

Name \_\_\_\_\_

## The Building Blocks of Life: Understanding Genetic Diversity

### Short Answer Key

1. Genetic diversity is important for the adaptation of species to changing environments because it allows for the presence of different genetic variations within a population, enabling some individuals to possess traits that are advantageous in specific environmental conditions.
2. Genetic diversity provides resilience against diseases and other threats by ensuring that some individuals possess genetic variations that confer resistance to diseases or pests, reducing the risk of widespread outbreaks or population declines.
3. Inbreeding in populations can lead to a loss of genetic diversity and an increased risk of genetic disorders and reproductive problems, ultimately reducing the long-term viability and persistence of the population.
4. Practical applications of genetic diversity in agriculture include the development of new crop varieties with desirable traits such as disease resistance, drought tolerance, and higher yields. In medicine, genetic diversity among human populations helps researchers understand the genetic basis of diseases and develop personalized treatments tailored to individuals' unique genetic makeup.
5. Genetic diversity contributes to the long-term viability of populations and the persistence of species by maintaining healthy, robust populations that are better able to adapt to changing environmental conditions and withstand threats like diseases and natural disasters.

