Sexual and Asexual Reproduction
One Becomes Two

What is asexual reproduction?

• Reproduction involves various kinds of cell division.

• Most single-celled organisms and some multicellular organisms reproduce asexually.

• In asexual reproduction, one organism produces one or more new organisms that are identical to itself.
What is asexual reproduction?

- The organism that produces the new organism or organisms is called a *parent*.
- Each new organism is called an *offspring*.
- The offspring produced by asexual reproduction are genetically identical to their parents.
How do organisms reproduce asexually?

- Organisms reproduce asexually in many ways.
- Prokaryotes, including bacteria, reproduce asexually by cell division.
- Some eukaryotes, including many multicellular organisms, reproduce asexually by more complex processes—types of cell division called *mitosis*.
How do organisms reproduce asexually?

- **Binary fission** is the form of asexual reproduction in prokaryotes.
  - Parent organism makes a copy of its DNA and then divides.
  - Ex. bacteria

- **Budding** occurs when a bud grows on an organism and develops into a full-sized organism.
  - Ex. hydra
How do organisms reproduce asexually?

- A *spore* is a specialized cell that can survive harsh conditions.

- Spores, produced asexually by one parent, are light and can be carried by the wind.
How do organisms reproduce asexually?

• Some plants can reproduce asexually by *vegetative reproduction*.

• One plant produces new identical plant
  - Ex. potatoes, strawberries,
What is sexual reproduction?

- Most multicellular organisms can reproduce sexually.
- In **sexual reproduction**, two parents each contribute a sex cell to the new organism.
- Half the genes in the offspring come from each parent.
What is sexual reproduction?

- Males produce sex cells called *sperm cells*.
- Females produce sex cells called *eggs*.
What is sexual reproduction?

• Sex cells have half of the set of genetic material found in body cells.

• A sperm and an egg join together in a process called fertilization.
What is sexual reproduction?

• When an egg is fertilized by a sperm cell, a new cell, called a *zygote*, is formed. It has a full set of genetic material (DNA).
  - half from the mother
  - half from the father

• The zygote develops into a new organism.
## Sexual and Asexual Reproduction

### Added Advantage
**What are the advantages of each type of reproduction?**

<table>
<thead>
<tr>
<th>Sexual</th>
<th>Asexual</th>
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<tbody>
<tr>
<td>• increases genetic variation or differences</td>
<td>• allows to reproduce very quickly</td>
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<tr>
<td>• offspring have different traits; improves chances that at least some offspring will survive</td>
<td>• ensure that any favorable traits the parent has are passed on to the offspring</td>
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<td></td>
<td>• reproduction can happen without a partner; all offspring can reproduce</td>
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*Some organisms can use both types of reproduction. This allows them to spread quickly, and adapt to changes in the environment as well.*