

Lesson 4.5

Mitosis

Name

Date

Period

Key Terms

cytokinesis

sister chromatid



Explore | Read the article.

Sketch and label each phase of mitosis in the space below.

Explain what happens in each phase next to your sketch.

		Picture	Explanation
Mitosis	Prophase		
	Metaphase		
	Anaphase		
	Telophase		



Explain I - Mitosis

Complete the questions below.

- 1) If a cell has eight chromosomes and goes through mitosis, how many chromosomes will the daughter cells have?
a) 4 b) 8 c) 16 d) 32
- 2) During metaphase the chromosomes move to the equator of what structure?
a) poles b) metaphase plate c) spindle d) middle of cell
- 3) The chromosomes detach and move towards the poles during what phase?
a) Prophase b) Metaphase c) Anaphase d) Telophase
- 4) The chromosomes have arrived at opposite poles during what phase?
a) Prophase b) Metaphase c) Anaphase d) Telophase
- 5) During what phase have the chromosomes condensed and the mitotic spindle begins to form?
a) Prophase b) Metaphase c) Anaphase d) Telophase
- 6) Explain in your own words what a sister chromatid is.
- 7) What are centrioles? Would you find a centriole in a plant or animal cell?
- 8) Explain in your own words why it is necessary for the cell's chromosomes to be distributed to its daughter cells in such a precise manner.
- 9) How is the division of the cytoplasm, cytokinesis, different in plant and animal cells?
- 10) List three reasons why cells in your body undergo mitosis.
- 11) How does cell division help maintain homeostasis in adult mammals?
- 12) Sketch, label, and briefly describe the stages of mitosis: prophase, metaphase, anaphase, and telophase.



Explore II – *Onion Root Tip*

This will be done as a class activity. Your instructor will visit the following website:

http://www.biology.arizona.edu/Cell_BIO/activities/cell_cycle/cell_cycle.html. Read the introduction as a class, then determine which phase the following 36 cells are in. Record your data in the table below.

	Interphase	Prophase	Metaphase	Anaphase	Telophase	Total
Number of cells						36
Percent of cells (# of cells divided by total cells) x 100						100%



Explain II – *Onion Root Tip*

- 13) Which stage had the highest number of cells?

- 14) Why do you think this stage had the highest number of cells?

- 15) Altogether, what percentage of cells are undergoing mitosis?

- 16) Which stage do you think is longer: interphase or mitosis? Why?