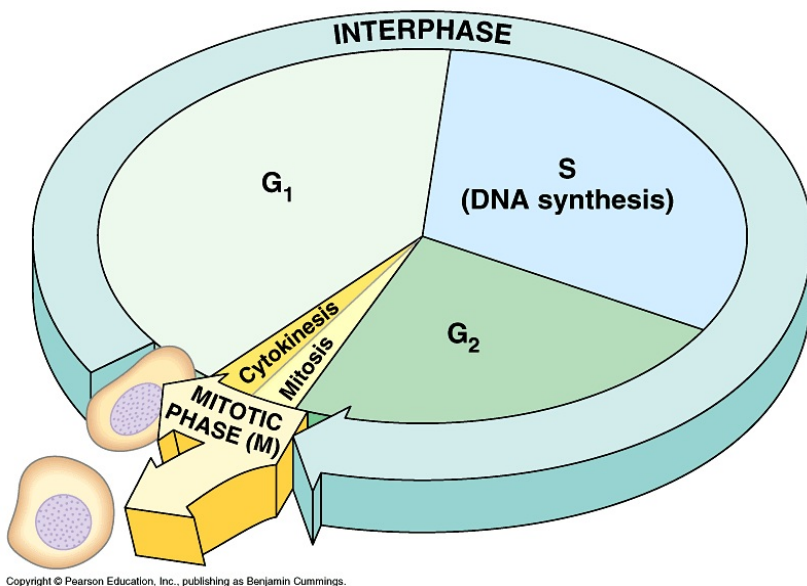


How Body (Somatic) Cells Reproduce :

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“The Cell Cycle”.....

- body cells regularly undergo a process of growth and division to replace lost / damaged cells or create new growth



Interphase is the stage in which any cells spends the majority of its life cycle. During that time, the cell carries out its daily functions, AND...

- new cell molecules and organelles are made (*G1 phase*), so the size and volume of the cell increases
- DNA is copied to make two sets of genetic material (*S phase*)
- centriole organelles are copied during the *G2 stage*...they will guide the cell through...

The “Mitotic”, or “Division” stage of its life is the period of time the cell actually spends cloning itself through the process of “MITOSIS”, *consisting of four substages...*

PROPHASE
METAPHASE
ANAPHASE
TELOPHASE

Generally, the 2 sets of DNA now found in the cell are separated to opposite ends of the cell (this is called “*mitosis*”, and later, division of the cytoplasm occurs (called “*cytokinesis*”))

Prophase...

- Chromatin coils, condenses to form chromosomes, each made of two identical sister (**homologous**) **chromatids**...because the DNA set has been copied. This ensures each daughter cell made at the end is able to receive a full set of DNA.
- Chromatid pairs are bound together with a protein called the **centromere**.
- The nuclear membrane and the nucleolus break apart, chromosomes can move around
- Centrioles migrate to opposite ends of the cell, and start to make the “**mitotic spindle**” that will attach to each chromosome and guide its movement.

Metaphase...

- Spindle fibers attach to the chromosome centromeres, guide them to a middle plane (“metaphase plate”) to line up. Each chromatid is attach to the spindle.

Anaphase...

- Centromeres split, the spindle fibers contract...sister chromatids separate and migrate to opposite ends of the lengthening cell.

Telophase...

- chromatids uncoil, spindle breaks down, nucleus and nucleolus reform

The last stage of the cell cycle.....**Cytokinesis**.....

- cell contents are split into two halves, and the cell membrane pinches inwards and will eventually separate completely...producing two identical daughter cells with a full complement of DNA. (**diploid cell**)