Name: Date: Period:

Sexual and Asexual Reproduction Study Guide

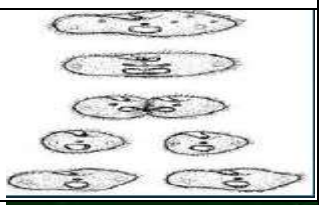
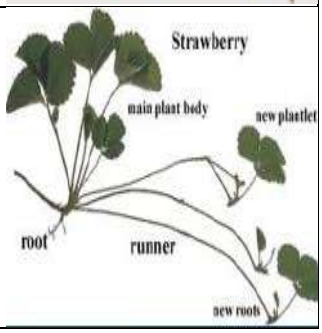
Asexual reproduction is a type of reproduction that requires only one parent. The resulting offspring are identical to the parent.

Sexual Reproduction produces new organisms from the combined DNA of two parents. In sexual reproduction, gametes (sex cells: sperm cells from father and egg cells from mother) formed during meiosis combine during a process called fertilization.

Practice Questions

1. Which process produces offspring from two parents?
   a. Asexual Reproduction
   b. Sexual Reproduction
   c. Binary Fission
   d. Budding
2. Describe the difference between sexual and asexual reproduction.
   a. Sexual reproduction requires one parent, but asexual requires two.
   b. Sexual reproduction produces identical offspring, but asexual produces offspring that are a combination of both parents.
   c. Sexual reproduction requires two parents, but asexual requires one.
   d. Sexual reproduction is faster than asexual reproduction.
3. Which organism would you classify as sexually reproducing?
   a. A strawberry plant that reproduces through runners in the ground
   b. A starfish that reproduces by breaking off and regenerating parts of its body
   c. An amoeba that splits through binary fission
   d. A chicken egg that is fertilized by a rooster
4. How does the DNA of an asexually reproducing plant relate to its parent(s)?
   a. Its DNA is a combination of two parent's DNA.
   b. Its DNA has mutations.
   c. Its DNA is identical to its parent.
5. A gardener noticed that the offspring of his strawberry plants looked identical, while all of the flowering plants looked different. Which is likely true of the plants?
   a. The strawberries reproduced asexually, while the flowering plants reproduced sexually.
   b. The strawberries reproduced sexually, while the flowering plants reproduced asexually.
   c. Both the strawberries and flowering plants reproduced sexually.
   d. Both the strawberries and flowering plants reproduced asexually.
6. Bacteria reproduce by dividing through a process called binary fission. Which type of reproduction is described above?
   a. Sexual
   b. Asexual
   c. Meiosis
   d. Fertilization
7. Which cell aids in sexual reproduction?
   a. Sperm cell
   b. Skin cell
   c. Nerve cell
   d. Muscle cell
8. What process do asexual organisms use to reproduce?
   a. Mitosis B. Meiosis C. Fertilization D. Osmosis
9. How do the number of chromosomes in an asexually reproducing plant compare to its parents?
   a. They are double the number.
   b. They are the same.
   c. They are half the number.
   d. They are one-fourth the number.

Types of Asexual (IDENTICAL) Reproduction

Type of Asexual Reproduction	Description	Organisms That Use It	Image
Binary Fission	Cell Division through mitosis	Bacteria, Amoeba	
Budding	Bud grows from the body of parent organism through mitosis	Hydra, Cactus, Yeast	
Fragmentation/Regeneration	Offspring grows from a piece of its parent through mitosis	Starfish, Axolotl, Plant Cuttings	
Vegetative Propagation	(Plants) uniform offspring grow from runners that take root in the ground and reproduce through mitosis	Strawberries, Potatoes	

Practice Questions

10. Which organism reproduces sexually?
    a. Starfish
    b. Bacteria
    c. Flowering Plant
    d. Hydra
11. Circle one: Organisms produced asexually are (identical/similar) to parent organisms.
12. Circle one: Organisms produced asexually have (the same/half) the number of chromosomes as the parent organism.
13. Which is not a type of asexual reproduction?
    a. Budding b. Fission c. Fertilization d. Regeneration
14. Which offspring will be most different from its parent?
    a. Strawberry
    b. Sperm Cell
    c. Starfish
    d. Cactus

There are <u>advantages and disadvantages</u> to both types of reproduction.

Sexual Reproduction Advantages	Sexual Reproduction Disadvantages
• Can adapt easier to environmental changes • Increases genetic variation within a species • Allows for diversity and evolution of a species	• Takes longer to reproduce offspring • More things can go wrong (Mutations) • Must locate a mate to reproduce
Asexual Reproduction Advantages	**Asexual Reproduction Disadvantages**
• Only need one parent to reproduce • Requires less energy to reproduce • Can reproduce quickly	• Genetically similar and less able to survive environmental changes • Can be easily wiped out by diseases • Can result in overcrowding of a habitat

Practice Questions

15. Which is an advantage of sexual reproduction?
    a. The population can reproduce more rapidly.
    b. It takes time and energy to find a mate.
    c. Only one parent is required to reproduce.
    d. There is increased genetic variation.
16. What is an advantage of asexual reproduction?
    a. The population can reproduce more rapidly.
    b. It takes time and energy to find a mate.
    c. It takes two parents to reproduce.
    d. There is decreased genetic variation.
17. Circle One: A species can better adapt if it is (Genetically identical/Genetically diverse).

****STUDY MITOSIS/MEIOSIS STUDY GUIDE****

Practice Questions

18. Circle one: Mitosis produces (haploid/diploid) cells.
19. Circle one: Meiosis produces (haploid/diploid) cells.
20. If a dog has 24 chromosomes, how many will be in its body cells? 24 How many in its sex cells/gametes? 12
21. During which phase of mitosis do chromosomes coil and condense? PROPHASE
22. During which phase of mitosis do chromosomes move away from the center of the cell? ANAPHASE
23. During which phase of the cell cycle does DNA replication occur? INTERPHASE (S)
24. Define crossing over. HOMOLOGOUS CHROMOSOMES EXCHANGE DNA
25. List the phases of mitosis in order. PMAT