

# Reproductive Strategies

Asexual vs. Sexual Strategies

## Asexual Reproduction

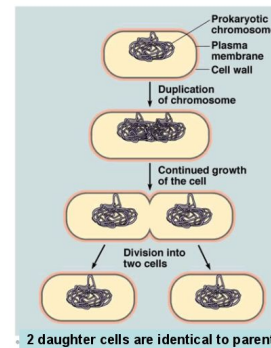
- Involves only 1 parent
- Offspring genetically identical to parent
- Involves regular body cells
- It's quick

## Asexual Reproduction

- **Binary Fission**

- Happens in bacteria, amoeba, some algae
- One parent cell splits into 2 identical daughter cells

## Binary Fission



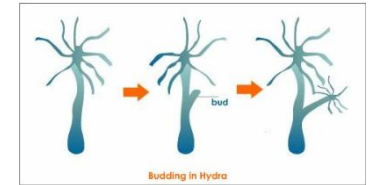
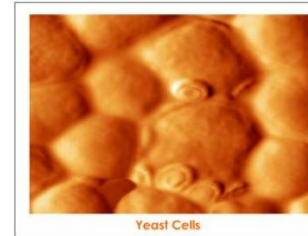
Rod-Shaped Bacterium,  
hemorrhagic *E. coli*

## Asexual Reproduction

- **Budding**

- Happens in yeast, hydra, corals
- Parent produces a bud
- Bud gets detached and develops into offspring which is identical to parent

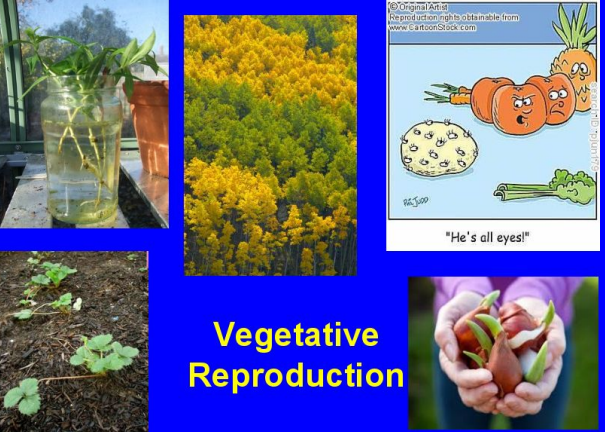
## Budding



## Asexual Reproduction

- **Vegetative Reproduction**

- Does not involve seeds
- Some offspring can grow from cuttings (e.g. coleus), runners (e.g. strawberries), tubers (e.g. potatoes) or bulbs (e.g. tulips)... which are part of the parent plant



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"He's all eyes!"

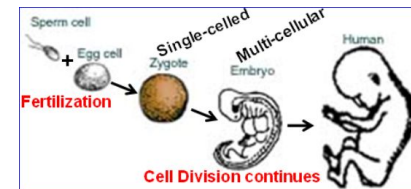
**Vegetative Reproduction**

## Sexual Reproduction

- Involves 2 parents
- Offspring genetic mix of both parents
- Involves specialized sex cells
- It's slow

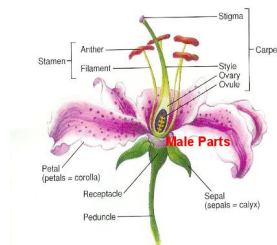
## Sexual Reproduction in Animals

- Involves specialized sex cells called gametes
- The union of a male and female gamete results in the formation of a zygote that develops into a new organism



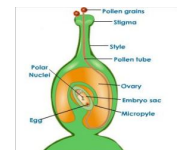
## Sexual reproduction in plants

Pollen (male) + Ovule (female) → seed → new plant



## Sexual reproduction in plants

- Pollination
- Flowers are designed to lure insects to help with the pollination process
  - Also wind, animals, birds can transport pollen



Why are flowers sexual reproduction?

- Because the **pollen** genes (dad) are mixing with the **ovule** genes (mom)

## Summary

- Some organisms do both
- Most plants that produce seeds (**sexual reproduction**) can also reproduce asexually by things like **cuttings** or **runners**
- This gives them an **advantage** for survival



Which is more successful?

*It depends!*

- **Advantages**
  - Does not require special cells or a lot of energy
  - Can produce offspring quickly
  - In a stable **environment** creates large, thriving population
- **Disadvantages**
  - Limited ability to adapt
  - Face massive die-off if **environment** changes

Sexual Reproduction

- **Advantages**
  - Lots of **variation** within a species
  - Able to live in a variety of **environmental** settings
  - Able to **adapt** to changes in the environment
- **Disadvantages**
  - Needs **time & energy**
  - Produce **small** populations