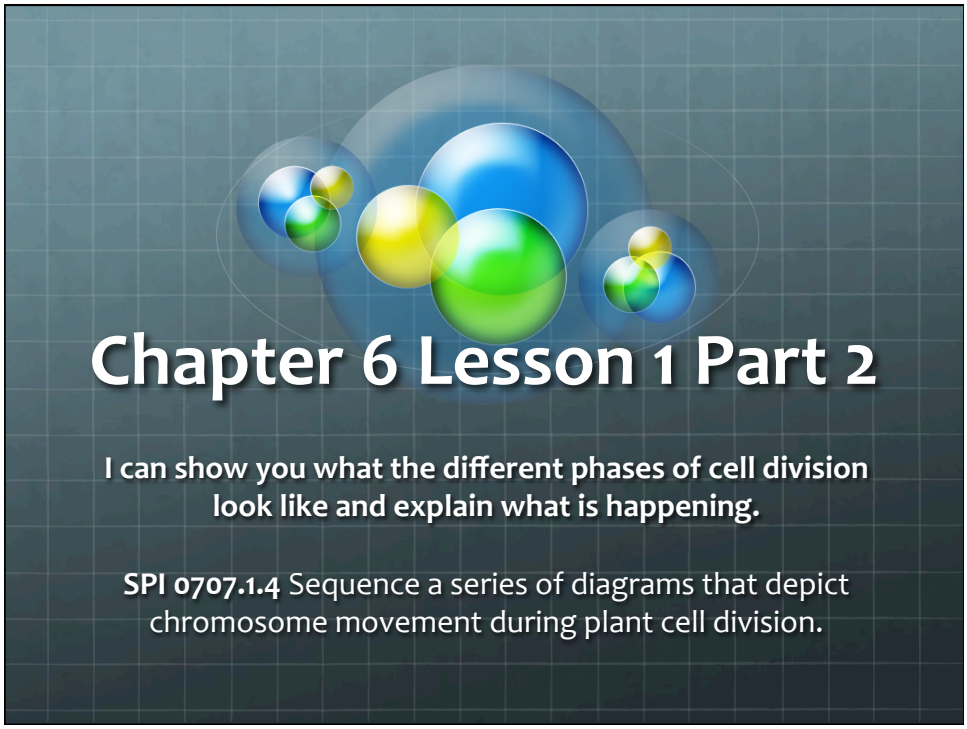

Chapter 6 Lesson 1 Part 2

I can show you what the different phases of cell division look like and explain what is happening.

SPI 0707.1.4 Sequence a series of diagrams that depict chromosome movement during plant cell division.

What you will learn:

- **EXPLAIN why mitosis is important.**
- **EXAMINE the steps of mitosis.**

Why this is IMPORTANT

- Your growth, like that of many organisms, depends on cell division.

What Mastery Looks Like

14 Some phases of a dividing plant cell are shown in the diagram.

What is the next phase of plant cell division?

F 

G 

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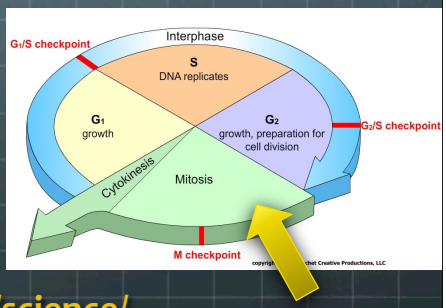
J 

RECAP!
Mitosis and Cell Division

- Process in which the nucleus divides to form 2 identical nuclei
- Mitosis- series of steps
  1. Prophase
  2. Metaphase
  3. Anaphase
  4. Telophase



http://www.brainpop.com/science/cellularlifeandgenetics/mitosis/

Notes: Make your paper look like mine.

By the way…

I – Interphase
Picked – Prophase (mitosis)
My – Metaphase (mitosis)
Apples – Anaphase (mitosis)
Today – Telophase (mitosis)

STAGES OF MITOSIS	
1. Prophase	2. Metaphase
3. Anaphase	4. Telophase

Mitosis and Cell Division

You should already have this in your notes.

- Chromosome - Structure in nucleus that contains heredity material
- During Interphase, each chromosome duplicates
- When nucleus is ready to divide, each duplicated chromosome coils tightly into 2 thickened, identical strands = Chromatids

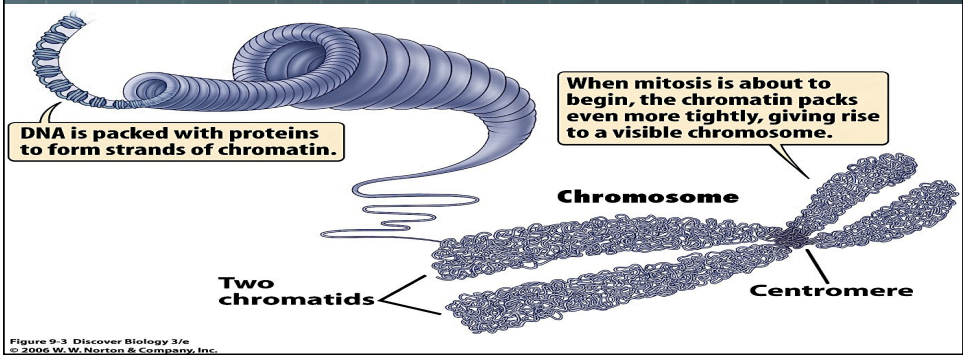


Figure 9-3 Discover Biology 3/e
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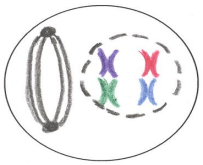
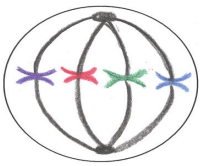
- 4 phases of nuclear division (mitosis), directed by the cell's DNA (**PMAT**)

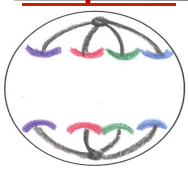
1. **Prophase**



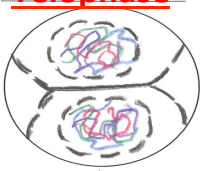
2. **Metaphase** (Middle)



3. **Anaphase**—(Apart)



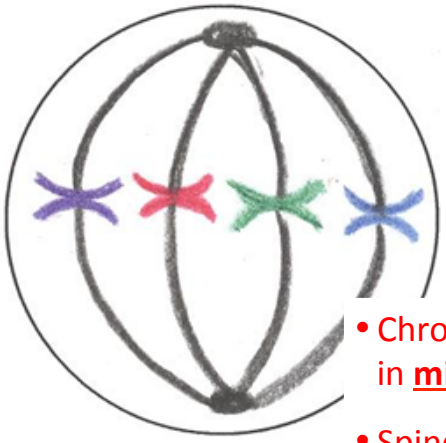
4. **Telophase**—(Two)



1. Prophase

- Chromosomes **coil up**
- Nuclear envelope **disappears**
- **Spindle fibers** form

2. Metaphase—(Middle)

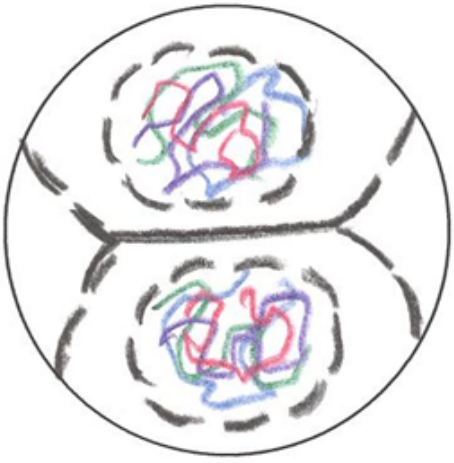


- Chromosomes line up in **middle** of cell
- Spindle fibers **connect** to chromosomes

3. **Anaphase** (Apart)

- Chromosome copies **divide**
- Spindle fibers pull chromosomes to **opposite poles**

4. **Telophase**—(Two)



- Chromosomes **uncoil**
- Nuclear envelopes **form**
- **2 new nuclei** are formed
- Spindle fibers **disappear**

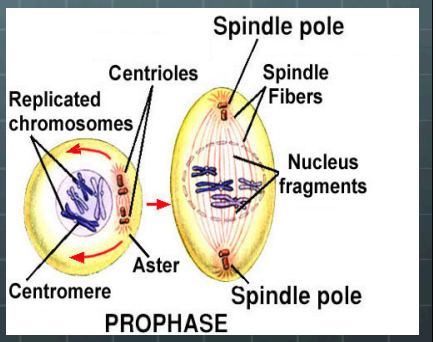
Mitosis and Cell Division

Steps of Mitosis

1st Phase-Prophase

1. Nucleolus and nucleus membrane disintegrate
2. Centrioles (2 small structures)- move to opposite ends of cell
3. Between Centrioles, threadlike spindle fibers begin to stretch across the cell

*Plant cells form spindle fibers, but not centrioles

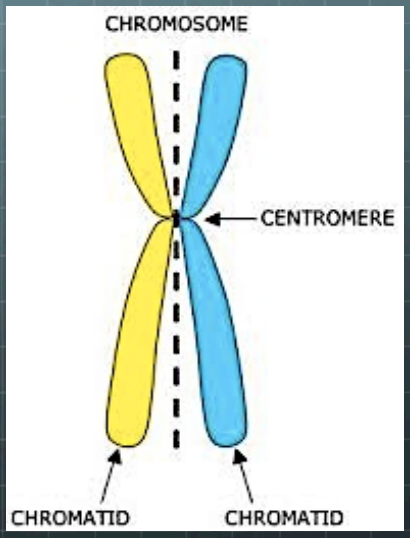


Mitosis and Cell Division

Steps of Mitosis

2nd Phase- Metaphase

1. Pairs of chromatids line up across center of cell.
2. Centromere of each pair usually attaches to 2 spindle fibers- one from each side of cell.



Mitosis and Cell Division

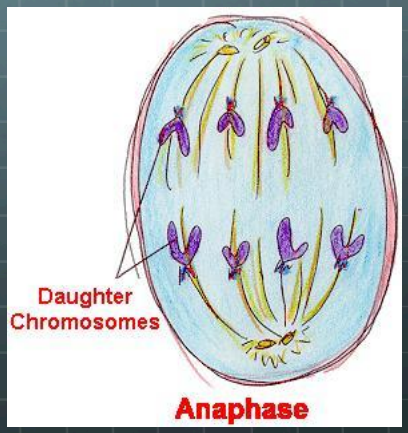
Steps of Mitosis

3rd Phase- Anaphase

1. Each Centromere divides and the spindle fibers shorten

2. Each pair of chromatids separate, and chromatids move to opposite ends of cell

3. Separated chromatids are now chromosomes



Mitosis and Cell Division

A. Steps of Mitosis

4th Phase- Telophase

1. Spindle fibers start to disappear

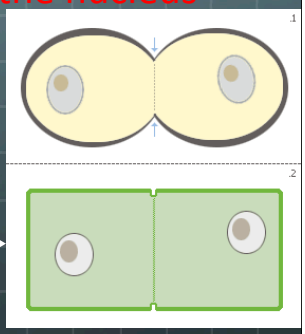
2. Chromosomes start to uncoil

3. 2 nuclei form

4. Cytoplasm begins to separate

Mitosis and Cell Division

- **Cytokinesis** — the **division** of the rest of the cell (**cytoplasm** and organelles) after the nucleus divides
- In **animal** cells the cytoplasm pinches in
- In **plant** cells a cell plate forms



- After mitosis and cytokinesis, the cell returns to **Interphase** to continue to grow and perform regular cell activities (Figure 5 pg. 177)

Mitosis and Cell Division

- MITOSIS- https://www.youtube.com/watch?v=C6hn3sA0ipo
- MITOSIS Song- https://www.youtube.com/watch?v=I5uFuvkN97I
- https://www.youtube.com/watch?v=1cVZBV9tD-A

Exit Ticket

14 Some phases of a dividing plant cell are shown in the diagram.

What is the next phase of plant cell division?

F 

G 

H 

J 

Explain what is happening in each of the phases pictured above. Then, select an answer and tell how you know.