**Cell Division and Differentiation**

**Prerequisite Knowledge-Cells**

Cell wall chloroplast concentration gradient cytoplasm cytoskeleton Diffusion

endoplasmic reticulum Golgi apparatus lysosome membrane mitochondrion

nuclear envelope nuclear pore phospholipid plasma membrane prokaryotic cell

ribosome rough ER selective permeability smooth ER eukaryotic cell

facilitated diffusion nucleus organelles osmosis passive transport vacuole

**Prerequisite Knowledge-Cell Division**

Anaphase cell cycle cell division centrioles centromeres chromosome

cytokinesis Daughter cell DNA replication interphase (G1, S & G2) metaphase mitosis

nuclear division parent cell prophase spindle fibers telophase

**New Key Terms-Cell Division and Differentiation**

Growth genome differentiation differentiated cell types apoptosis

Communication surface area: volume ratio cancer chromosome diploid

Fertilization gamete haploid somatic cell (body cell) genetic code gene

Expression stem cell embryonic stem cell adult stem cell pluripotent

Multipotent totipotent

**What role does mitosis play in producing and maintaining multicellular organisms?**

\*How does it allow organisms to form?

\*How does it allow them to grow?

\*How does it replace dead cells?

**How does mitosis allow a multicellular organism to be made up of specialized cells if every cell has the exact same genetic material?**