Record: 1

Title: Untitled.

Benchmarks: Life Sciences -- Biology -- Plants

Subject Terms: GENETIC engineering; NATURAL selection; CLONING; REPRODUCTION, Asexual; GENETICS

Source: Exploring the Native Plant World: A Life Science Curriculum 5th-6th Grade: Adaptations; 2004, p8(Click to view "Table of Contents") 1p

Publisher: Eakin Press (a.k.a. Sunbelt Media)

ISBN: 157168851X

Abstract: This article focuses on the application of the theory of evolution by Charles Darwin in issues concerning cloning. The author discussed the four principles included in the theory such as the extinction of other organisms. The concept of natural selection was developed in 1858 by Darwin and Alfred Wallace. Hence, the knowledge about the theory may contribute to issues related to plant cloning. (Copyright applies to all Abstracts)

Lexile: 1020

Full Text Word Count: 425

Accession Number: 19294860

Database: Book Collection: Nonfiction

Section: 5th - 6th Grade

Untitled.

Send in the Clones

There are two ways plants can reproduce: sexually and asexually. During sexual reproduction, genetic information from both parents combine to produce offspring with a genetic makeup different from each of the parents. This is a good thing because new genetic combinations may allow the offspring to compete and survive in an ever-changing environment long enough to reproduce.

When a plant reproduces asexually, it in effect creates a copy, or clone, of itself. No new genetic combinations are produced, and the offspring are genetically identical to their parent and their siblings. This may be okay for a while, especially if things in the environment don't change too drastically or suddenly. However, if the environment does change and the cloned plants don't have the genetic information necessary to cope with or survive that change, they may die before successfully reproducing. If the environment continues to change, cloned plants may eventually die out completely.

Darwin's Theory of Evolution

Charles Darwin's theory of evolution is based on four principles:

1. Organisms change over time, and those living today are different from those that lived in the past. Many organisms that once lived are now extinct.
2. All organisms are derived from common ancestors. Over time, populations split into different species, which are related through a common ancestor.
3. Change is slow and gradual, taking place over long periods of time.
4. The mechanism of evolutionary change is natural selection.

The Process of Natural Selection

Darwin and his colleague, Alfred Wallace, proposed the concept of natural selection in 1858. According to this concept, not all individuals in a particular population may survive and reproduce equally well. Small genetic differences can give certain individuals an advantage over other individuals in the population. This is known as genetic fitness.

Darwin's idea of natural selection depended on certain things to be true: • Many species produce huge numbers of offspring to ensure continuation of the species.

• Species struggle or compete for existence. All seeds, spores, and other reproductive cells compete for available space and resources.

• The genes for survival are passed from generation to generation. Genes that don't help a species survive are gradually eliminated.

• Individuals of a particular species that are adapted to survive and cope with a changing environment will live long enough to successfully reproduce. Individuals that are not as well adapted may not live long enough to reproduce and will be eliminated from the population.

Source: Exploring the Native Plant World: A Life Science Curriculum 5th-6th Grade: Adaptations