Science 9

Final Exam Review (1 of 3)

Name: Key
Date:
Block:

Biology

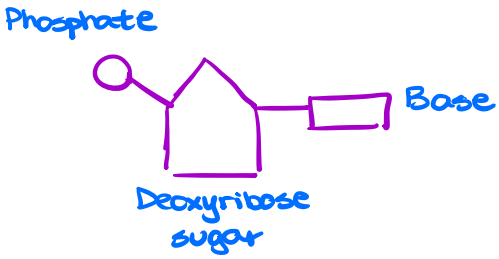
1. What does the acronym 'DNA' stand for?

Deoxyribonucleic Acid

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

3. Draw and label the parts of a nucleotide.



4. What is the role and purpose of DNA?

- Stores genetic information of an organism
- Genetic information determines how an organism looks, functions, and behaves

5. What are the advantages of asexual reproduction?

- Only one parent is needed
- Reproduction happens quickly
- Offspring mature and start reproduction quickly

6. What are the disadvantages of asexual reproduction?

- lack of genetic diversity
  - ↳ All are vulnerable to changes in environment

7. Identify how the following organisms are able to asexually reproduce:
   a. Bacteria: Binary fission
   b. Yeast: Budding
   c. Starfish: Fragmentation
   d. Mold: Spores
   e. Strawberries: Vegetative propogation

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

If the population doesn't have the genetic information to protect themselves from the new disease, then the whole population will die

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

Interphase → Mitosis → Cytokinesis

10. Identify which phase of the **cell cycle** each of the following statements is describing:
    a. DNA condenses into chromosomes

    Prophase

    b. Cell grows and develops

    Interphase

    c. Nuclear membrane reappears around the chromosomes

    Telophase

    d. DNA is copied

    Interphase

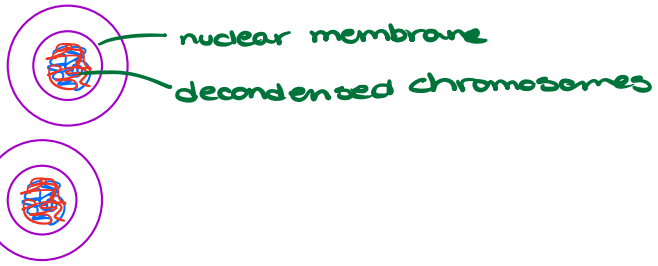
    e. Chromosomes line up across the middle of the cell

    Metaphase

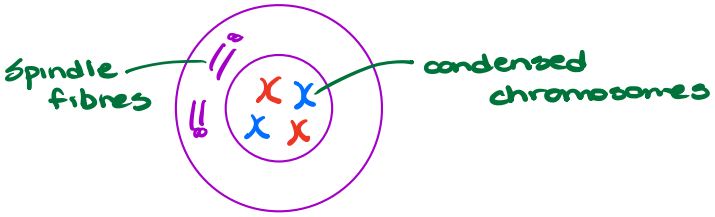
    f. Duplicated chromosomes are pulled apart to the opposite ends of the cell

    Anaphase

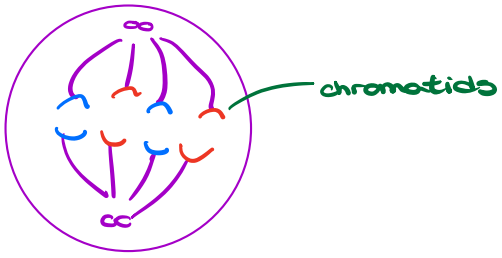
11. Draw a diagram of the following phase in the **cell cycle (interphase, mitosis, cytokinesis)**:
    a. Cytokinesis



    b. Prophase



    c. Anaphase



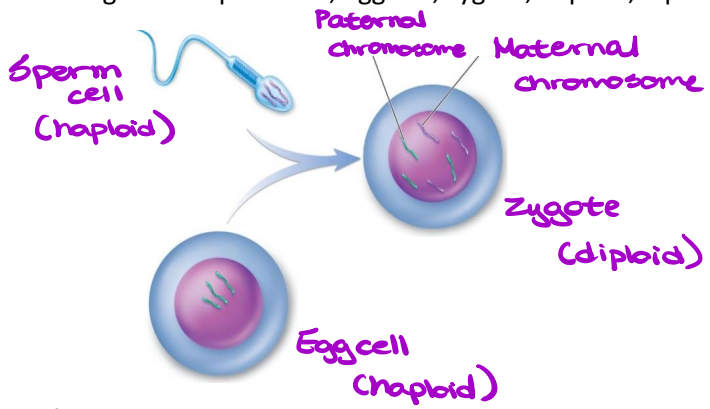
12. Determine how many chromosomes are in the gametes and body cells of the following organisms:

Organism	Number of chromosomes in the gametes	Number of chromosomes in the body cells
Dog	39	78
Housefly	6	12
Cow	30	60
Deer	35	70

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

Meiosis

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?
    a. Nuclear membrane starts to disappear and homologous chromosomes pair

Prophase I

    b. DNA condenses into chromosomes

Prophase I

    c. Two nuclei are formed

Telophase I

    d. Chromosomes separate and move to opposite ends of the cell

Anaphase II

    e. Homologous chromosomes line up in two lines in the middle of the cell

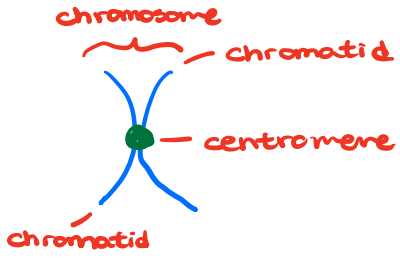
Metaphase I

    f. DNA exists as chromosomes but not as homologous pairs

Prophase II

16. In order for chromosomes to move, they need help from structures in the cell.
    a. Which structure helps these chromosomes move in the cell?

Spindle fibres



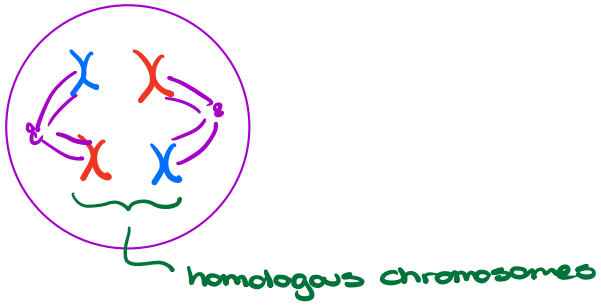
    b. Where do these structures attach to on the chromosome?

On the chromosome's centromere

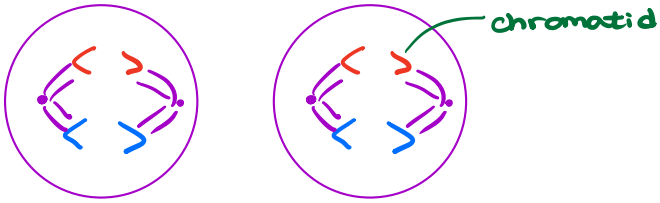
17. What is the end result of meiosis?

4 different haploid gametes

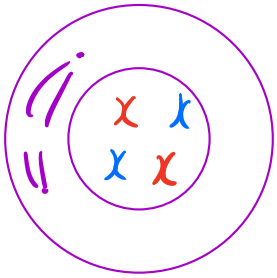
18. Draw a diagram of the following phase in **meiosis**:
    a. Metaphase I



    b. Anaphase II



    c. Prophase I



    d. Telophase II