

How do sexual and asexual reproductions differ?

Essential Question: How has genetics played into allowing every organism to survive as long as they have?

Focus Question:

- How do sexual and asexual reproductions differ?
- How does chromosome number differ between species?

Review:

- What is asexual reproduction? Name an organism that uses it.
- What is sexual reproduction? Name an organism that uses it.

Asexual Reproduction

- In *asexual reproduction*, a single parent passes a complete copy of its genetic information to each of its offspring.
- An individual formed by asexual reproduction is genetically identical to its parent.
- What asexual reproduction method have we already learned about?
- Many unicellular eukaryotes also reproduce asexually.
- Some multicellular eukaryotes, such as starfish, go through fragmentation.
- *Fragmentation* is a kind of reproduction in which the body breaks into several pieces. Some or all of these fragments regrow missing parts and develop into complete adults.
- Other animals, such as the hydra, go through *budding*. In budding, new individuals split off from existing ones.

Sexual Reproduction

- Most eukaryotic organisms reproduce sexually.
- In *sexual reproduction*, two parents give genetic material to produce offspring that are genetically different from their parents.
- Each parent produces a reproductive cell, called a **gamete**. A gamete from one parent fuses with a gamete from the other.
- The resulting cell, called a **zygote**, has a combination of genetic material from both parents. This process is called *fertilization*.
- Because both parents give genetic material, the offspring has traits of both parents but is not exactly like either parent.

Germ Cells and Somatic Cells

- The cells of a multicellular organism are often specialized for certain functions.
- Cells that are specialized for sexual reproduction are called *germ cells*. Only germ cells can produce gametes.
- Other body cells are called *somatic cells*. Somatic cells do not participate in sexual reproduction.

Review