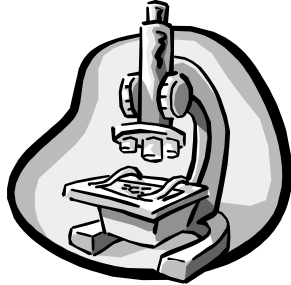


**Science 10-Biology**  
**Activity 11**  
**Worksheet on Cell Reproduction**



10

Name \_\_\_\_\_

Due Date \_\_\_\_\_

Show Me  Hand In

*Correct and Hand In Again By*

**NOTE: This worksheet is based on material from pages 356-362 in the Science Probe Textbook and on the Power Point Presentation on Mitosis.**

1. New cells always arise from \_\_\_\_\_.
2. When an organism grows in size, do the number of cells increase or do the existing cells just get bigger? \_\_\_\_\_
3. The phases which make up the life of a cell is called the \_\_\_\_\_  
\_\_\_\_\_
4. Most of the cell's growth takes place during a stage called \_\_\_\_\_.
5. a) "Interphase" means between \_\_\_\_\_.  
b) What happens to chromosomes during the last stage of interphase? \_\_\_\_\_
6. Why does a cell need two pairs of chromosomes before it can divide. \_\_\_\_\_  
\_\_\_\_\_
7. Draw a pair of chromosomes showing and labeling the *chromatids* and the *centromere*.
8. During *mitosis*, what happens to chromosomes? \_\_\_\_\_  
\_\_\_\_\_

9. The process by which organelles in the cytoplasm divide in two is called

\_\_\_\_\_

10. Cell division produces two new cells out of one. The new cells are called

\_\_\_\_\_ cells.

**At this point, go to a computer, log on and go to the following internet site:**

<http://www.cellsalive.com/mitosis.htm>

You can also get their easily by going to Mr. Colgur's Science 10 Web page, scrolling down to "Biology", going into the right column and clicking "Mitosis animation"

After you have seen the animation, use the "Step" button to go slowly through the entire process a few times. Use this and page 358 of the Science Probe text to help you with the next questions:

11. Name the four stages of *mitosis*. \_\_\_\_\_

\_\_\_\_\_

12. Draw a **diagram** of a cell during *prophase*. Label *centrioles*, *cell membrane*, *cytoplasm*, *homologous chromosomes*, *centromere*, and *nuclear membrane*. See page 358.

13. Explain why chromosomes become more visible during prophase. \_\_\_\_\_

\_\_\_\_\_

14. When a chromosome is duplicated but the two are still together, each copy is called a \_\_\_\_\_

15. The two *chromatids* join at a point called the \_\_\_\_\_

16. Describe what happens to the *centrioles* during prophase. \_\_\_\_\_  
\_\_\_\_\_
17. What forms between the pairs of centrioles? \_\_\_\_\_  
\_\_\_\_\_
18. What happens to the *nuclear membrane* during prophase? \_\_\_\_\_  
\_\_\_\_\_
19. Draw a diagram of a cell during *metaphase*. Label the *centriole pair*, *the spindle fibres* and *the chromosomes lined up*. See page 358.
20. What can you say about the positions of the paired chromatids during *metaphase*?  
\_\_\_\_\_
21. Draw a diagram of a cell during *anaphase*. Label the *centriole pair*, *the spindle fibres* and *the separated chromatids*. See page 358.

22. What happens to the pairs of chromatids during *anaphase*? \_\_\_\_\_  
\_\_\_\_\_
23. What is the role of the *spindle fibres* during anaphase? \_\_\_\_\_  
\_\_\_\_\_
24. By the end of *anaphase*, the cell contains two groups of identical \_\_\_\_\_  
\_\_\_\_\_
25. Draw a diagram of a cell during *telophase*. Label the *chromosomes*, *the newly forming nuclear membranes* and show the *general shape of the cell*. See page 358.
26. Why do the chromosomes become less visible during *telophase*? \_\_\_\_\_  
\_\_\_\_\_
27. At the end of *telophase*, two new \_\_\_\_\_ have been formed within the cell, but the cell has still not divided into two new cells.
28. What is meant by *cytokinesis*? \_\_\_\_\_  
\_\_\_\_\_
29. In a new daughter cell produced from cell division, how do the numbers of mitochondria and other organelles compare with that of the parent cell?  
\_\_\_\_\_  
\_\_\_\_\_
30. What happens to the daughter cells during *interphase*? \_\_\_\_\_  
\_\_\_\_\_

31. Explain why damaged cells around a wound divide must faster than normal skin cells. (See right margin of page 359.)

---

---

---

32. Which phase - interphase, prophase, metaphase, anaphase or telophase is the longest in a cell's life? (See fig. 16.6 on page 360) \_\_\_\_\_

33. What happens to the rate of cell production when an organism gets older?  
\_\_\_\_\_

34. What happens to cells when they form *tumors*? \_\_\_\_\_  
\_\_\_\_\_

35. Tumors that stop growing before causing damage are said to be \_\_\_\_\_

36. What happens to a *malignant tumor*? \_\_\_\_\_  
\_\_\_\_\_  
This is a disease called \_\_\_\_\_

37. What do *mutagens* do to the DNA of cells? \_\_\_\_\_  
\_\_\_\_\_

38. Name two of the most common *mutagens* found in our environment. \_\_\_\_\_  
\_\_\_\_\_

39. What is meant by *carcinogenic*? \_\_\_\_\_  
\_\_\_\_\_

40. Name some substances or sources of substances which are *carcinogenic*.  
\_\_\_\_\_  
\_\_\_\_\_

41. Is there at present, a known *cure* for cancer? \_\_\_\_\_

42. Name and describe the three main types of *treatment* for cancer.

1. \_\_\_\_\_  
\_\_\_\_\_

2. \_\_\_\_\_  
\_\_\_\_\_

3. \_\_\_\_\_  
\_\_\_\_\_

43. When is the best time to start treatment for cancer? \_\_\_\_\_

44. Why is it important to have regular medical check-ups? \_\_\_\_\_  
\_\_\_\_\_

45. What are two things that can be done to ***decrease*** your chances of getting cancer?  
\_\_\_\_\_  
\_\_\_\_\_

46. Is "second-hand" smoke considered a carcinogen? \_\_\_\_\_