

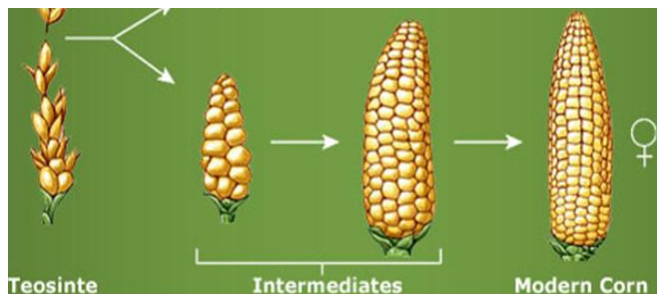
Name _____ period _____
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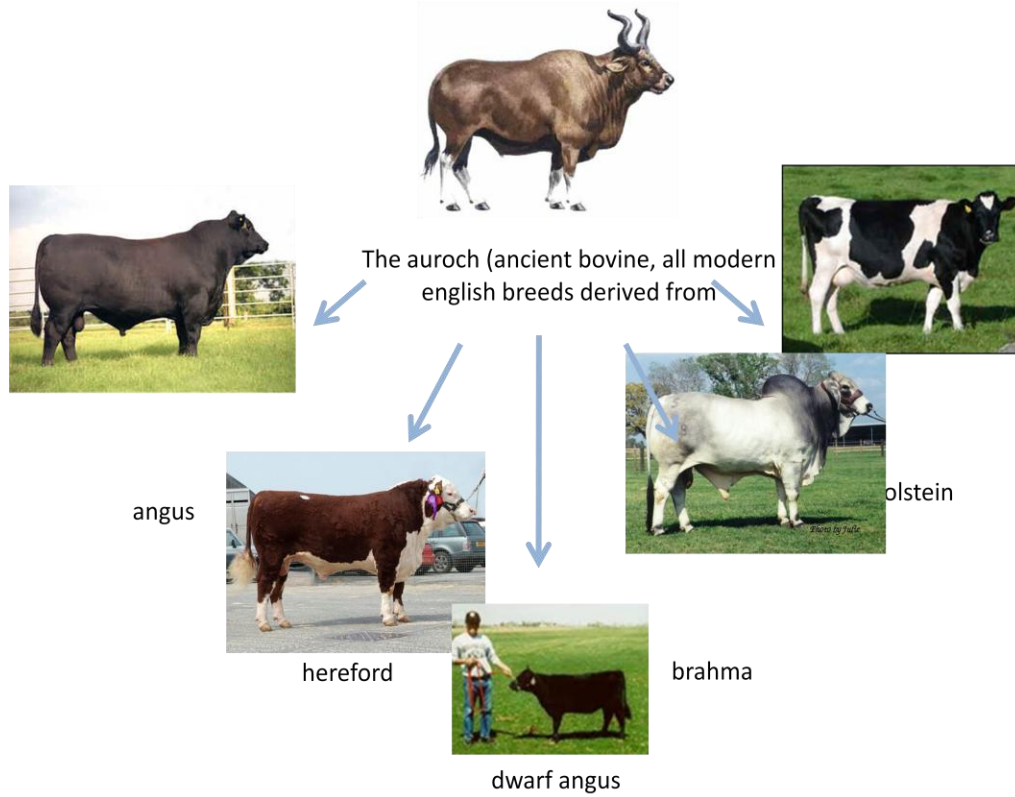
Artificial Selection

1. What is selective breeding? _____

2. Who picks the traits that get passed on during the selective breeding process? _____
3. Complete the chart:

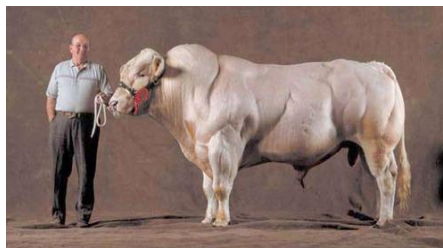
Selective Breeding	
Advantages	Disadvantages





9. What are the main differences between natural selection and selective breeding? _____

10. Can selective breeding go too far? _____

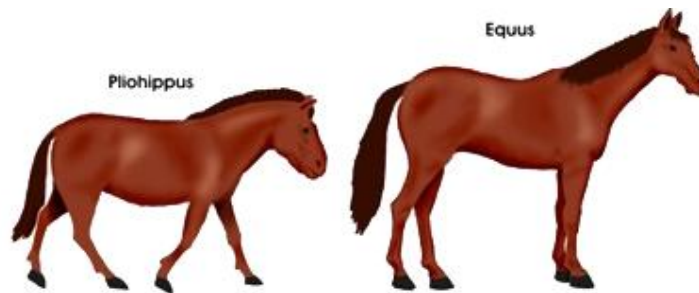


15 Most domesticated animals have been bred for specific, favorable traits. Dairy cows are bred for maximum milk production while dogs are bred for size and color, among other characteristics. The process of humans controlling the breeding of organisms is known as -

- A** natural selection
- B** selective breeding
- C** manipulative reproduction
- D** sheltered breeding

16 Which of the following is NOT an advantage of selective breeding?

- A** maintains certain stable traits to pass down to the offspring
- B** traits help the animal prosper in confinement
- C** breeding for only one trait can cause problems in other traits
- D** makes the species stronger



17 Drawings from hundreds of years ago show horses that are much smaller than horses today. Which of the following is the best explanation for the increased size of horses

- A** Horses have been genetically engineered
- B** Selective breeding has made horses larger
- C** Genetic therapies have been used to make horses larger
- D** certain sex-linked genes have been lost

Artificial Selection and Natural Selection

Darwin returned to England in 1836 and became an accepted member of the scientific community. His journal, *Voyage of the Beagle*, became a best-seller. He then began a review of his collected data, thinking about what process could produce the changes in the species he studied on the Galapagos Islands. Darwin then proposed the idea of natural selection. Color the title "Natural Selection" black.

Giraffes had always fascinated biologists as outstanding examples of adaptation. Their extremely long necks and long legs, with the front legs longer than the hind legs, adapt them so well to reaching the leaves and tender twigs of the trees. They have access to a food source that most other herbivorous animals in their environment cannot reach. Scientists wondered how they had evolved.

According to the theory of natural selection, a selective factor, usually food exists in most ecosystems. For the giraffe, the selective factor was tall trees with nutritious leaves toward the top. Color the title "Selective Factor" and anything labeled **A** brown. Any individual giraffe in the population with a slightly longer neck had an advantage. Because of this advantage, the giraffe's with slightly longer necks survived to reproduce. Color the title "Survivor" and anything labeled **B** yellow. Hopefully, their genes for a longer neck would get passed on to their offspring. The giraffes with shorter necks would die of starvation in dry years.

Over thousands and tens of thousands years, the giraffe species slowly adapted to have the neck length that we see today. Color the title "time" red and anything labeled **C**. Color the title "result" and anything labeled **D** blue. Anything marked with a + stays blank as these giraffes did not survive to reproduce.

Sometimes humans take over as the selective factor. Color the title "breeder" and anything labeled **A** brown. Many household pets and species of livestock have changed over thousands of years due to humans selecting their traits instead of nature. One example of selective breeding is a dachshund (wiener dog).

Centuries ago, farmers in Germany decided they could produce a short legged, small dog that could dig well to go into badger holes. The badgers were eating their chickens and they wanted to use a dog to kill the badgers. At that time, no dog existed that could do the job. Area dog breeders began looking for shorter dogs that were good diggers. These dogs became the desired parents. Color the title "desired parents" and anything labeled **B** yellow.

It took over 100 years of continuing to select for the shorter legged, good digging dogs, but eventually, the dog breeders had what they were looking for. Color the title "time" and anything labeled **C** red. Color the title "result" and anything labeled **D** blue. Leave anything labeled + white as these dogs did not have the right traits and were not bred.

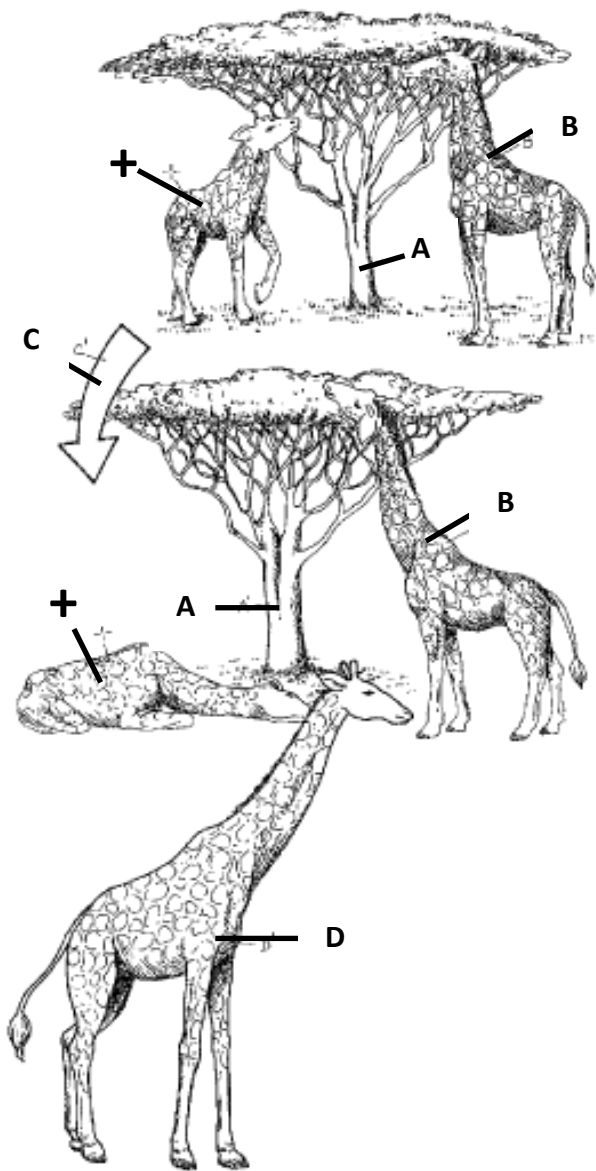
Natural Selection

SELECTIVE FACTOR A

SURVIVOR B

TIME C

RESULT D



Artificial Selection

BREEDER A

DESIRED PARENTS B

TIME C

RESULT D

