Name_____ Class_____ Date_____



# Section 13–1 Changing the Living World (pages 319–321)

**TEKS FOCUS:** 3C Impact of research on society and the environment; 6D Compare genetic variations in plants and animals

*This section explains how people use selective breeding and mutations to develop organisms with desirable characteristics.*

## Selective Breeding (pages 319–320)

**1.** What is meant by selective breeding? _____

_____

_____

**2.** Circle the letter of each organism that has been produced by selective breeding.

**a.** horses **b.** dogs **c.** cats **d.** potatoes

**3.** Who was Luther Burbank? _____

_____

**4.** Complete the compare-and-contrast table of types of selective breeding.

**SELECTIVE BREEDING**

| Type | Description | Examples |
|---|---|---|
| | Crossing dissimilar individuals to bring together the best of both organisms | |
| | The continued breeding of individuals with similar characteristics | |

**5.** Is the following sentence true or false? Hybrids are often hardier than either of the parents. _____.

**6.** What two plant traits did Luther Burbank try to combine in his crosses?

**a.** _____

**b.** _____

**7.** Is the following sentence true or false? To maintain the desired characteristics of a line of organisms, breeders often use hybridization. _____

**8.** Most members of a breed are genetically _____.

**9.** What are the risks of inbreeding? _____

_____

_____

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## Increasing Variation (pages 320–321)

**10.** Why are biologists interested in preserving the diversity of plants and animals in the wild? _____

_____

_____

**11.** Is the following sentence true or false? The genetic variation that exists in nature is enough to satisfy the needs of breeders. _____

**12.** Breeders can increase the genetic variation by inducing _____, which are the ultimate source of genetic variability.

**13.** Circle the letter of an inheritable change in DNA.

**a.** variation **b.** trait **c.** mutation **d.** genotype

**14.** Is the following sentence true or false? Mutations cannot occur spontaneously.

_____

**15.** Name two methods used by breeders to increase the rate of mutation.

**a.** _____ **b.** _____

**16.** Is it easy for breeders to produce mutants with desirable mutations? Explain.

_____

_____

_____

**17.** Why are radiation and chemicals useful techniques for producing mutant bacteria?

_____

_____

_____

**18.** Is the following sentence true or false? Scientists have produced bacteria that can digest oil. _____

**19.** What technique do scientists use to produce mutant plants? _____

_____

_____

**20.** Circle the letter of each sentence that is true about polyploidy.

**a.** Polyploid plants have many sets of chromosomes.

**b.** Polyploidy is usually fatal in animals.

**c.** Polyploidy produces new species of plants that are weaker and smaller than their diploid relatives.

**d.** Bananas and some citrus fruits are polyploid.