CONCEPT: CYTOKINESIS

●Mitosis divides the nucleus but is followed by _____ to produce two *identical* daughter cells.

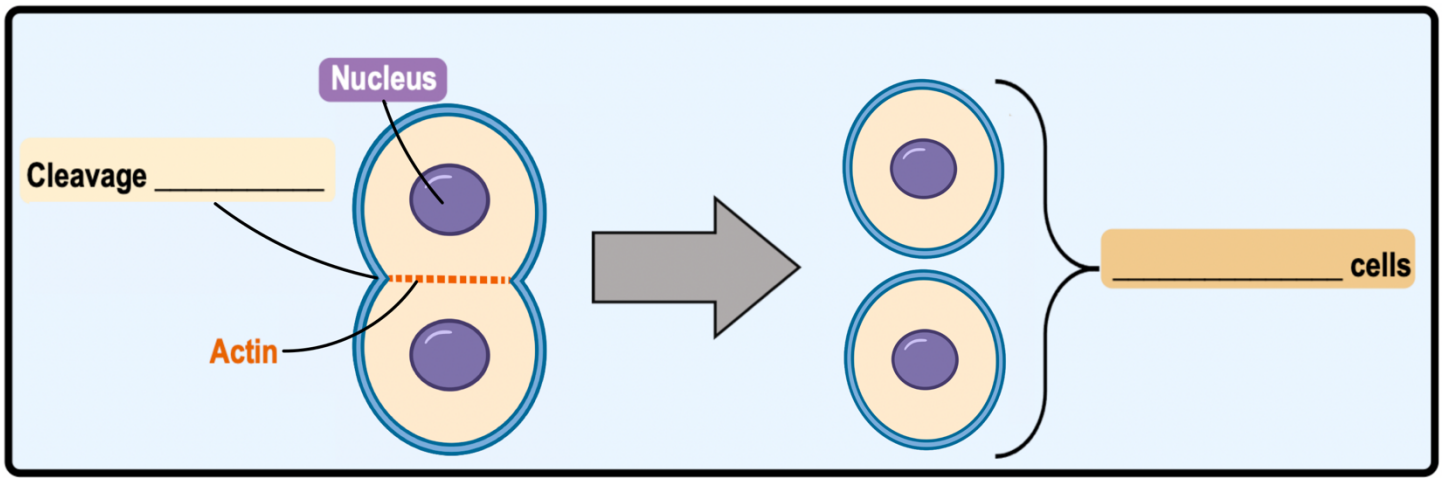
- □ **Cytokinesis**: division of the _____, separating one cell into two cells.
- □ *Animal* & *plant* cell cytokinesis _____ in their mechanism.

Animal Cell Cytokinesis

●In *animal* cells, cytokinesis forms a _____ **furrow**.

- □ **Cleavage Furrow**: small indentation of _____ **microfilaments** & *myosin* at the center of a dividing cell.

EXAMPLE: Cytokinesis in Animal Cells.



EXAMPLE: Why is cytokinesis an important part of cell division?

a) It is responsible for the proper separation of genetic information.
b) It is responsible for the proper separation of the cytoplasmic contents.
c) It is responsible for the linking of two sister chromatids.
d) It is responsible for the growth & production of new organelles & other cytoplasmic contents.

PRACTICE: In animal cell cytokinesis, a cleavage furrow is _____.

a) A ring of vesicles forming a cell wall.
b) The equatorial line which chromosomes align along during mitosis.
c) A groove in the plasma membrane between daughter nuclei.
d) The space that is created between two chromatids during anaphase.

CONCEPT: CYTOKINESIS

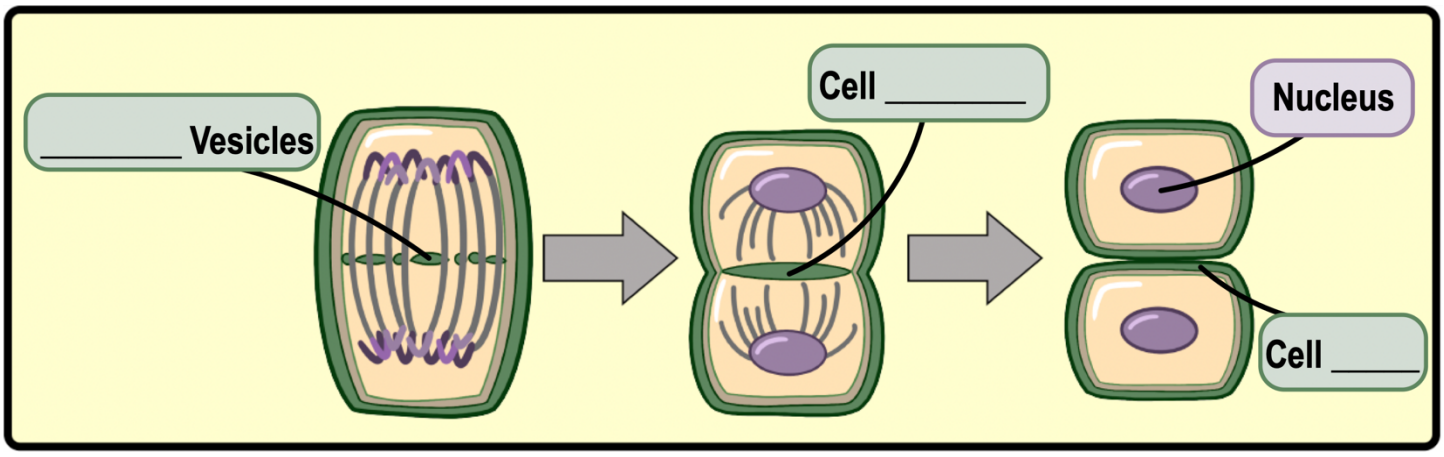
Plant Cell Cytokinesis

●*Recall:* Unlike animal cells, plant cells are surrounded by a ***cell _____***.

●In plant *cytokinesis*, _____ from the *golgi* carry materials to generate a **cell plate** & separate each daughter cell.

□ **Cell Plate**: _____ to the fully developed **cell wall**.

EXAMPLE: Cytokinesis in Plant Cells.



PRACTICE: Which of the following are primarily responsible for cytokinesis in plant cells?

a) Kinetochores.
b) Golgi-derived vesicles.
c) Actin and myosin.
d) Metaphase plate.
e) Centrosomes.

PRACTICE: FtsZ is a bacterial cytoskeletal protein that forms a contractile ring involved in binary fission. Its function is analogous to _____.

a) the cleavage furrow of eukaryotic animal cells.
b) the cell plate of eukaryotic plant cells.
c) the mitotic spindle of eukaryotic cells.
d) the microtubule-organizing center of eukaryotic cells.