

Sexual and Asexual Reproduction

Version A

Reproduction is extremely important for the survival and evolution of a species. Through reproduction, an individual passes on its genes to the next generation.

Sexual Reproduction

Most species reproduce sexually in male and female pairs. Each parent in a sexually reproducing pair passes on half of its genes to its offspring. The mix of genes that results makes each new generation (the offspring) different from the previous generation (the parents).

This genetic variation, or difference between the generations, provides a very important advantage to sexually reproducing organisms: the ability to adapt more quickly to changing conditions in their environment. The better-adapted individuals live long enough to reproduce sexually and pass on more of their genes to the next generation. Thus, they have a greater influence on the genetic makeup of the entire species. This process is known as natural selection.

Asexual Reproduction

Relatively few species reproduce asexually, or in a way that does not involve male and female partners. In contrast to sexual reproducers, every organism that reproduces asexually passes on its entire set of genes to the next generation. These species have a few distinct advantages over



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those that mate in pairs. Since it does not need a sexual partner, a lone individual can establish a new population in a new territory.

However, in populations created by asexual reproduction, no individual has much of a survival or reproductive advantage over any other individual. This is because they are all so genetically similar. It also means that it will take much longer for these populations to evolve in response to change going on around them, which makes them especially vulnerable to diseases or other natural disasters that can wipe them out.

Glossary

genetic variation: genetic diversity in a species or group as a result of new gene combinations produced during reproduction

natural selection: the survival and successful reproduction of the organisms that are best suited to their environment; the process that drives evolution

population: a group of organisms of the same species that live in the same area or habitat

Writing Assignment

Using your notes from the lesson and updated activity chart, write a one- to two-page paper on one of the following topics:

1. What are the benefits and drawbacks of sexual and asexual reproduction for the species that practice them? Cite specific examples to support your ideas.
2. In what ways do you think offspring born from one parent might differ from those born from two parents? Cite specific examples to support your ideas.

If you would like more information about sexual and asexual reproduction to complete your paper, check out the following Web sites:

Sexual vs. asexual reproduction: scientists find sex wins

http://www.eurekaalert.org/pub_releases/2001-10/uoc--sva101701.phpl

The Advantage of Sex

<http://www.pbs.org/wgbh/evolution/sex/advantage/index.html>

Evolution of Sexual Reproduction

<http://www.biologyreference.com/Se-T/Sexual-Reproduction-Evolution-of.html>