

1.

George Washington XIV decides that he likes a particular cherry tree in his yard. He makes a number of cuttings from this tall, white-flowered parent tree. The cuttings grow up into new cherry trees. What is true about the offspring cherry trees produced from cuttings?

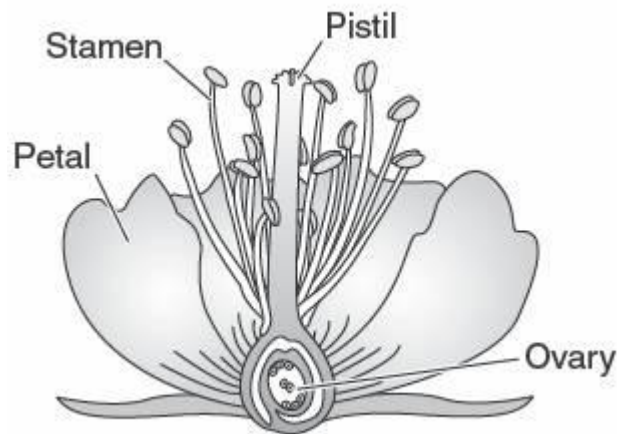
- A. The offspring trees will be inferior to the parent tree.
 - B. The offspring trees are clones of the parent tree and should look very similar.
 - C. The offspring trees will vary greatly in height but they will all have white flowers.
 - D. Some offspring trees will develop white flowers, while others will develop flowers of different colors.
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2.

What is true of the offspring of organisms that reproduce sexually?

- A. They are genetically identical to one of the parents.
 - B. Genetically, they are completely different from their parents.
 - C. They have some genetic traits of both parents, but are not exactly like either.
 - D. They always have twice as many chromosomes as their parents, since they have two parents.
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3.



Pollen is produced in the —

- A. ovary.
- B. pistil.
- C. petal.
- D. stamen.

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4. Farmers who grow corn plants want the plants that produce the most ears of corn and are most resistant to insects and disease. What process would a farmer use to produce corn plants with these desired traits?

- A. crop rotation
 - B. natural selection
 - C. selective breeding
 - D. asexual reproduction
-

5. Thad is a potato farmer who is trying to produce potatoes that are large and resistant to fungus. Which of these would be BEST for him to use to produce only large, fungus-free potatoes?

- A. budding
 - B. fertilizers
 - C. irrigation system
 - D. selective breeding
-

6.

Brian owns a peacock farm. One day, a large batch of eggs hatch and Brian discovers that a few of the chicks are white instead of blue. White chicks can be sold for \$100 each, instead of the \$50 that people pay for blue chicks. If Brian wants to raise more white peacocks in order to make more money, what should he do?

- A. He should continue breeding the peacocks the same way.
 - B. He should always be sure to cross blue peacocks with white peacocks.
 - C. He should isolate the white peacocks and allow them only to breed with each other.
 - D. He should bleach the feathers of the blue peacocks before allowing them to breed with any white peacocks.
-

7.



Poodles, like all dog breeds, are so closely related to wolves that they can breed with them. What is the best explanation for why wolves and poodles do not look alike, despite being extremely close relatives?

- A. Poodles have naturally evolved to look differently from wolves.
 - B. Wolves once resembled poodles, but quickly died out in the wild.
 - C. Wolves once resembled poodles, but they evolved to look differently.
 - D. Poodles are the result of people selectively breeding them for specific traits.
-

8.



The graph above shows the survival rate for several different varieties of corn during a severe July drought. One type of corn was bred selectively over many years to thrive in dry climates. Which type of corn was **MOST LIKELY** selectively bred?

- A. Heaven's Silk
 - B. Silver Queen
 - C. Smucker's Gold
 - D. Summer Leaf
-

9. ALL living things are made of

- A. fibers.
 - B. tissues.
 - C. cells.
 - D. organs.
-

10. How could crossing a white flower and a red flower produce plants with pink flowers?

- A. The pink flower has incomplete dominant red and white genes.
 - B. The genes for red color and white color do not affect each other.
 - C. The pink flower only gets the genes for color from one of the parent plants.
 - D. The gene for pink color is in all flowers, but the genes for red and white color are only in some of the flowers.
-

11. Selina's cat has three kittens. Look at the pictures below of the father cat and the mother cat.



Which set of kittens probably belongs with the father cat and mother cat?



12. In humans, having bushy eyebrows is a trait that is dominant over having thin eyebrows. Two parents with bushy eyebrows are going to have a baby. What can be predicted about how the baby's eyebrows will develop?

- A. The baby definitely will have bushy eyebrows.
- B. The baby most likely will have bushy eyebrows.
- C. The baby will not have bushy eyebrows.
- D. There is not enough information given.

13.

Brown eyes are dominant to blue eyes. Both of Donna's parents have brown eyes, but Donna has blue eyes. What is the BEST explanation for why Donna has blue eyes?

- A. All of Donna's grandparents must have had blue eyes.
 - B. Both of Donna's parents carry a gene for blue eyes.
 - C. Donna's mother probably carries the gene for blue eyes.
 - D. Donna's father probably carries the gene for blue eyes.
-

14.

Mike and his three brothers all have brown hair. Mike's father has brown hair, too. Mike's mother, however, is the only family member that has red hair color. What conclusion can you draw about the gene for hair color?

- A. The gene for red hair is dominant over the gene for brown hair.
 - B. The gene for brown hair is dominant over the gene for red hair.
 - C. Neither brown nor red are dominant since they both occur in the same family.
 - D. Red and brown genes are co-dominant.
-

15.

Rudy has blue eyes, while Gertrude has brown eyes. What causes them to have different eye colors?

- A. They have different chromosomes for the two eye colors.
 - B. Rudy has a different number of chromosomes than Gertrude.
 - C. They have different combinations of the genes for eye color.
 - D. Rudy's mother must have had blue eyes, because you only get blue eyes from your mother.
-

16.

In pea plants, purple flowers are dominant to white flowers. Suppose a purple-flowered plant with genotype Pp is crossed with another purple-flowered plant with the same Pp genotype. What percentage of offspring will also have purple flowers?

- A. 25%
 - B. 50%
 - C. 75%
 - D. 100%
-

17.

Bb	bb
Bb	bb

The allele for black hair, B, is dominant to orange tabby color, b, in cats. Based upon the Punnett square shown above, what did the parents look like in this genetic cross?

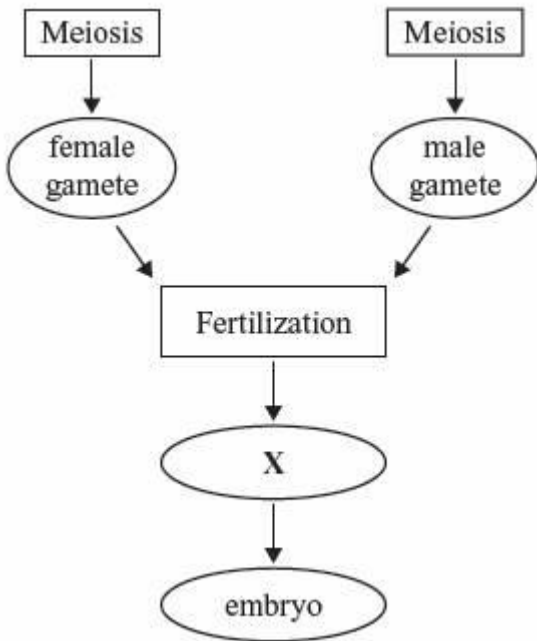
- A. two tabby parents
 - B. two black parents
 - C. one black parent, one tabby parent
 - D. both parents were a mix of black and tabby
-

18. Single-celled organisms can reproduce and create cells exactly like themselves without combining genes from two different parent cells. When they do this, they use a type of

- A. asexual reproduction.
- B. gamete formation.
- C. natural selection.
- D. sexual reproduction.

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19. A partial diagram of a reproductive process is shown below.



Which of the following labels belongs in the oval marked **X**?


- A. egg
- B. fetus
- C. sperm
- D. zygote

20. *Spirogyra* are green algae that can reproduce sexually. Which of the following features identifies reproduction in *Spirogyra* as sexual reproduction?

- A. The cells of parent algae have nuclei.
- B. Each offspring contains chloroplasts.
- C. Several offspring may be produced at once.
- D. Genetic material is contributed by two parent cells.

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Answer Key

1. B) The offspring trees are clones of the parent tree and should look very similar.
2. C) They have some genetic traits of both parents, but are not exactly like either.
3. D) stamen.
4. C) selective breeding
5. D) selective breeding
6. C) He should isolate the white peacocks and allow them only to breed with each other.
7. D) Poodles are the result of people selectively breeding them for specific traits.
8. A) Heaven's Silk
9. C) cells.
10. A) The pink flower has incomplete dominant red and white genes.
11. A) 
12. B) The baby most likely will have bushy eyebrows.
13. B) Both of Donna's parents carry a gene for blue eyes.
14. B) The gene for brown hair is dominant over the gene for red hair.
15. C) They have different combinations of the genes for eye color.
16. C) 75%
17. C) one black parent, one tabby parent
18. A) asexual reproduction.
19. D) zygote
20. D) Genetic material is contributed by two parent cells.

