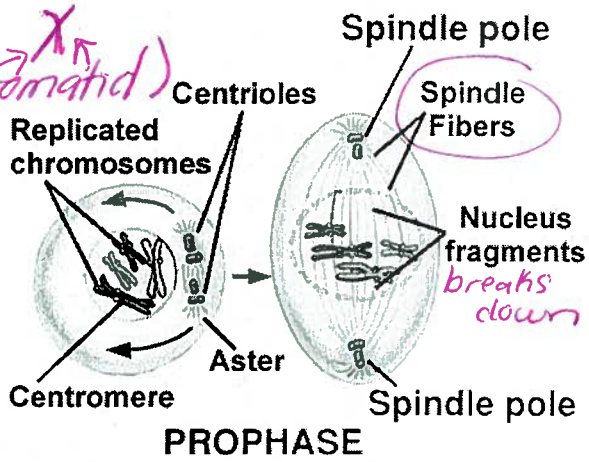


MITOSIS - 2nd Stage of the Cell Cycle

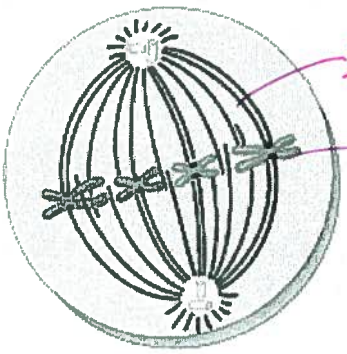
- Division of the nucleus
- The DNA copies/chromosomes are separated in 4 main stages
- 4 Main stages, Prophase, Metaphase, Anaphase, Telophase
- Process creates 2 identical daughter cells
- Used for growth and repair.

Prophase

- The DNA goes from Chromatin to Chromosome (sister chromatid) form.
- Nucleus breaks down, spindles form, centrioles appear in animal cells.



PROPHASE

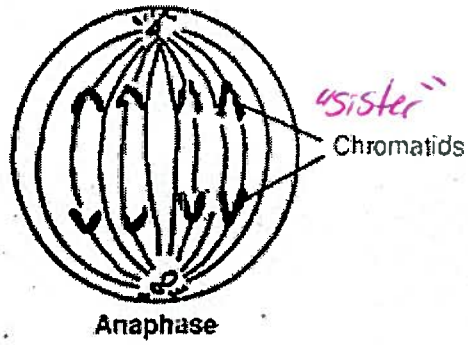


Metaphase

- Chromosomes line up at the middle/equator of the cell with spindles attached to the centromere of the duplicated chromosomes.

Anaphase

- Spindles shorten, pulling the sister chromatids (chromosome copies) away from each other moving towards to the poles of the cell.
- Cytokinesis begins

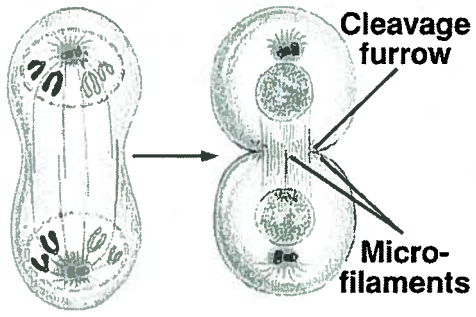


Anaphase

Telophase

- Nuclei (aka: nucleus) forms around set of chromosomes Chromosomes → Chromatin
- Cytokinesis continues

MITOSIS



TELOPHASE CYTOKINESIS

CYTOKINESIS - 3rd Stage of the Cell Cycle

- Division of the Cytoplasm
- In animals cells, the cytoplasm pinched into two
- In plants cells, a cell plate divides the cytoplasm

RESULTS of the Cell Cycle

- 2 Identical daughter cells with the same number of chromosomes.
- Used for growth, repair and asexual reproduction