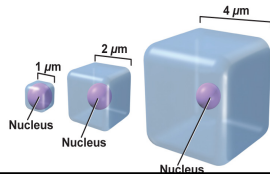


Cellular Growth

Ratio of Surface Area to Volume

- As the cell grows, its **volume increases** much **more** rapidly than the **surface area**.
- A small SA/Vol ratio makes it hard for the cell to maintain homeostasis



Why Cells are Small?

- Cellular Transport – transport slows as cell gets bigger
- Cellular Communication - Difficult to communicate when cell is big

The Cell Cycle

- Cell division prevents the cell from becoming too large.
- It also is the way the cell makes more cells.
- Cells reproduce by a cycle of growing and dividing called the **cell cycle**.

The Cell Cycle

- Interphase** is the stage during which the cell grows, carries out cellular functions, (G₁), replicates DNA (S₁), and prepares for division (G₂).
- Mitosis** is the stage of the cell cycle during which the cell's nucleus and nuclear material divide (Prophase, Metaphase, Anaphase, & Telophase)
- Cytokinesis** is the method by which a cell's cytoplasm divides, creating a new cell.

