

Lesson 4: Reproduction and Genetic Diversity

Key Concepts

- Asexual reproduction results in many genetically identical offspring in a short amount of time
- Sexual reproduction results in genetically varied offspring

Advantages of Asexual Reproduction

- The process occurs **quickly**
 - As a result, each organism can produce **many offspring**
- Only **one parent** is needed
 - They can start to reproduce as soon as it is ready and conditions are suitable

Advantages of Asexual Reproduction

- The offspring are **genetically identical** to the parent
 - As long as conditions remain the **same**, can be **successful**.
- The formation of mature offspring takes a **short amount of time**
 - Can reproduce **soon after** being produced

A Lack of Genetic Diversity

- All individuals are **equally vulnerable** to change
- Sometimes these **changes** can cause an entire population to be **wiped out**.



The Value of Genetic Diversity

- **Genetic variation**: variation in the DNA sequences of each individual of a species
- If the environment changes, some individuals within that population might now **be less successful** in living and reproducing. However, others may have certain features that **enable** them to live in the new conditions **more easily**.

Disadvantages of Sexual Reproduction

- The search for a **mate** might expose individuals to **predators, disease, or harsh environmental conditions**
- **Fewer offspring** tend to be produced
- Offspring often **take longer** to reach maturity before they can produce **sex cells** and **reproduce** themselves
- Offspring require a substantial amount of **time and energy** to be raised until they are **independent** from their parents.