Science 9

# Biology III

Name:
Date:
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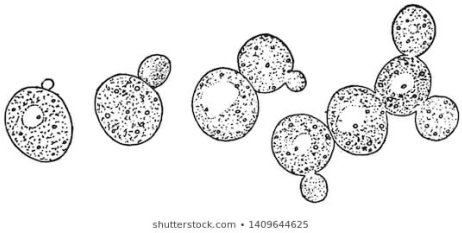
1. **Types of Asexual Reproduction**
2. **Mitosis**

## Types of Asexual Reproduction

There are a variety of ways that organisms are able to reproduce through asexual reproduction.

_____

- Cells grow a _____ that pinches off to become a _____ cell
- The new cell is smaller than the original cell at first
    - Eventually grows into the _____ _____ as other cells




Example:

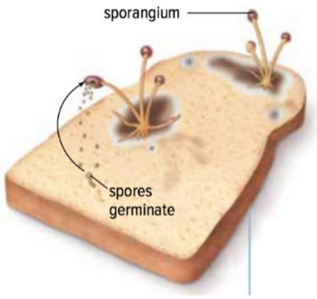
_____ are unicellular eukaryotic micro-organisms.

- Commonly used to make dough, bread, pretzels, soy sauce, cheese
- Yeast reproduce through a process called budding

_____

_____ are composed of many eukaryotic cells

- Reproduce by asexual reproduction using _____
    - Spores are a type of _____ cell that is able to develop into a new individual
- Moulds form _____ that are genetically _____ to the mould cells they come from
    - Spores are released into the air from a structure called a _____
    - When a spore lands in a favourable environment (warm, moist), it grows and divides by _____ and _____

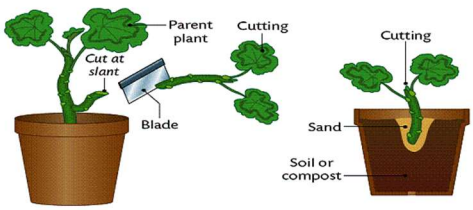



_____

Fragmentation occurs in many plants and animals (such as coral, sponges, and starfish)
- Organisms break into _____ _____ that develop into a brand new individual

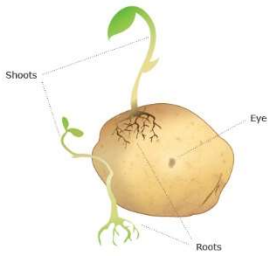
_____ _____

Plants are able to reproduce both through asexual and sexual reproduction.




- New plants grow from a portion of the _____, _____, or _____ from an existing plant
  - New plants are able to sprout from the stems, roots, or leaves of a parent plant
- New plants are _____ (copies) of the parent plant

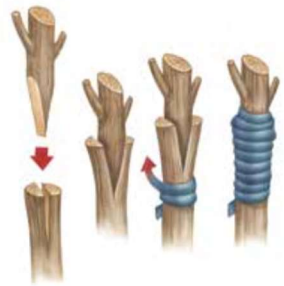
Example - potatoes




- New roots and shoots grow from the eyes of a potato
- If you plant a potato with this new growth, a potato plant will develop
- The new plant will be identical to the parent plant

_____ vegetative propagation uses techniques to produce plants with specific characteristics

- Example: _____
  - A bud, stem, or root is cut from one plant and joined to another
  - When this happens, the tissues of the cutting get integrated into the tissue systems of the base plant over time
  - Used to produce trees with high-quality fruit or resistance to disease



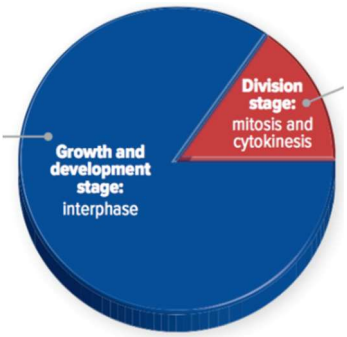
## Mitosis and the Cell Cycle

Why do eukaryotic cells want to reproduce?

- Replace _____ cells
- Replace _____ cells
- Produce _____ _____ in single-celled organisms (amoebas)

***Reproduction and the Cell Cycle***

- Eukaryotic cells reproduce by a series of events called the _____ _____
- The cell cycle has two stages that has different events:
  - **Growth and development**
    - _____
  - **Cell division**
    - _____ (PMAT)
    - _____




**Growth and Development:**

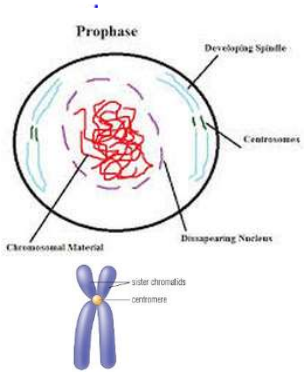
_____

- The cell grows larger and _____ the number of _____ it contains
- _____ in the nucleus is _____
- Creates a structure called the _____
  - The centrosome helps to provide structure to the cell and aids during cell division (it pulls the chromatids apart)

**Cell Division:**

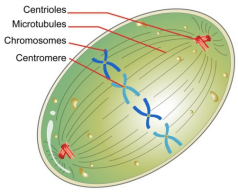

*Phase 1:* _____

- _____ membrane begins to _____
- DNA condenses into duplicated _____
  - Each _____ contains _____ copies of the same DNA
  - As there are two copies of DNA, they are connected and create a structure called a _____ _____
- _____ _____ begin to form. They grow between the centrosomes as they move apart.



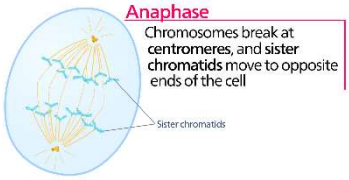

*Phase 2:* _____

- Structures called spindle fibres guide chromosome movement by attaching to the centromere
- _____ line up along the _____ of the cell




*Phase 3:* _____

- Copies of DNA are _____ and go to each end of the cell
  - The _____ _____ get pulled apart to each end of the cell




*Phase 4:* _____

- _____ _____ form
- The spindle fibres disappear and the chromosomes start to decompress
  - Each nucleus contains a complete copy of the cell's DNA

_____

- Cytoplasm and _____ are _____
- The cell begins to pinch in the middle and pull apart in order to form _____ _____ cells
- The cells then begin _____ once cytokinesis is complete