





# Chapter 6 Lesson 1 Part 1

I can tell you the different phases of cell division.  
I can describe how genes, chromosomes, and traits are related.

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

**SPI 0707.4.3** Describe the relationship among genes, chromosomes, and inherited traits.

## 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.

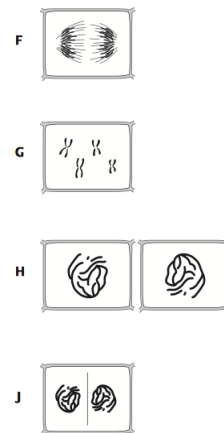


# What Mastery Looks Like

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

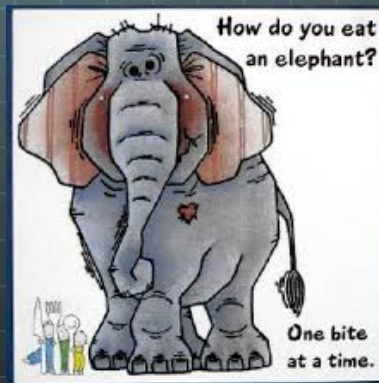


What is the next phase of plant cell division?



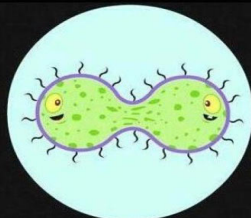
# FYI

- Today, we will INTRODUCE the phases of mitosis.
- Tomorrow, we will examine each step in depth.



# What is the purpose of cell division?

- Discuss with your group.



BIOLOGY - THE ONLY SCIENCE  
WHERE MULTIPLICATION AND  
DIVISION MEAN THE SAME THING

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THE CELLULAR PHONE

## Why is cell division important?

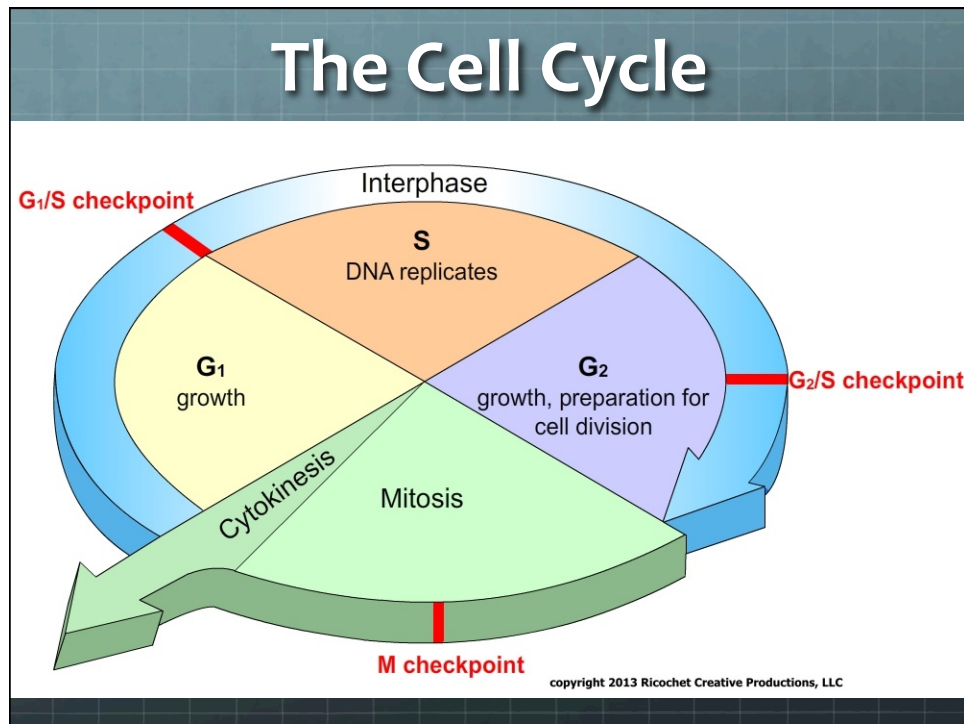
- Many organisms begin as one \_\_\_\_\_.
- **Cell-division increases the total amount of \_\_\_\_\_ in an organism.**
- **Even after growth stops, the body still needs cell division. Ex: \_\_\_\_\_**
- **Single-celled organisms use cell division to \_\_\_\_\_.**

## The Cell Cycle

- **Life Cycle begins with \_\_\_\_\_, followed by \_\_\_\_\_ and development, and ends with \_\_\_\_\_.**

Length of Cycle (Fig. 2 pg.175)

- Series of events that takes place from one cell division to the next
- **Time of life cycle varies with different cells**
- **Cells in humans that are needed for repair, growth, or replacement \_\_\_\_\_ repeat the cycle.**



# The Cell Cycle

**Interphase- period of cell growth and development**

- **Eukaryotic cell (cell with a nucleus)- spends most of cell cycle in Interphase**
- **Cells in the body that no longer divide (nerve/ muscle) are always in Interphase**
- **Actively dividing cells copy hereditary material and prepares for division during Interphase**
- **DNA replication (copying) occurs during Interphase**

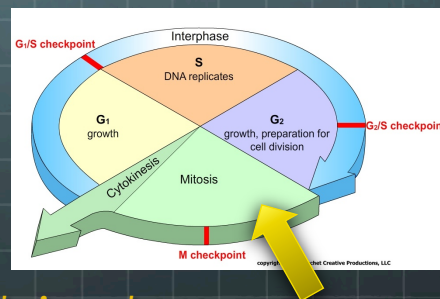
# The Cell Cycle

WHY is it important to copy hereditary material?

- **Before dividing, a copy of hereditary material MUST be made so new cells will have a copy**
- **Cells need the hereditary material to carry out life functions.**
- **After interphase, cell division begins**
- Cell Cycle:  
<https://www.youtube.com/watch?v=t2kBi1OWJdc>

# Mitosis and Cell Division

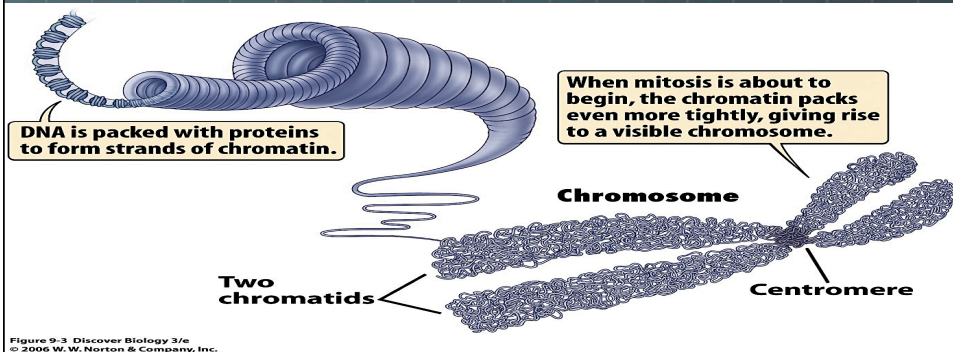
- **Process in which the nucleus divides to form 2 identical nuclei**
- **Mitosis- series of steps**
  1. **Prophase**
  2. **Metaphase**
  3. **Anaphase**
  4. **Telophase**



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

# Mitosis and Cell Division

- 🌐 **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**



## Exit Ticket

- 🌐 What happens during cell division?
- 🌐 Why is it important?
- 🌐 What are the stages of mitosis?
- 🌐 How are genes and chromosomes related?