

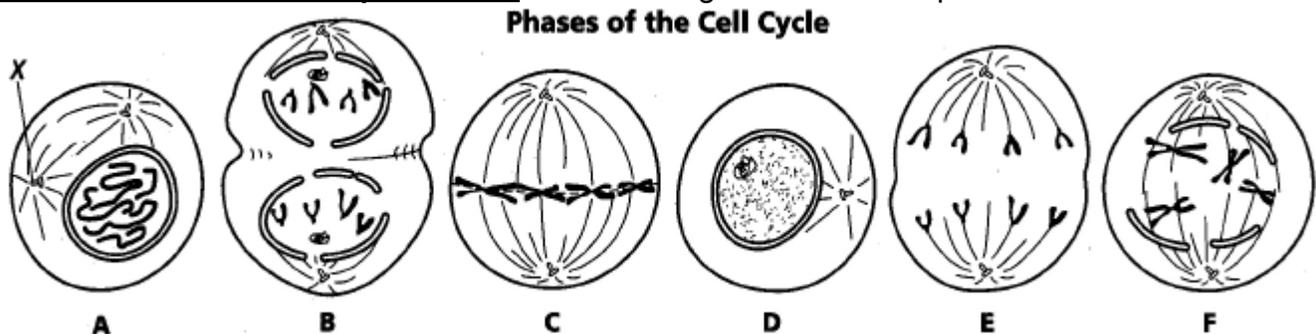
THE CELL CYCLE WORKSHEET

Fill in the blank: Some will be used more than once.

- | | | | |
|----------------------|----------------------|-----------------------|-------------------------|
| A. Prophase | D. Metaphase | G. Chromatid | J. Spindle fiber |
| B. Interphase | E. Anaphase | H. Cytokinesis | K. Cell plate |
| C. Telophase | F. Centromere | I. Mitosis | |

- _____ 1. During what phase of mitosis do centromeres divide and the chromosomes move toward their respective poles?
- _____ 2. What is the phase where chromatin condenses to form chromosomes?
- _____ 3. What is the name of the structure that connects the two chromatids?
- _____ 4. In a chromosome pair connected by a centromere, what is each individual chromosome called?
- _____ 5. What are the two parts of cell division?
- _____ 6. What structure forms in prophase along which the chromosomes move?
- _____ 7. Which phase of mitosis is the last phase that chromatids are together?
- _____ 8. Which phase of the cell cycle is characterized by a non-dividing cell?
- _____ 9. What structure is produced when protein fibers radiate from centrioles?
- _____ 10. What forms across the center of a plant cell near the end of telophase?
- _____ 11. The period of cell growth and development between mitotic divisions?

The diagram below shows six cells in various phases of the cell cycle. Note the cells are not arranged in the order in which the cell cycle occurs. Use the diagram to answer questions 1-7.



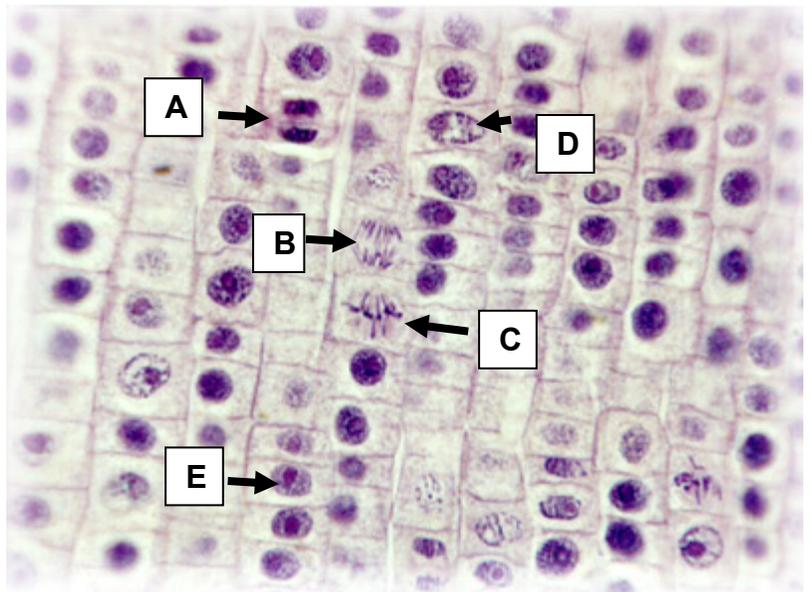
1. Cells A & F show an early and a late stage of the same phase of the cell cycle. What phase is it?
2. Which cell is in metaphase?

3. Which cell(s) is in the first phase of Mitosis?
4. In cell A, what structure is labeled X?
5. List the diagrams in order from first to last in the cell cycle.
6. What is the longest phase of the cell cycle?
7. a. Are the cells depicted plant or animal cells? Explain your answer.

b. If it were the other type of cell what would be different in the diagrams?
8. Why is mitosis important?
9. **Predict** what would happen if an individual had faulty spindle fibers.
10. **Predict** what would happen if cytokinesis was skipped.

In the picture, identify the following stages in the cell cycle.

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____



Which phase is not represented in this picture? Why?

Mitosis Animation

Go to <http://www.johnkyrk.com/mitosis.html> . Draw a cell in each of the following phases.

Prophase	Metaphase	Telophase
----------	-----------	-----------

Onion Root Tip

Online Activity at http://www.biology.arizona.edu/cell_bio/activities/cell_cycle/cell_cycle.html

Read the introduction, then click the “next” button.

You will have **36 cells** to classify. The pictures will be small. You click on the phase you think the picture is showing. When you're finished with all 36 pictures, record your data in the chart below. Round to whole numbers.

	Interphase	Prophase	Metaphase	Anaphase	Telophase	Total
Number of Cells						
Percent of Cells (calculate: number of cells divided by total cells x 100)						

HOW TO CALCULATE % of Cells = $\frac{\text{number of cells in phase}}{\text{total cells}} \times 100$

Mitosis in Whitefish & Onion Roots

<http://www.biologycorner.com/projects/mitosis.html> . Click on the Whitefish embryo and the onion root tip.

For each organism, identify the stage of mitosis.

	View 1	View 2	View 3	View 4	View 5
Whitefish					No 5 th picture
Onion					