variation

sexual reproduction

mechanism of inheritance

9-12

New heritable characteristics can result from new combinations of existing genes or from mutations of genes in reproductive cells.

The degree of relatedness between organisms or species can be estimated from the similarity of their DNA sequences, which often closely match their classification based on anatomical similarities.

The sorting and recombination of genes in sexual reproduction results in a great variety of possible gene combinations in the offspring of any two parents.

Gene mutations can be caused by such things as radiation and chemicals. When they occur in sex cells, they can be passed on to offspring; if they occur in other cells, they can be passed on to descendant cells only. The experiences an organism

Genes are segments of DNA molecules. Inserting, deleting, or substituting segments of DNA molecules can alter genes. An altered gene may be passed on to every cell that develops from it. The resulting features may help, harm, or have little or no

DNA molecules are long chains linking just four kinds of smaller molecules, whose precise sequence encodes genetic information.

The information passed from parents to offspring is coded in DNA molecules, long chains linking just four kinds of smaller molecules, whose precise sequence encodes genetic information.

6-8

The same genetic information is copied in each cell of the new organism.

The fertilized egg cell, carrying genetic information from each parent, multiplies to form the complete organism.

Cells repeatedly divide to make more cells for growth and repair.

In sexual reproduction, a single specialized cell from a female merges with a specialized cell from a male.

In organisms that have two sexes, typically half of the genes come from each parent.

In some kinds of organisms, all the genes come from a single parent.

3-5

For offspring to resemble their parents, there must be a reliable way to transfer information from one generation to the next.

Some likenesses between children and parents are inherited. Other likenesses are learned.

K-2

Offspring are very much, but not exactly, like their parents and like one another.

All kinds of animals have offspring, usually with two parents involved.