

What did the cell say when his sister stepped on his foot?

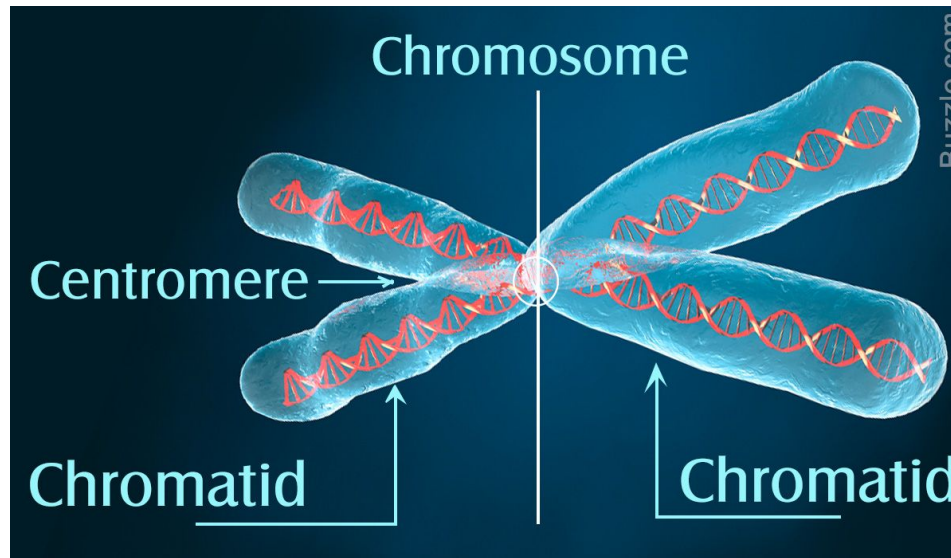
**Mitosis**

# THINK ABOUT IT

What are the 4 phases of mitosis?

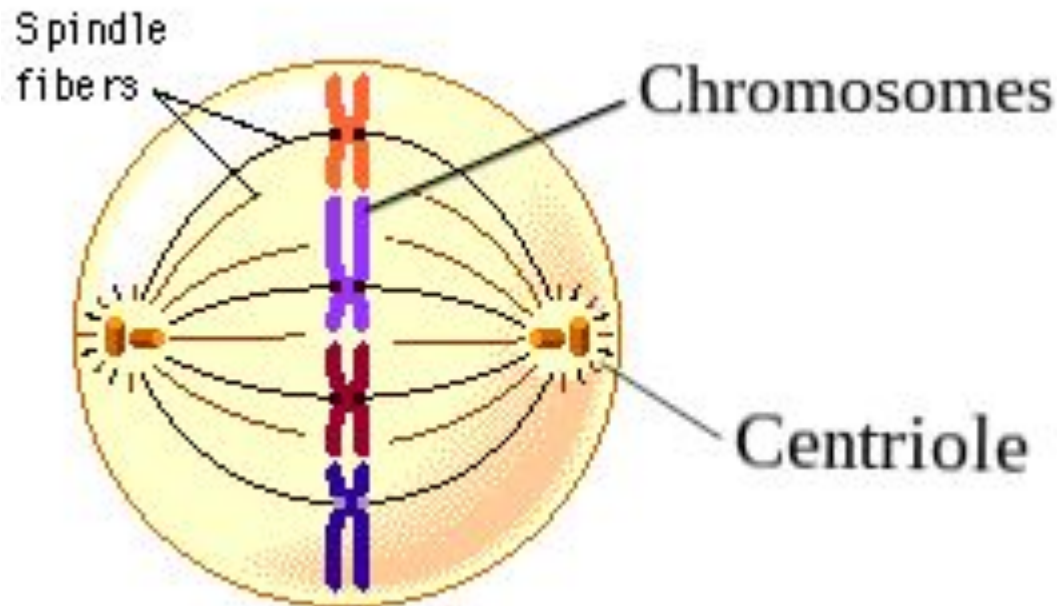
# Important Cell Structures Involved in Mitosis

- Chromosome: **threadlike structure of DNA and protein that contains genetic information**
- Chromatid: **each strand of a duplicated chromosome**
- Centromere: **the area where each pair of chromatids is joined**



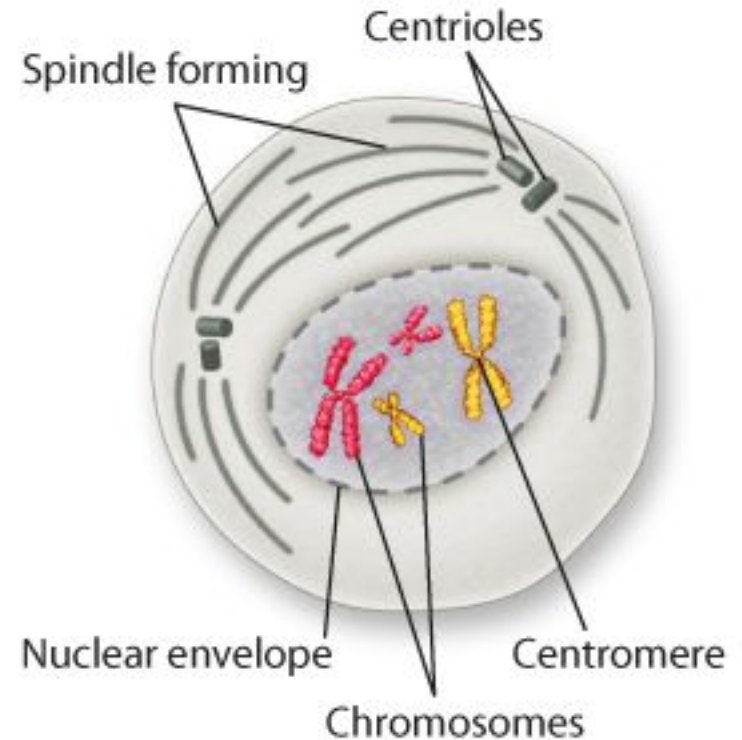
# Important Cell Structures Involved in Mitosis

- Centrioles: **tiny structures located in the cytoplasm of animal cells that help organize the spindle**
- Spindle fibers: **a fanlike microtubule structure that helps separate the chromatids**



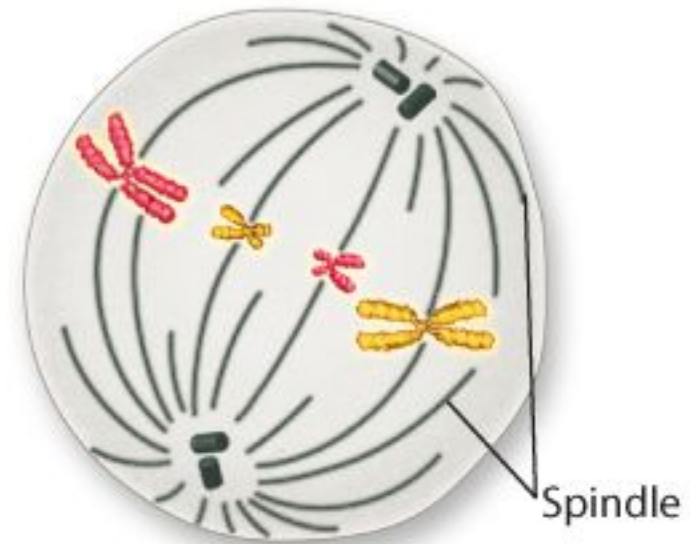
# Prophase

- During prophase, the first phase of mitosis:
- **DNA condenses into chromosomes, each consisting of a sister chromatid**
- **The nucleus disappears**
- **Spindle fibers form**



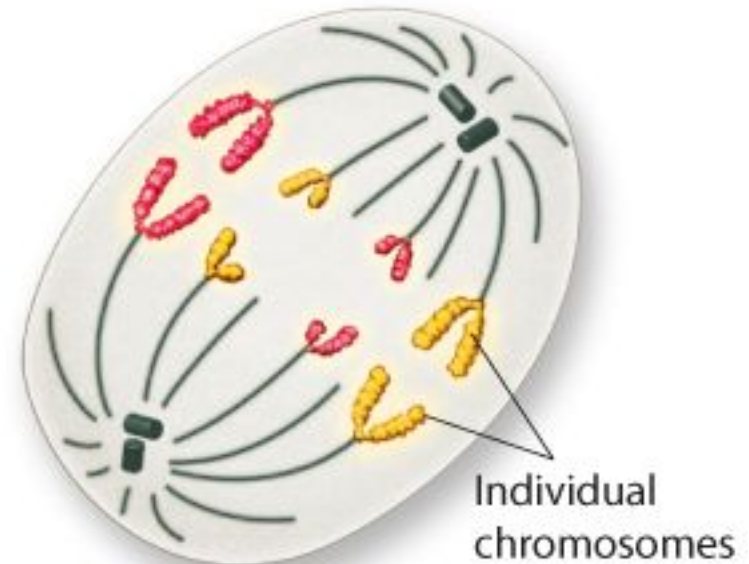
# Metaphase

- During metaphase, the second phase of mitosis:
- **The chromosomes line up along the middle of the cell**
- **The spindle fibers connect the centromere of each chromosome to the two poles of the cell**



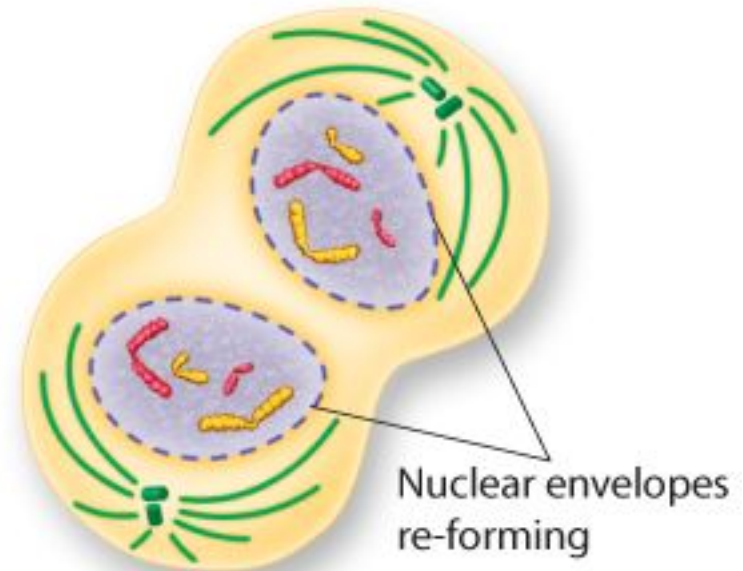
# Anaphase

- During anaphase, the third phase of mitosis:
- **The chromosomes are pulled apart at the centromeres, separating the sister chromatids**
- **The chromosomes are pulled toward opposite poles of the cell by the spindle fibers**



# Telophase

- During telophase, the fourth and final phase of mitosis:
- **The chromosomes unwind into thin strands of DNA**
- **Spindle fibers disappear**
- **The nuclear membrane reappears and TWO nuclei are formed**





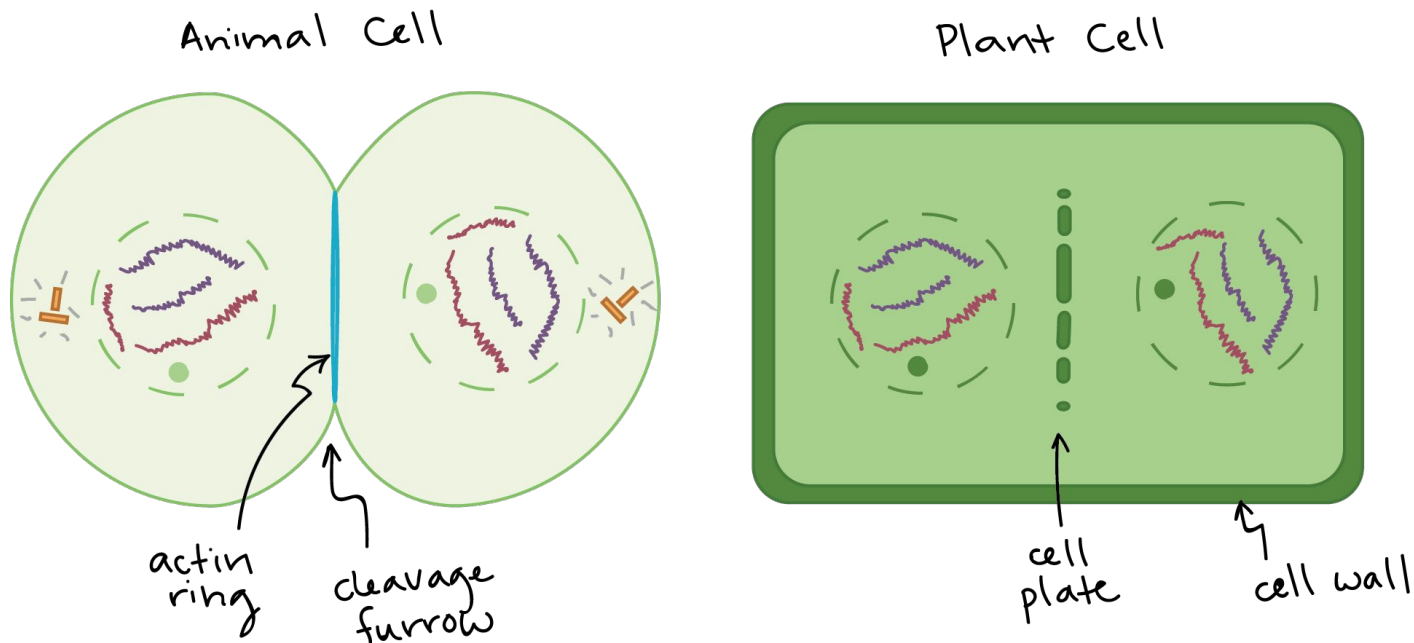
# Cytokinesis

- Cytokinesis completes the process of cell division.
- Cytokinesis is **the division of the cytoplasm in which the cell splits into two.**
- The process of cytokinesis is different in animal and plant cells.

# Cytokinesis in Animal Cells

- In animal cells, the cell membrane is drawn in until the cytoplasm is pinched into two equal parts
  - Each part contains its own nucleus and organelles

CYTOKINESIS



# Cytokinesis in Plant Cells

- In plant cells, a **cell plate forms between the divided nuclei that develops into cell membranes**
  - Then a cell wall forms

CYTOKINESIS

