

# Cellular Reproduction: Mitosis

# DNA

DNA = deoxyribonucleic acid

-Contains the genetic information  
for the cell

...the **instructions** for the cell!

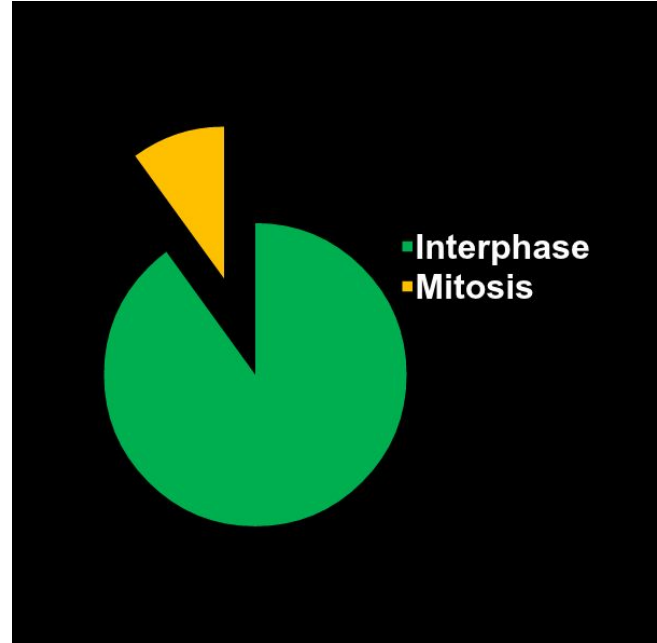


# Cellular Reproduction: The Cell Cycle

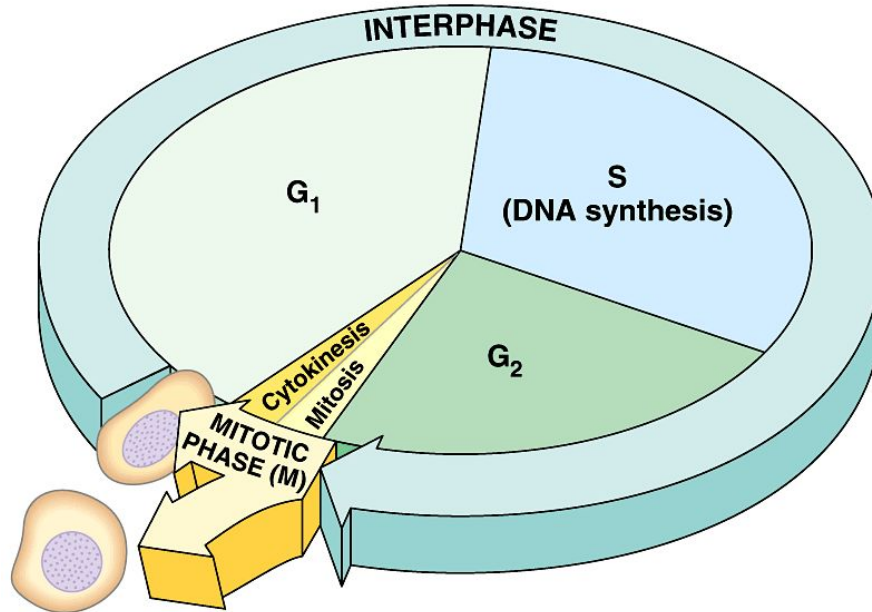
The cell cycle has 2 main stages:

- 1) Interphase
  - The cell spends 90% of its time in this stage
- 2) Mitosis

\*Let's draw!



# Cellular Reproduction: The Cell Cycle



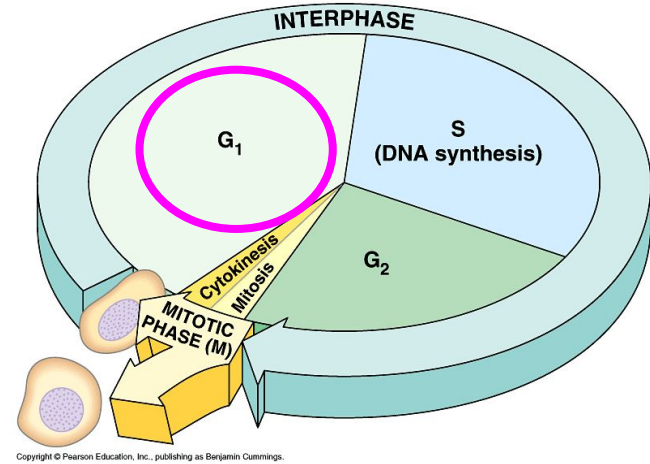
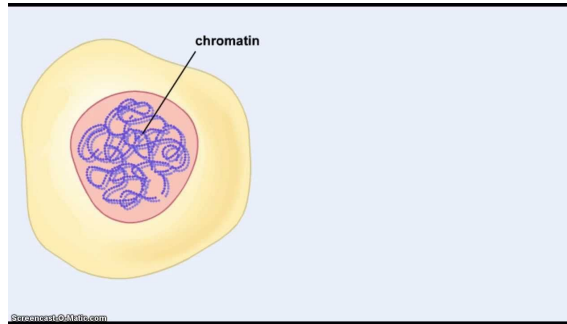
\*\*Let's draw!

# Cellular Reproduction: Cell Cycle

Stage	What happens?
Growth 1 (G1)	Cells increase in <b>size</b>
Synthesis (S)	<b>DNA</b> Replication
Growth 2 (G2)	<b>Preparation</b> for mitosis
Mitosis (M)	<b>Nucleus</b> divides
Cytokinesis	Division of the <b>cell</b> and cytoplasm

# Cell Reproduction: Growth 1 (G<sub>1</sub>)

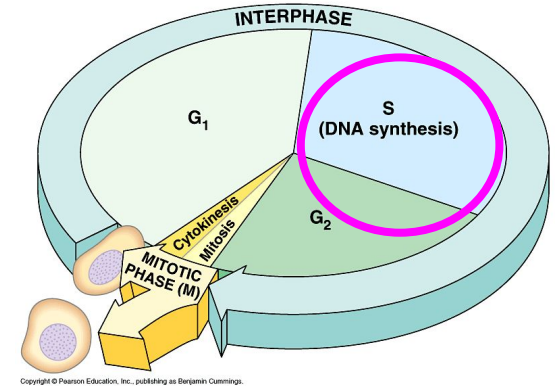
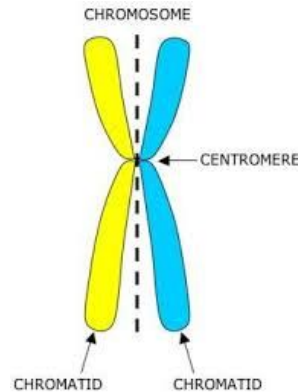
- Cells grow in size
- Cells synthesize (produce) new proteins and organelles
- DNA is in a relaxed form called chromatin



# Cell Reproduction: S Phase

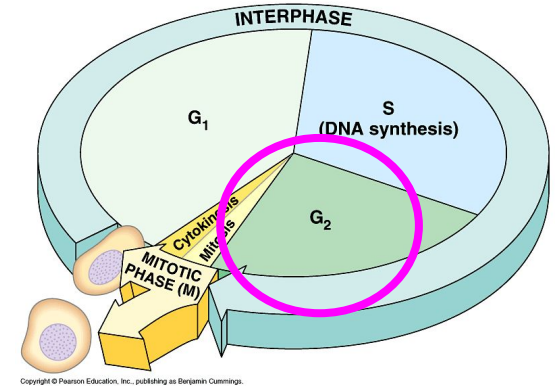
## S phase

- DNA is replicated
- There are two complete copies of DNA, each called a **chromatid**
- The chromatid are condensed
- The chromatid are connected at the **centromere**
- The entire structure is called a **double chromosome**



# Cell Reproduction: Growth 2 (G<sub>2</sub>)

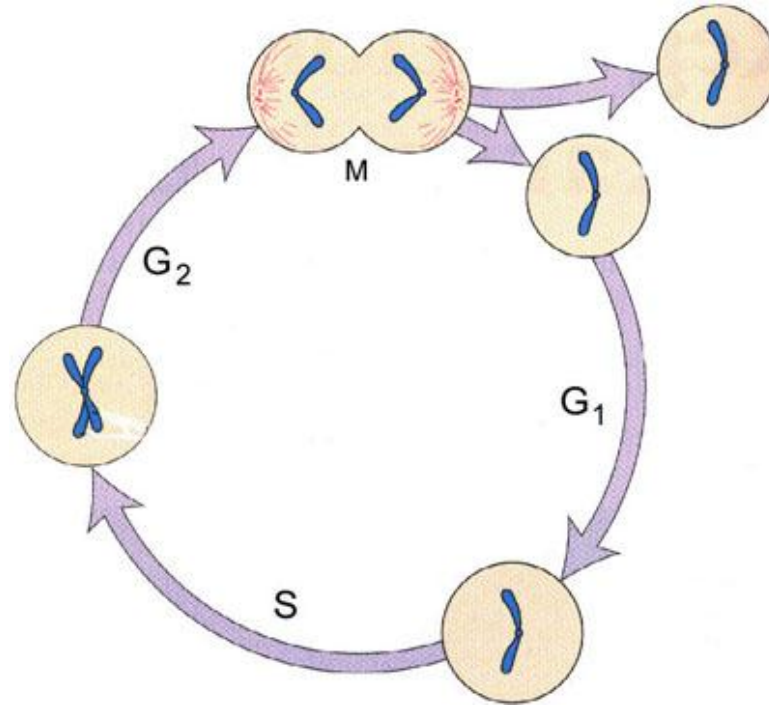
Organelles needed for cell division are produced.





# Cellular Reproduction: Cell Cycle

\*\*Let's Draw!



# Mitosis: Why does the cell divide?

1) To grow



2) To repair damaged tissues



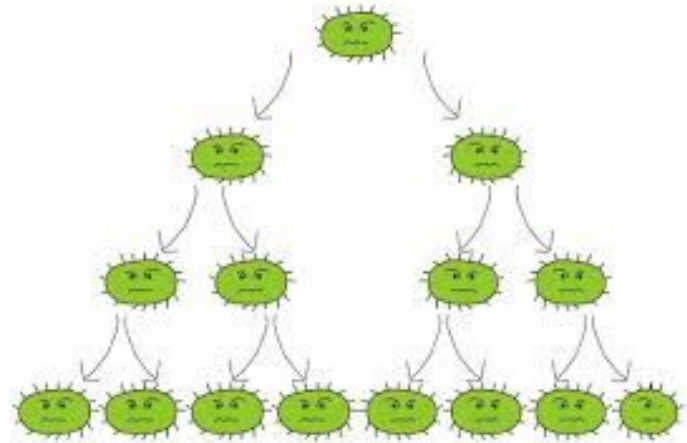
3) To pass on genetic information



# Mitosis: Asexual reproduction

Mitosis is a form of asexual reproduction

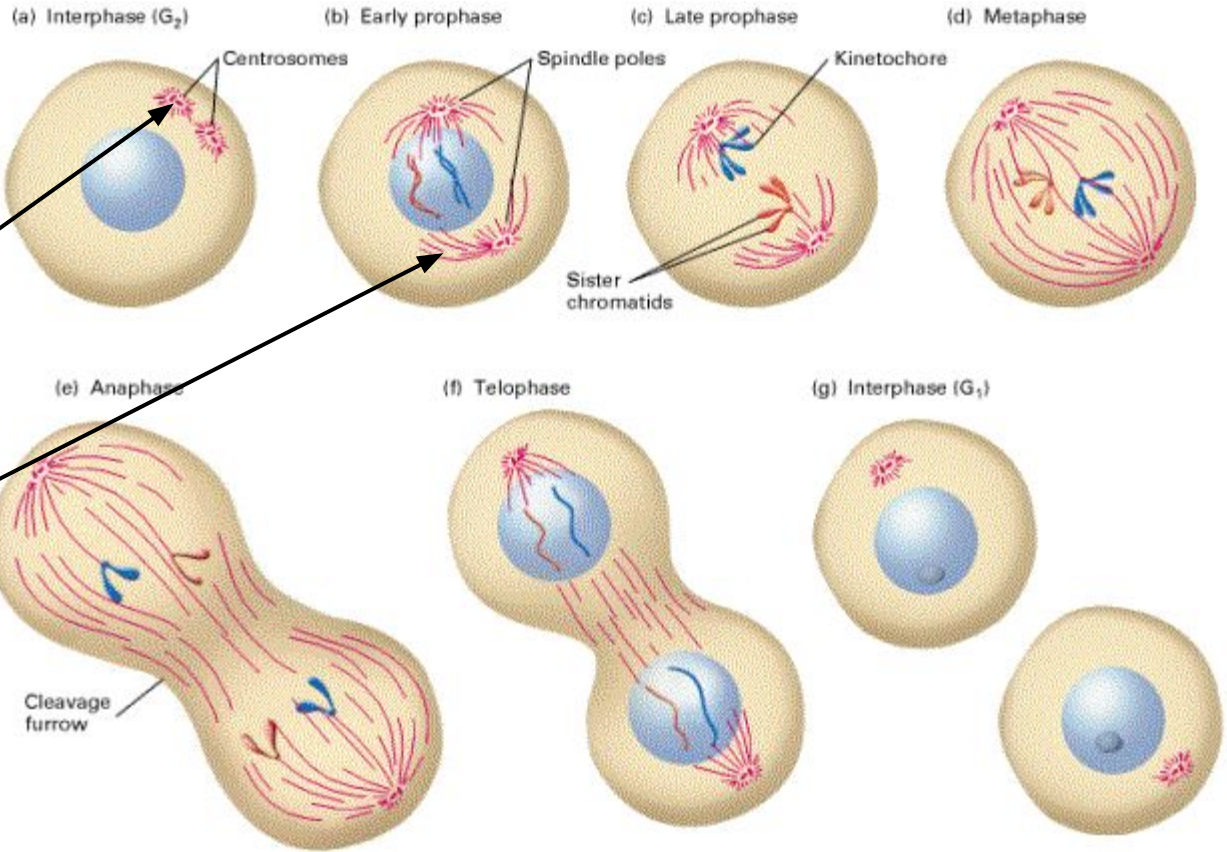
- involves **one source** of genetic material (one parent)
- offspring are **genetically identical** to parent (clones)



# Crash Course Biology: Mitosis

<https://www.youtube.com/watch?v=L0k-enzoeOM>

# Mitosis



Centrioles

Spindle fibers