

Biology

1. What does the acronym 'DNA' stand for?
2. What is the complimentary base pair for the following strand of DNA?

A C T G A T G G C G A T T A A T C G C

3. Draw and label the parts of a nucleotide.
4. What is the role and purpose of DNA?
5. What are the advantages of asexual reproduction?
6. What are the disadvantages of asexual reproduction?
7. Identify how the following organisms are able to asexually reproduce:
 - a. Bacteria:
 - b. Yeast:
 - c. Starfish:
 - d. Mold:
 - e. Strawberries:

8. Describe what would happen to a population that reproduces through asexual reproduction if a new disease were to enter into the population.

9. Identify the three main stages of the cell cycle.

10. Identify which phase of the **cell cycle** each of the following statements is describing:

a. DNA condenses into chromosomes

b. Cell grows and develops

c. Nuclear membrane reappears around the chromosomes

d. DNA is copied

e. Chromosomes line up across the middle of the cell

f. Duplicated chromosomes are pulled apart to the opposite ends of the cell

11. Draw a diagram of the following phase in the **cell cycle (interphase, mitosis, cytokinesis)**:

a. Cytokinesis

b. Prophase

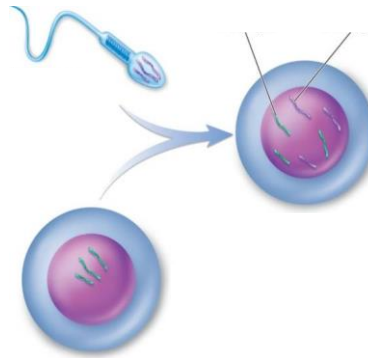
c. Anaphase

12. Determine how many chromosomes are in the gametes and body cells of the following organisms:

Organism	Number of chromosomes in the gametes	Number of chromosomes in the body cells
Dog		78
Housefly		12
Cow	30	
Deer	35	

13. What process must cells undergo in order to produce gametes?

14. Label the following diagram with the following terms: sperm cell, egg cell, zygote, haploid, diploid, maternal chromosome, paternal chromosome



15. Which stage of **meiosis** does each of the following statements describe?

- Nuclear membrane starts to disappear and homologous chromosomes pair
- DNA condenses into chromosomes
- Two nuclei are formed
- Chromosomes separate and move to opposite ends of the cell
- Homologous chromosomes line up in two lines in the middle of the cell
- DNA exists as chromosomes but not as homologous pairs

16. In order for chromosomes to move, they need help from structures in the cell.

- Which structure helps these chromosomes move in the cell?
- Where do these structures attach to on the chromosome?

17. What is the end result of meiosis?

18. Draw a diagram of the following phase in **meiosis**:

a. Metaphase I

b. Anaphase II

c. Prophase I

d. Telophase II