Reproduction—The Pros and Cons of Each Method

One of the most important things for the survival of a species is reproduction. 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).

Scientists often refer to sexual reproduction as a "biological tradeoff." Why? Because the genes of a sexual reproducer are, in a way, diluted, or weakened. Each parent passes on only half of its genes to its offspring. But genetic variation—or the differences between generations that result from mixing genes—gives a very important advantage to sexual reproducers: They are able to respond more quickly to changes in their environment by changing themselves. In doing so, they become more likely to live long enough to reproduce and can pass on more of their genes to the next generation. This process is known as natural selection.

Asexual Reproduction

Far fewer species reproduce asexually, or in a way that does not pair males with females. In contrast to sexual reproducers, every living thing that reproduces asexually passes on its entire set of genes to the next generation. These species have some advantages over sexual reproducers. For example, because it does not need a sexual partner, a lone individual can create a new population in a new territory.

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A species, like the King penguin, will survive only if its individual members are able to reproduce. There are two ways to do this in nature: sexually or asexually.

However, in populations created by asexual reproduction, no individual has much of an advantage over any other individual. This is because there is very little genetic variation between them. It also means that it will take much longer for these populations to adapt in response to change going on around them. This makes them highly vulnerable to—or more likely to be affected by—diseases that can wipe them out.

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