

Cell Division ©2022 by Kelly Abdul

Why do cells divide?

- Reproduction
- Growth
- Repair

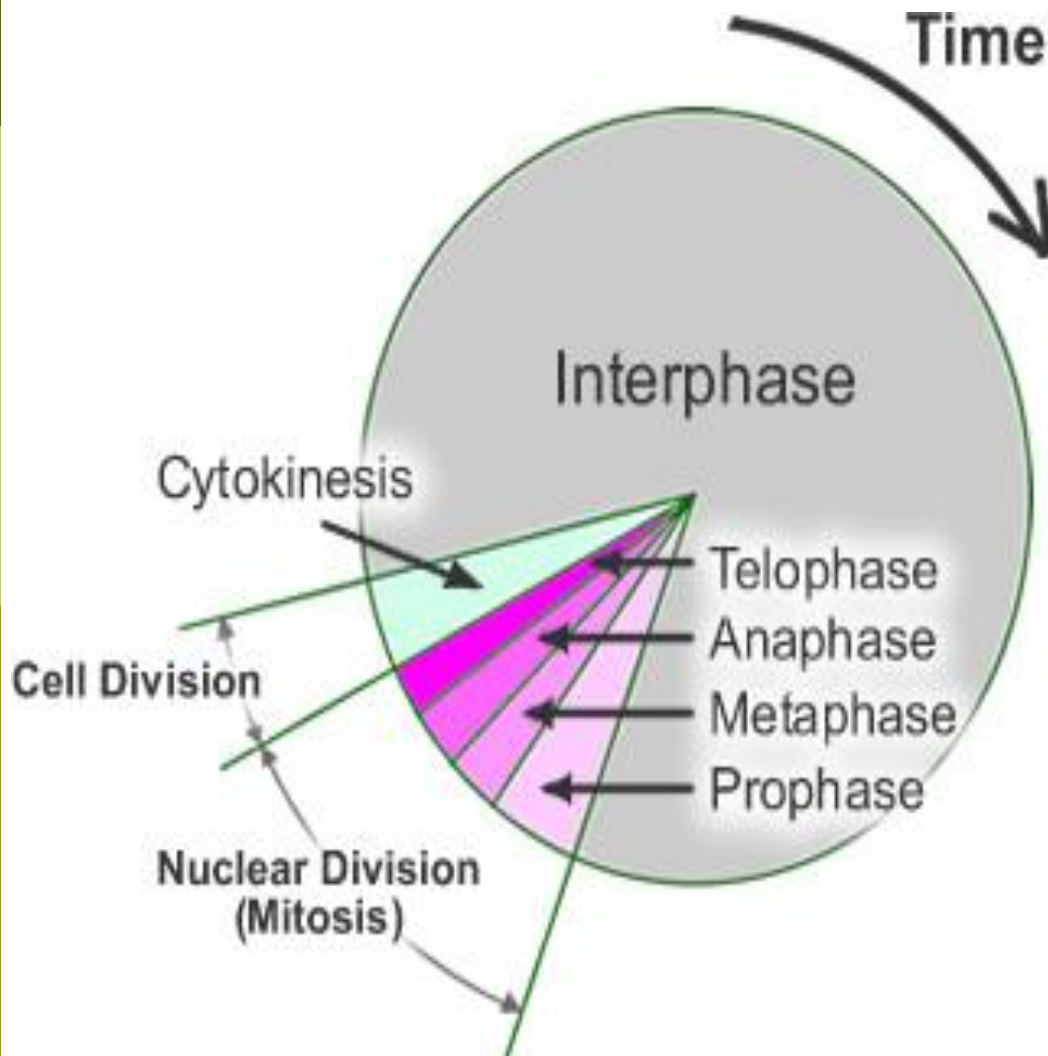


How does the cell know how to divide?

The DNA has the instructions for *all* of the cell's activities.

Cell Cycle

The sequence of development and division of a cell



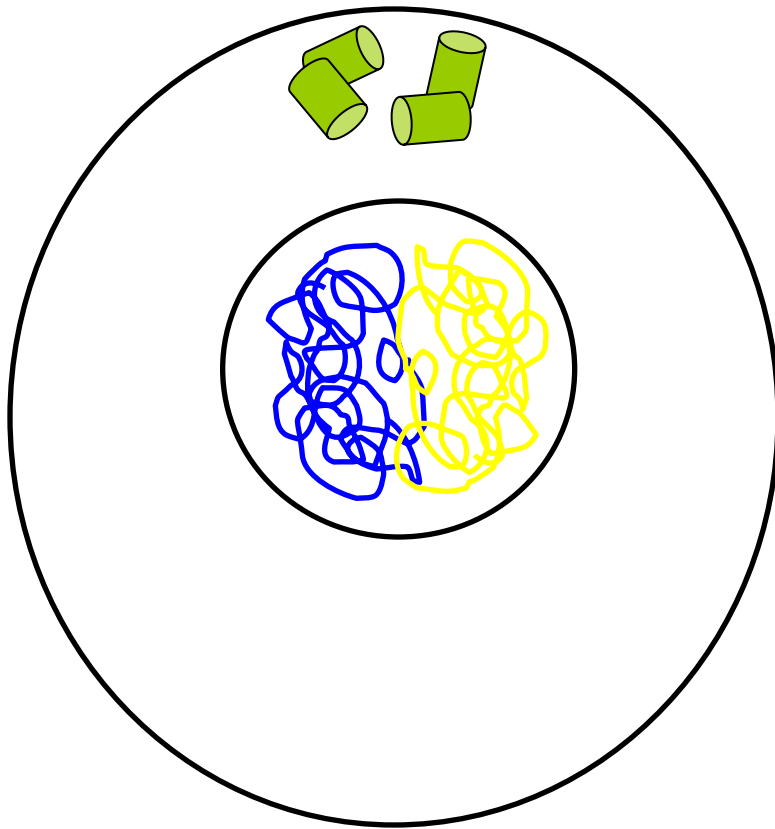
3 Parts

1. **Interphase** - Preparation
2. **Mitosis** – Cell division
3. **Cytokinesis** – Splitting

How long does it take?

- Adult human cell: ~24 hrs
 - 18-20 hours in interphase
 - 2 hours in mitosis
- Embryonic cells: 30 min.

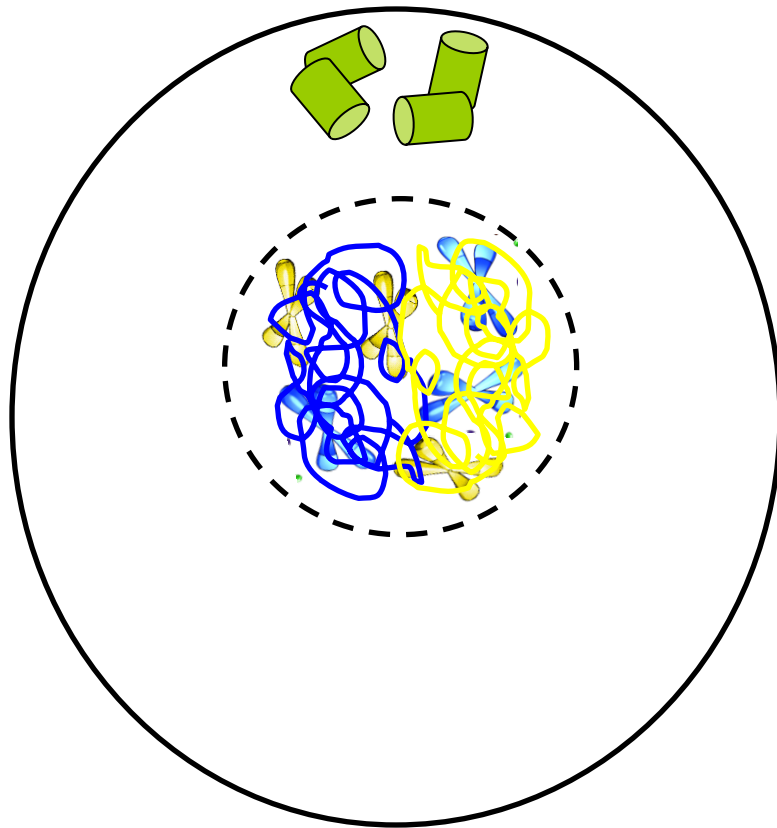
Interphase



What happens

- Cell doubles in size
- DNA replicates
- Organelles double in number

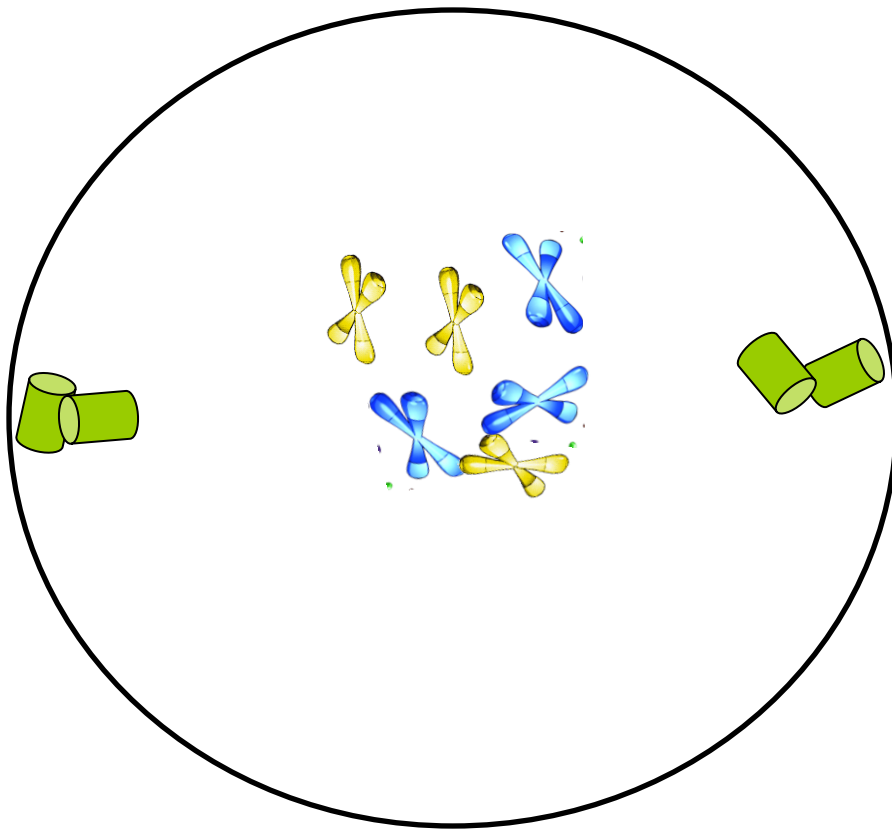
Mitosis: PROPHASE



What happens

- DNA forms chromosomes
- Spindle forms
- Centrioles move toward opposite poles
- Nuclear membrane begins to disappear

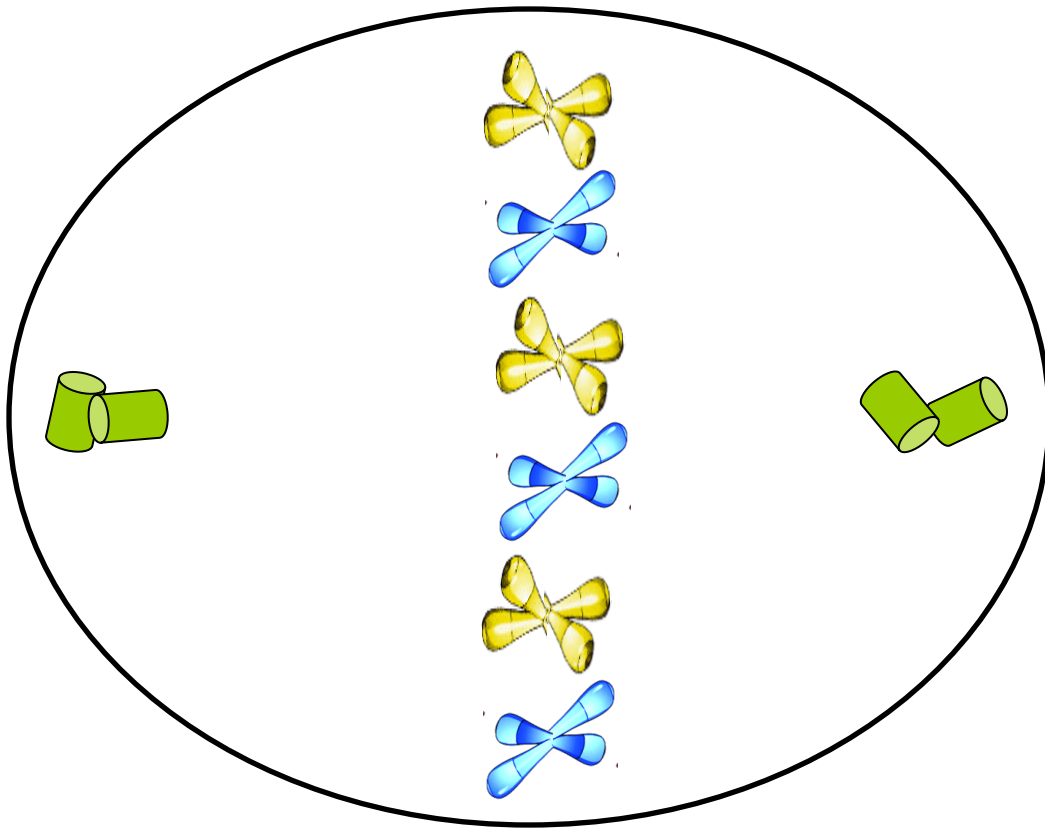
Mitosis: METAPHASE



What happens

- Nucleus has disappeared completely
- Chromosomes line up in the middle of the cell “equator”

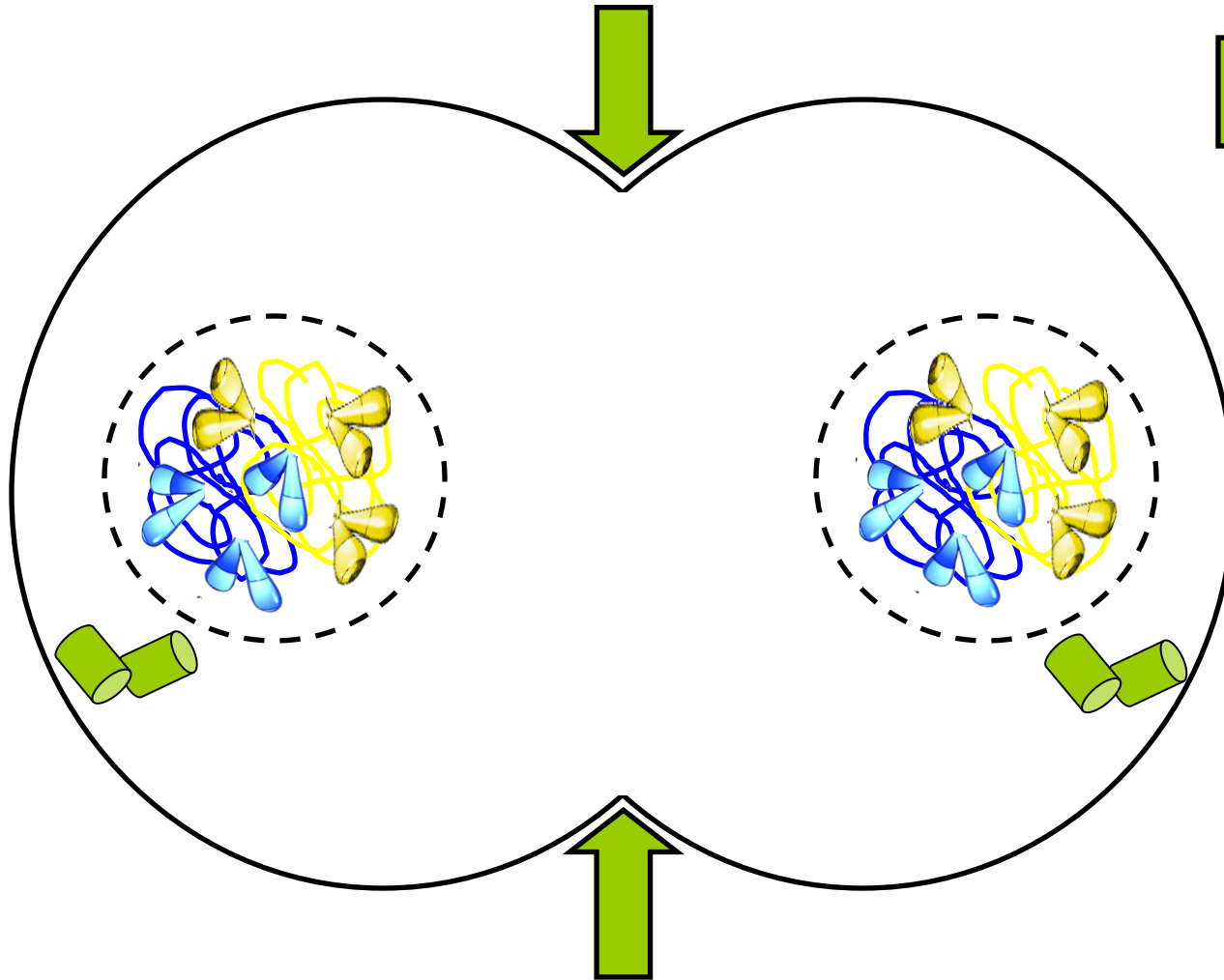
Mitosis: ANAPHASE



What happens

- Centromeres divide
- Chromatids separate and move to opposite poles

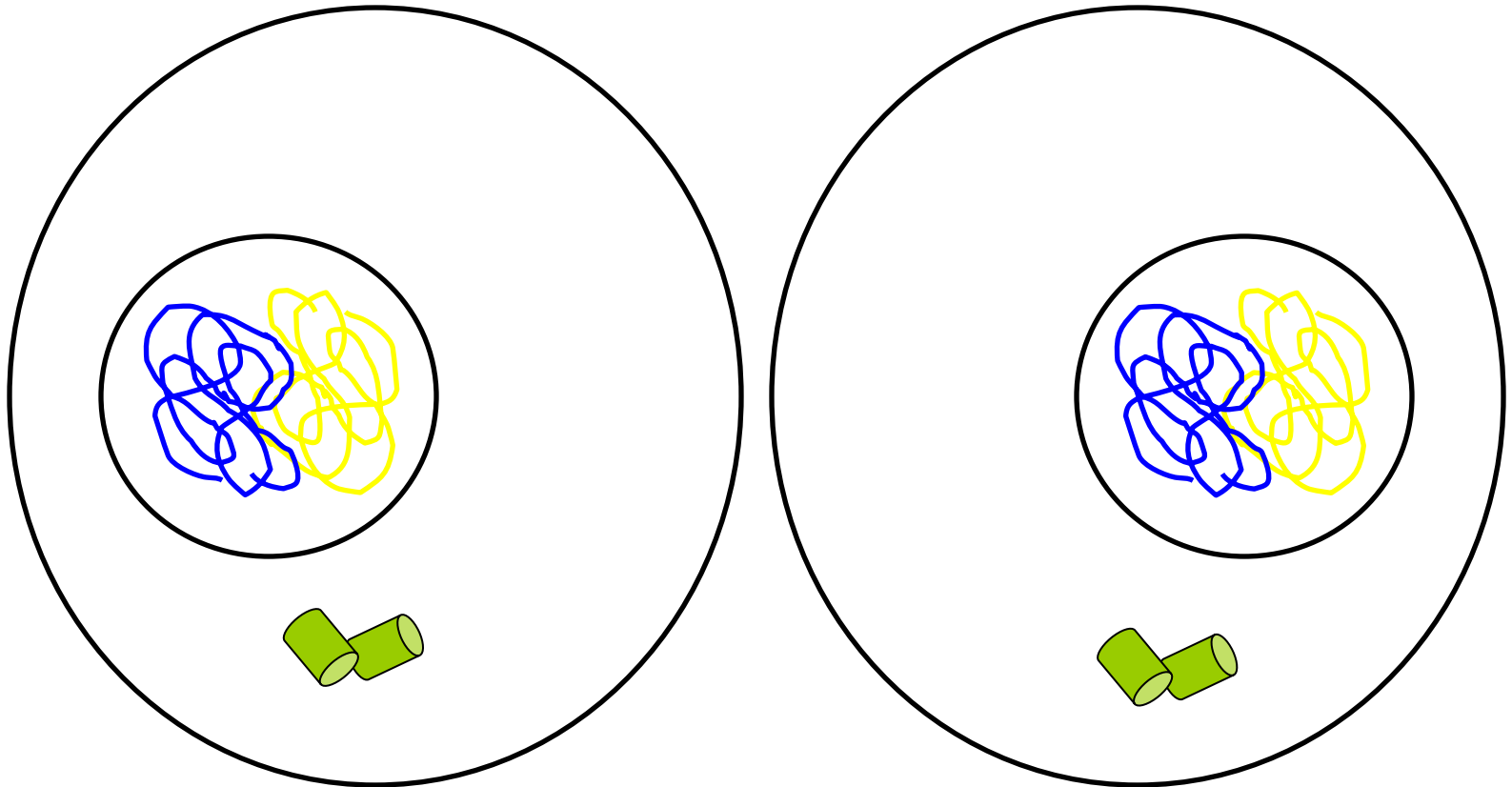
Mitosis: TELOPHASE



What happens

- Nuclear membrane forms around each group of chromosomes
- Chromosomes unwind
- Cytokinesis begins

Cytokinesis



What happens

- Cytoplasm divides
- One cell becomes 2 cells