Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading B

Section: The Cell Cycle (pp. 152–157)

1. Why is it important for your body to produce millions of new cells by the time you finish reading this sentence?

New cells must be produced in order to replace the ones that die. This also means that millions of old cells are dying every minute.

THE LIFE OF A CELL

a. when the cell is formed

2. When does the cell cycle begin?

- **a.** when the cell is formed
- **b.** when the cell divides
- **c.** when the cell uses energy
- **d.** when the cell takes in oxygen

b. when the cell divides making new cells

3. When does the cell cycle end?

- **a.** when the cell is formed
- **b.** when the cell divides and makes new cells
- **c.** when the cell uses energy
- **d.** when the cell takes in oxygen

4. What must a cell do before it can divide to make a new cell?

The cell must grow larger with more cell membrane, more cytoplasm and make duplicate copies of it's chromosomes and organelles.

5. What makes sure that each new cell receives all the DNA of the parent cell?

The nucleus makes sure that each chromosome is copied.
46 v's become 46 x's

6. A cell without a nucleus is a(n) prokaryotic cell.

7. A cell with a nucleus is a(n) eukaryotic cell.

8. A chromosome is the main ring of DNA in a(n) prokaryotic cell.

9. A chromosome is made up of DNA and protein in the nucleus of a(n) eukaryotic cell.

10. Are bacteria prokaryotic cells or eukaryotic cells?

Bacteria are prokaryotic cells because they do not have a nucleus.
Their DNA is in a loop found in the center of the cell, but
it does not have a membrane around it. No nuclear membrane = prokaryote.

Directed Reading B *continued*

11. Bacteria create new cells through a kind of cell division called binary fission.

12. When binary fission is complete, the result is two cells that each contain one copy of the DNA ring-shaped chromosome.

13. Eukaryotes have more chromosomes than do prokaryotes.

14. Humans have 46 chromosomes, while fruit flies have only 8 and potatoes have 48 chromosomes.

15. Chromosomes that line up in pairs are made up of similar chromosomes called homologous chromosomes.

16. In the beginning of the eukaryotic cell cycle, the cell grows and copies its organelles and chromosomes.

17. After a chromosome is duplicated, the two copies are called sister chromatids.

18. Where are chromatids held together?

At the center of the V shapes is the centromere, a protein that holds the two V's (chromatids) together to look like and X

19. What happens during the first stage of the cell cycle in a eukaryotic cell?

In the first stage, called interphase, the cell grows and copies its organelles and chromosomes.
After each chromosome is duplicated, the two copies are called chromatids and are held together at the centromere, to make 46 X shapes that are now ready for the second stage.