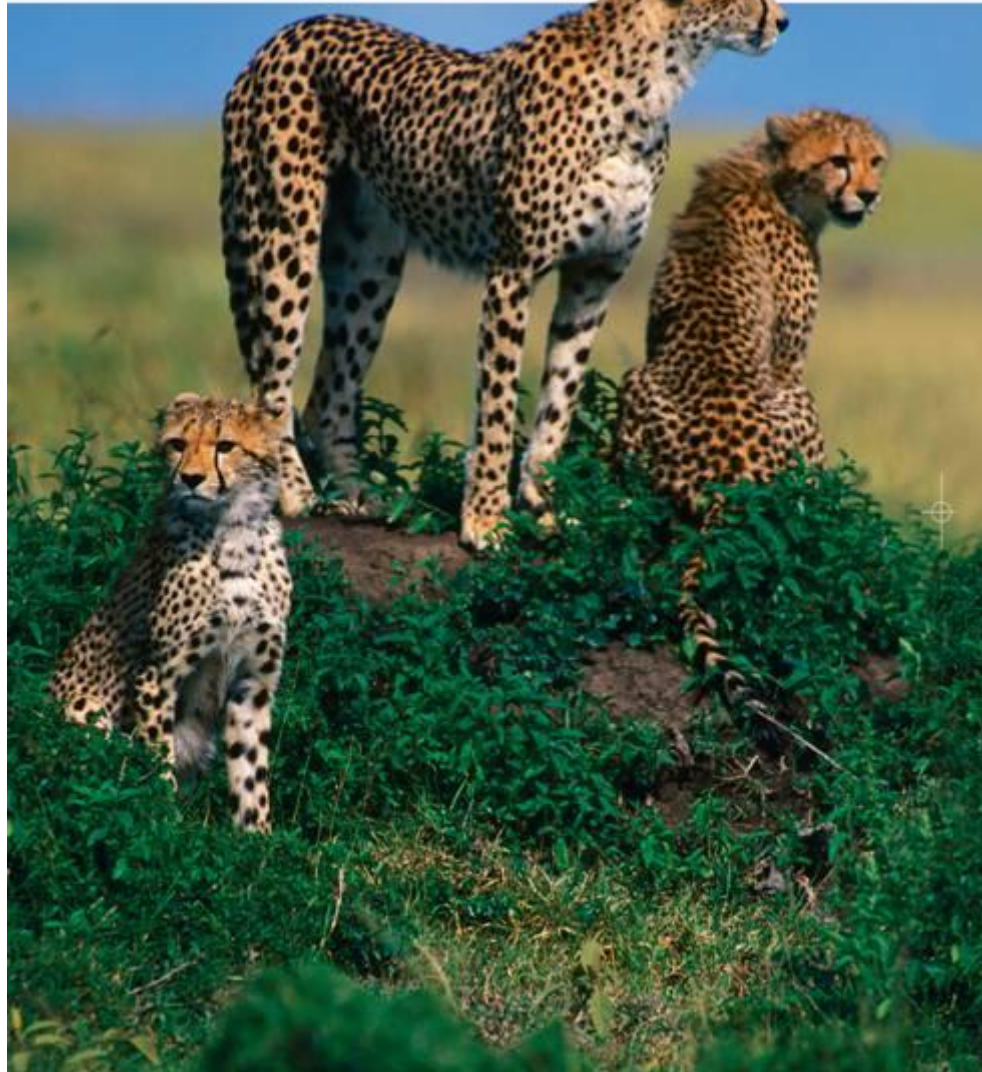


# 13-1 Changing the Living World



## Selective Breeding

**Selective breeding** allows only those organisms with desired characteristics to produce the next generation.

Nearly all domestic animals and most crop plants have been produced by selective breeding.

**Humans use selective breeding to pass desired traits on to the next generation of organisms.**

## Making the Belgian Blue

[http://www.youtube.com/watch?v=rW54\\_vM9SF0](http://www.youtube.com/watch?v=rW54_vM9SF0)

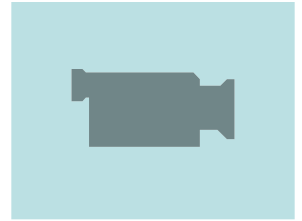
## Hybridization

**Hybridization** is the crossing of dissimilar individuals to bring together the best of both organisms.

Hybrids, the individuals produced by such crosses, are often hardier than either of the parents.

<http://abcnews.go.com/Nightline/video/animal-house-10058123>

## Inbreeding



**Inbreeding** is the continued breeding of individuals with similar characteristics.

Inbreeding helps to ensure that the characteristics that make each breed unique will be preserved.

Serious genetic problems can result from excessive inbreeding.

Dog Inbreeding in Pedigrees

<http://www.youtube.com/watch?v=Yku1MSa5vRY>

## Increasing Variation

### Why might breeders try to induce mutations?

Breeders increase the genetic variation in a population by inducing mutations.

Mutations occur spontaneously, but breeders can increase the mutation rate by using radiation and chemicals.

Breeders can often produce a few mutants with desirable characteristics that are not found in the original population.

## Producing New Kinds of Bacteria

Introducing mutations has allowed scientists to develop hundreds of useful bacterial strains, including bacteria that can clean up oil spills.

However, some mutations or gene alterations have created new “super bugs” that can cause new infections – like the new staph strains called MERSA

<http://www.youtube.com/watch?v=gU7hrtxBWmA>



## Producing New Kinds of Plants

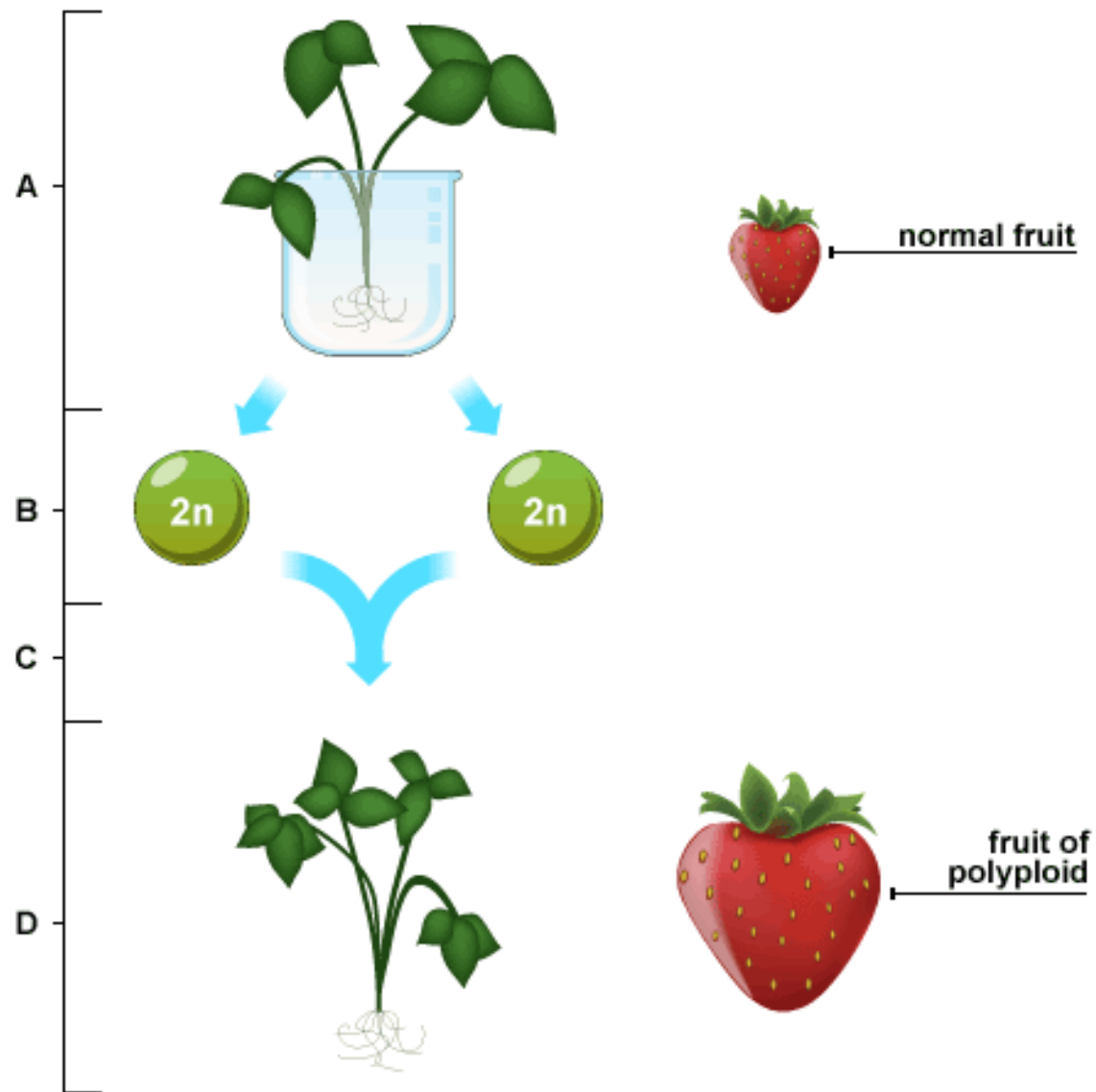
Mutations in some plant cells produce cells that have double or triple the normal number of chromosomes.

This condition, known as polyploidy, produces new species of plants that are often larger and stronger than their diploid relatives.

Polyploidy in animals is usually fatal.



## 13-1 Changing the Living World →



## Investigating polyploidy in plants video

<http://www.youtube.com/watch?v=exxsAklxIEk>

## Section QUIZ

Continue to:

**Section QUIZ**

- or -

Click to Launch:



## 13-1 Section QUIZ

1

The usual function of selective breeding is to produce organisms that

- a. are better suited to their natural environment.
- b. have characteristics useful to humans.
- c. can compete with other members of the species that are not selected.
- d. are genetically identical.

## 13-1 Section QUIZ

2 Crossing a plant that has good disease-resistance with a plant that has a good food-producing capacity is an example of

- a. inbreeding.
- b. hybridization.
- c. polyploidy.
- d. crossing over.

## 13-1 Section QUIZ

3

New species of plants that are larger and stronger are a result of

- a. monoploidy.
- b. diploidy.
- c. polyploidy.
- d. triploidy.

## 13-1 Section QUIZ

4 The function of inbreeding is to produce organisms that

- a. are more genetically diverse.
- b. are much healthier.
- c. are genetically similar.
- d. will not have mutations.



## 13-1 Section QUIZ

5 Increasing variation by inducing mutations is particularly useful with

a. animals.

b. bacteria.

c. plants.

d. fungi.