

# Wednesday December 21<sup>st</sup>

Earn a 4 in Citizenship!



# 4.3 Mitosis Vocabulary

## Standard Objectives:

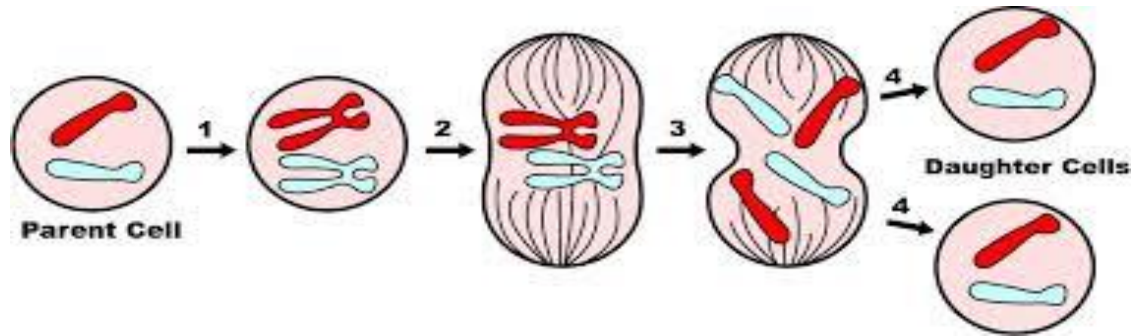
- Describe the general process and outcome of mitosis
- Diagram and describe the phases of mitosis

# 4.3 Mitosis Vocabulary

## Mitosis

Asexual division of cells

Has five distinct phases/stages



# Mitosis Vocabulary

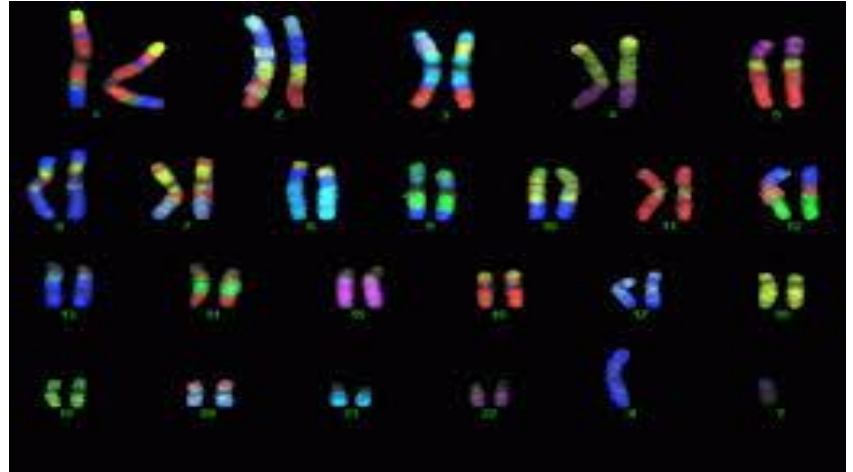
## Chromosome

A length of DNA

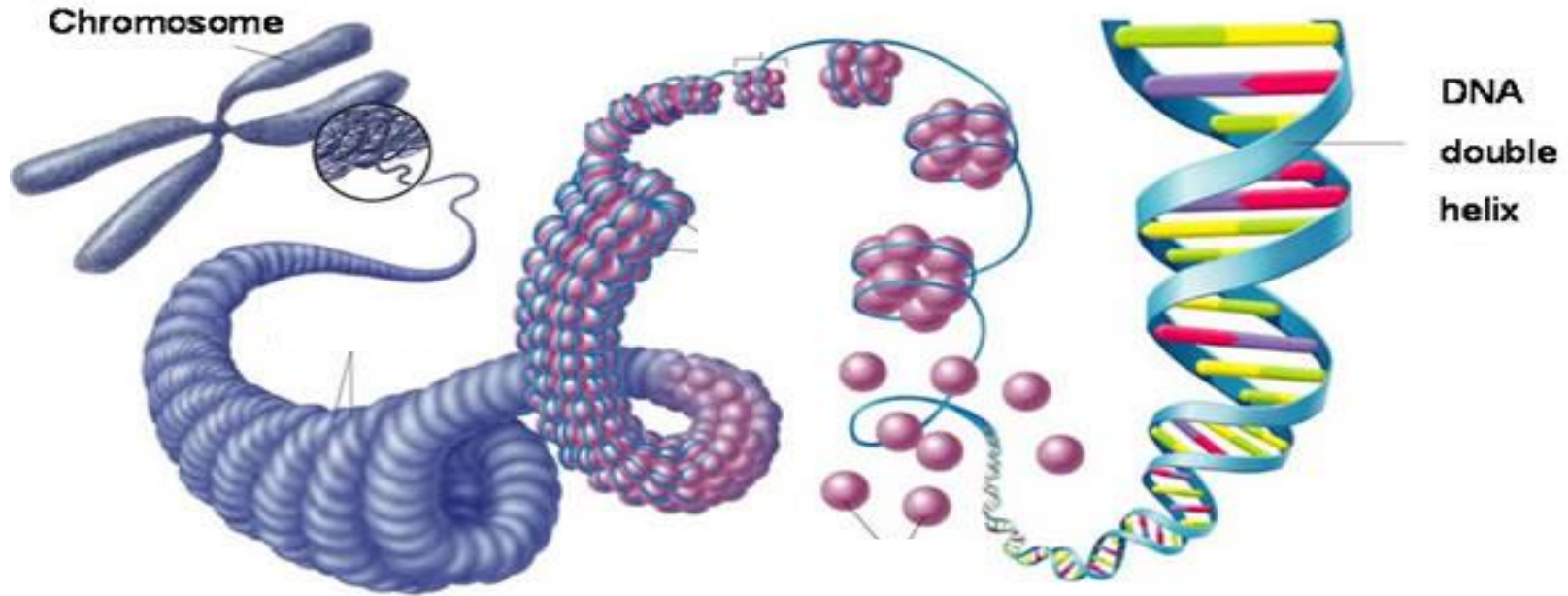
Example:

Humans have 23  
chromosomes

Fruit flies have 8



# 4.3 Mitosis Vocabulary



# 4.3 Mitosis Vocabulary

## ChromatiN

Loose, uncoiled chromosome  
Like Noodles

## ChromatiD

ConDensed, supercoiled  
chromosome



Condensed  
Chromosome

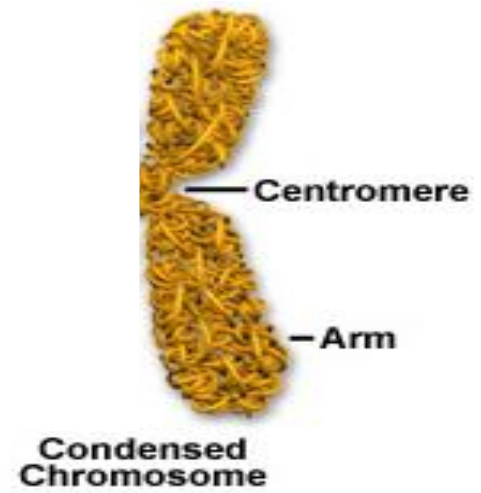
# 4.3 Mitosis Vocabulary

## Arm

One "side" of a chromatid

## Centromere

Central linkage point on a chromatid



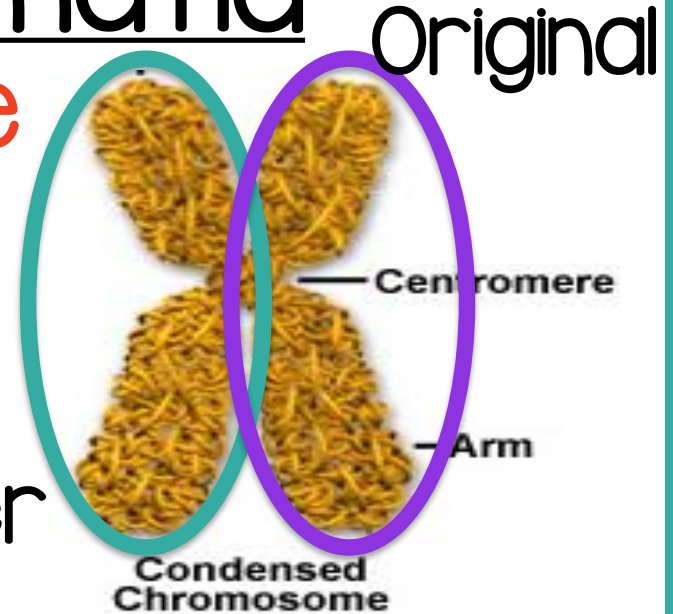
# 4.3 Mitosis Vocabulary

## Sister Chromatid

Copy of chromosome  
Attached at  
centromere

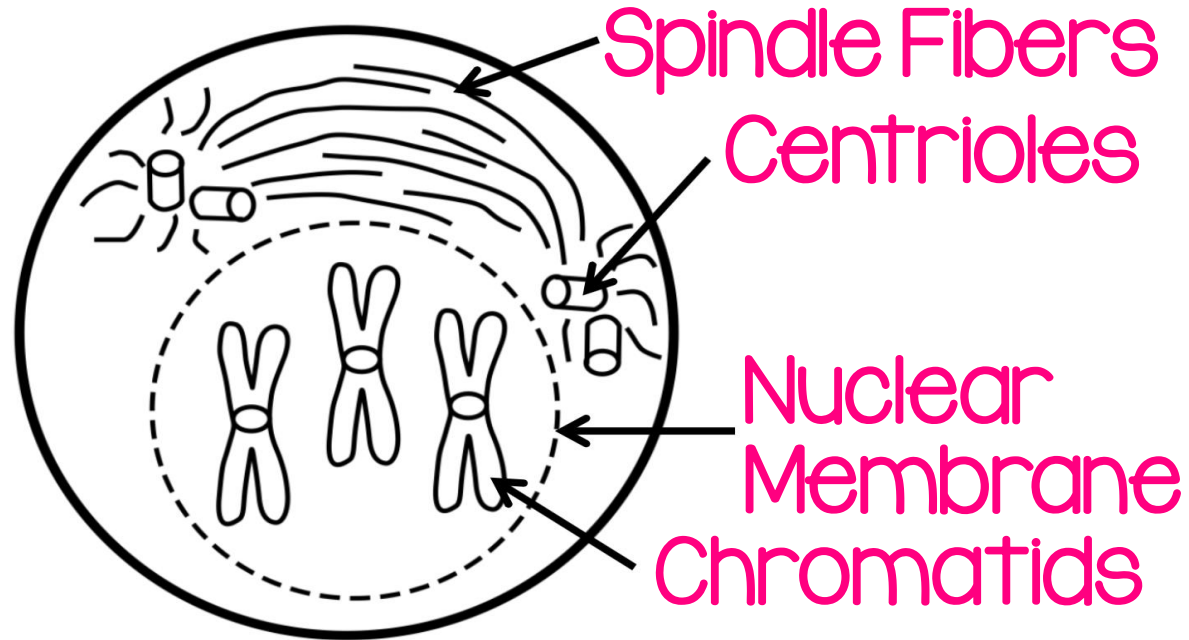
Sister = copy

Sister





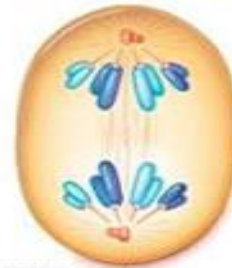
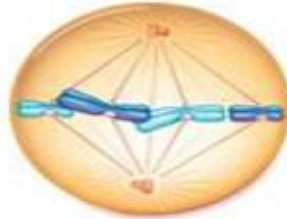
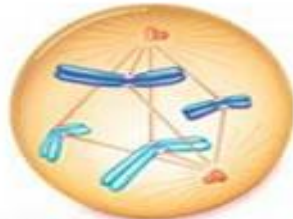
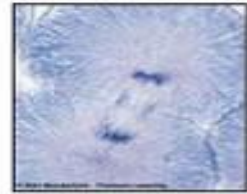
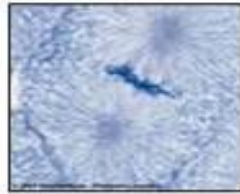
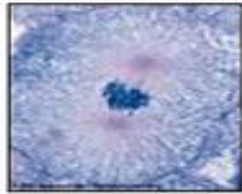
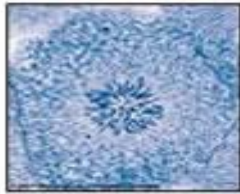
# 4.3 Mitosis Vocabulary



# Phases of Mitosis

Reminder...

Mitosis is the asexual division of cells



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# Phases of Mitosis

## Why do cells need to divide?

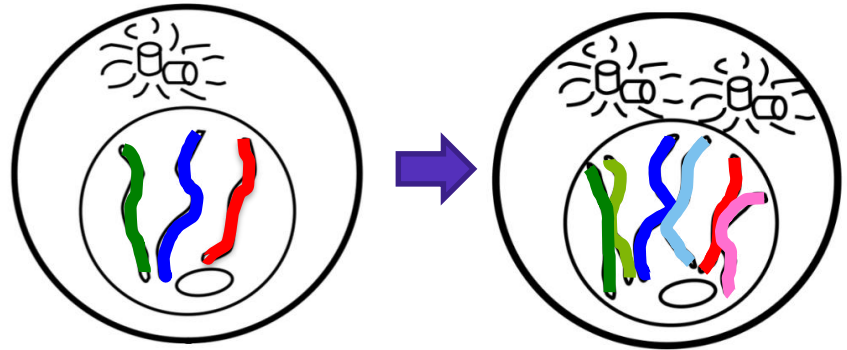
- Cells can only grow so big
- Bigger cell = more demands on DNA
- More demands = more stress
- Bigger also = more difficult to transport nutrients & waste

# Phases of Mitosis

## Phase I: Interphase

### "Initiate & Duplicate"

- Chromosomes are copied to make sister chromosomes
- Centrioles appear and duplicate

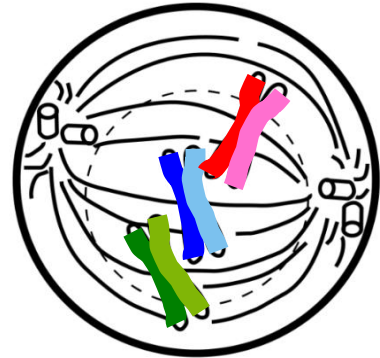


# Phases of Mitosis

## Phase 2: Prophase

"Prepare and Disappear"

- Chromatin condense to chromatids
- Centrioles move to opposite ends

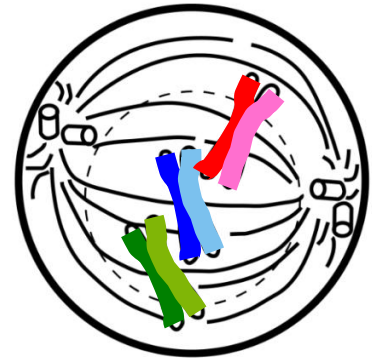


# Phases of Mitosis

## Phase 2: Prophase

“Prepare and Disappear”

- Spindles form between the centrioles
- Nuclear membrane begins to dissolve

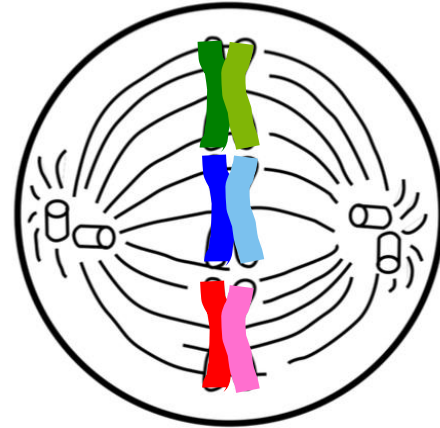


# Phases of Mitosis

## Phase 3: Metaphase

“Middle”

- Chromatids line up in the middle of cell
- Spindles attach to the centromeres of chromatids

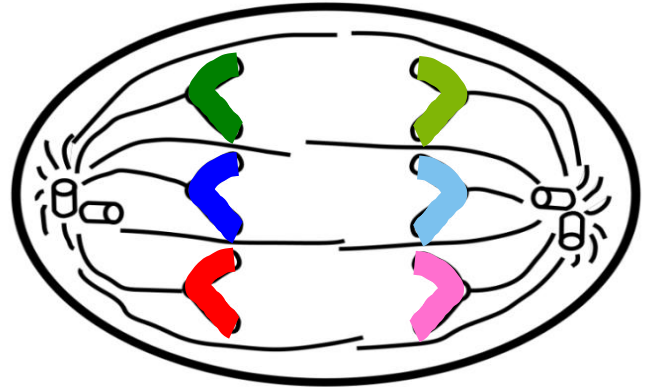
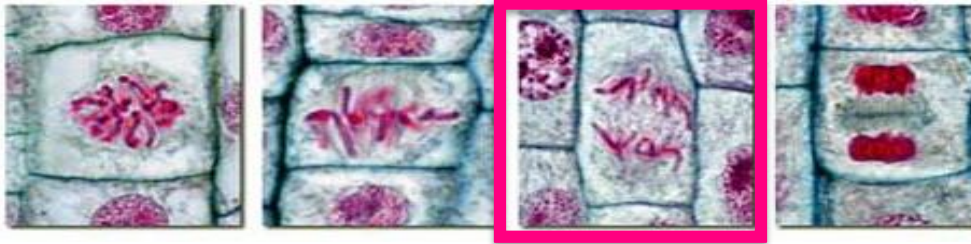


# Phases of Mitosis

## Phase 4: Anaphase

“Apart”

- Chromatids separate apart and begin to move to opposite ends



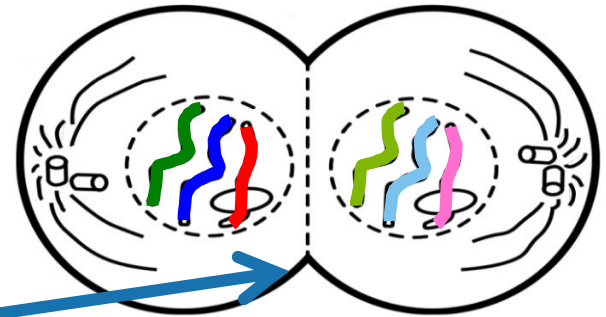


# Phases of Mitosis

## Phase 5: Telophase

### "Tear into Two"

- Cleavage furrow appears as cell membrane starts to divide
- Two new nuclear membranes form around chromosomes



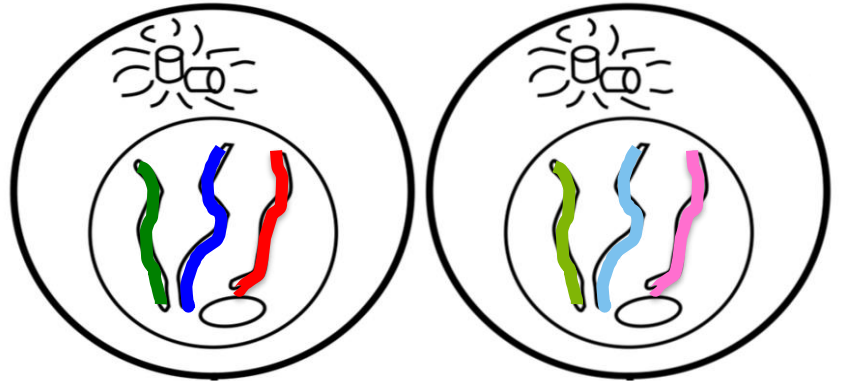
Cleavage furrow

# Phases of Mitosis

## Phase 5: Telophase

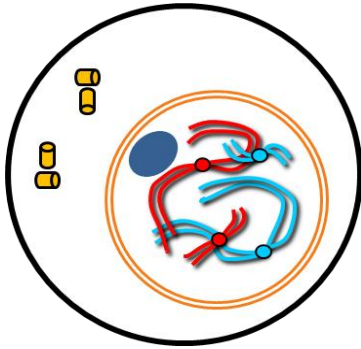
“Tear into Two”

- Chromosomes “uncondense” back to chromatin

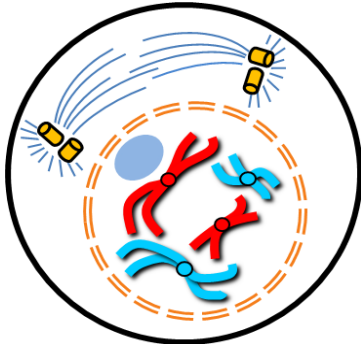


# Phases of Mitosis

## Review



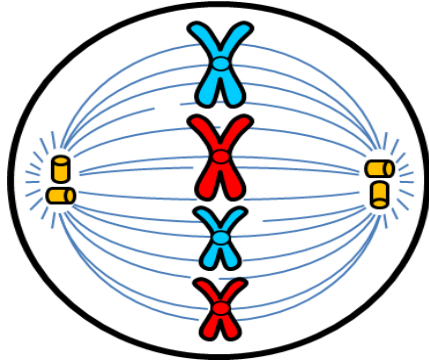
1. Initiate and Duplicate



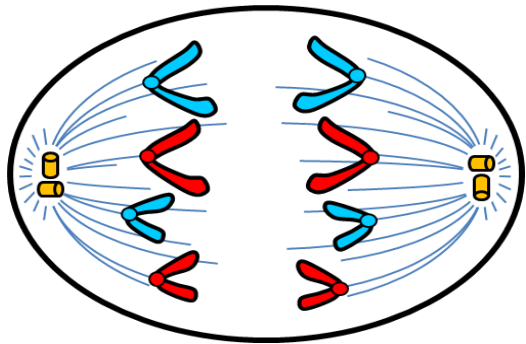
2. Prepare and Disappear

# Phases of Mitosis

## Review



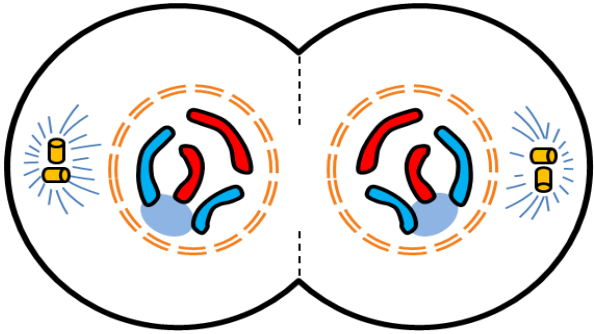
3. Line up in the Middle



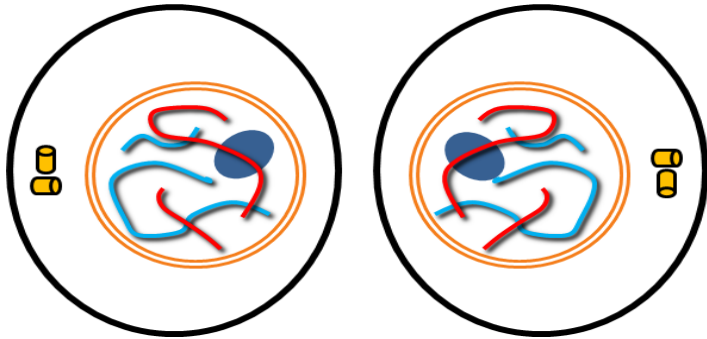
4. Separate Apart

# Phases of Mitosis

## Review

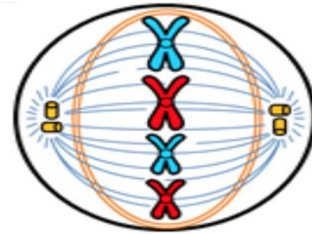


5. Tear into Two



# Tuesday February 9th

If this is supposed to be metaphase, what is wrong with this picture?



If this is supposed to be anaphase, what is wrong with this picture?

