

# Stages of Mitosis

## Karyokinesis (“nuclear movement”)

### Interphase

- G1 – cell growth and differentiation
- S – DNA synthesis (replication) and condensation begins
- G2 – cell prepares for division

### Prophase

- DNA synthesis (replication) and condensation complete  
chromosomes (original and copy) held together by centromeres  
now known as “sister chromatids”
- Nuclear envelope disintegrates
- Mitotic spindles (spindle fibers) begin to form
- Centrosomes replicate and migrate to opposite poles  
in animal cells, centrosomes contain centrioles and asters

### Metaphase (“meta” means middle)

- Mitotic spindles (spindle fibers) finish forming
- Sister chromatids migrate; eventually lining up in middle of cell

### Anaphase

- Mitotic spindles (spindle fibers) begin pulling sister chromatids to opposite poles
- Centromeres break  
sister chromatids now known as “daughter chromosomes”

### Telophase

- Daughter chromosomes complete migration to opposite poles
- Chromosomes begin de-condensing
- Mitotic spindles (spindle fibers) disintegrate
- Nuclear envelope reforms

## Cytokinesis

Animal cells

Cleavage furrowing

Plant cells

Cell plate formation