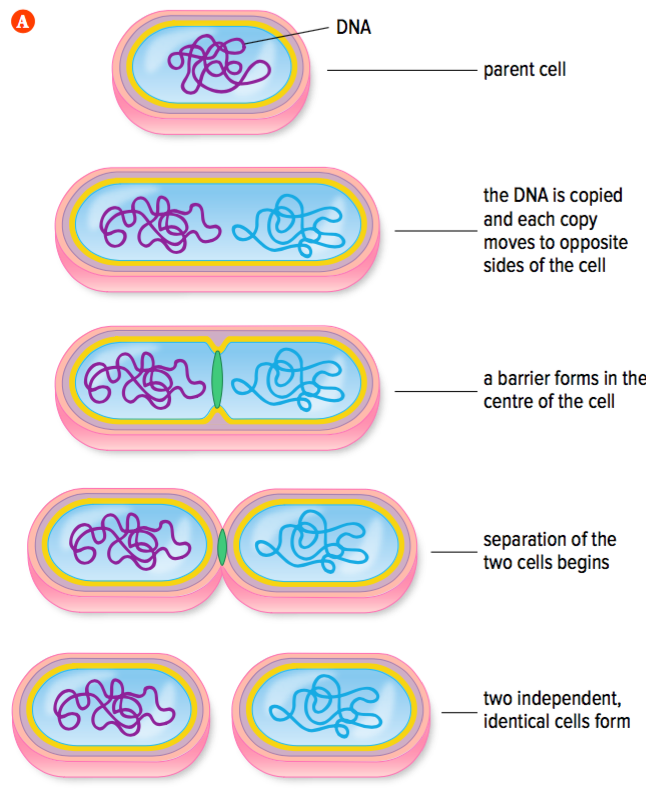
**TOPIC 1.2: WHAT ARE DIFFERENT WAYS THAT LIVING THINGS REPRODUCE ASEXUALLY**

|  |  |  |
| --- | --- | --- |
| **Example** | **Type of Cell**  **(Eukaryotic or Prokaryotic)** | **Type of Asexual Reproduction** |
| **Bacteria** | Prokaryotic | Binary Fission |
| **Yeast** | Eukaryotic | Budding |
| **Mould** | Eukaryotic | Spores |
| **Plants** | Eukaryotic | Vegetative Propagation |



**Concept 1: Bacteria reproduce by binary fission**

* A parent cell splits into two individual,

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells (daughter cells)

* Daughter cells have identical genetic information (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

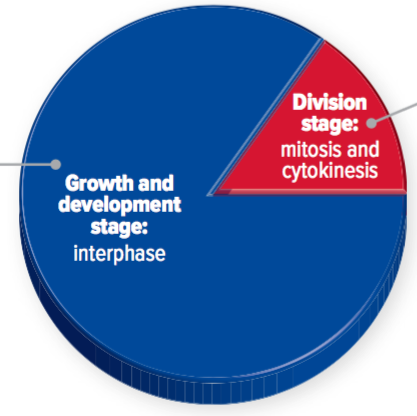
**Concept 2: All Eukaryotic cells reproduce by the cell cycle**



**Functions of eukaryotic cell division:**

* Replace older cells
* Replace \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells
* Produce new \_\_\_\_\_\_\_\_\_\_\_\_\_\_ 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 with different events:
  + **Growth and development**
    - Interphase
  + **Cell division**
    - Mitosis
    - Cytokinesis

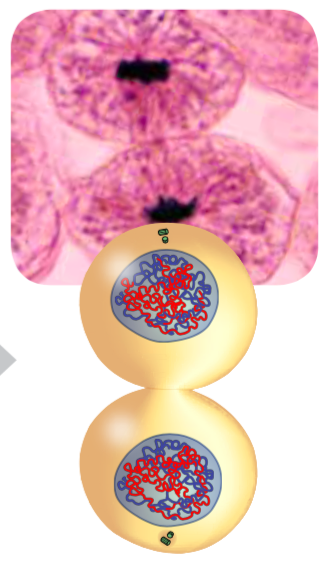
**Interphase**

1. Cell grows and number of organelles increases
2. DNA in the nucleus is \_\_\_\_\_\_\_\_\_\_\_\_\_

**Mitosis**

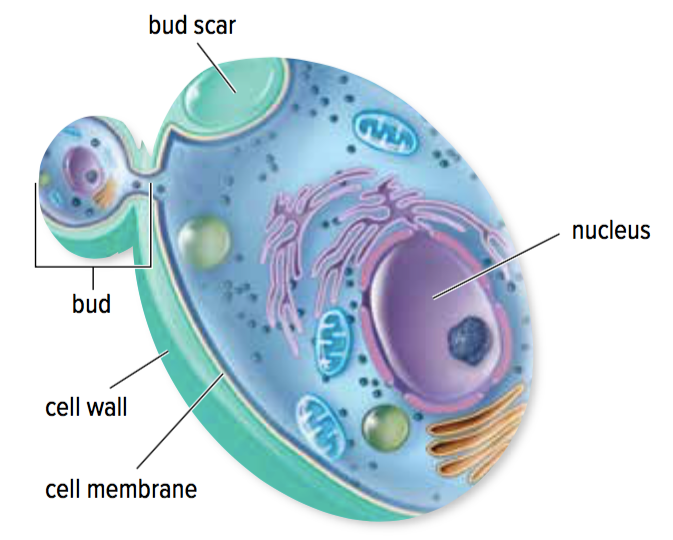
* Division of the nucleus
* Has 4 stages: Prophase, Metaphase, Anaphase, Telophase

|  |  |  |
| --- | --- | --- |
| **Prophase** |  | Nuclear membrane \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  DNA condenses into chromosomes (each chromosome contains two copies of the same DNA) |
| **Metaphase** |  | Spindle fibers form  Chromosomes line up at the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Anaphase** |  | Chromosomes are separated and go to each end of the cell |
| **Telophase** |  | Nuclear membrane reappears  \_\_\_\_\_\_\_\_\_\_ nuclei form |

**Cytokinesis** 

* Cytoplasm and organelles are divided
* Two separate cells form

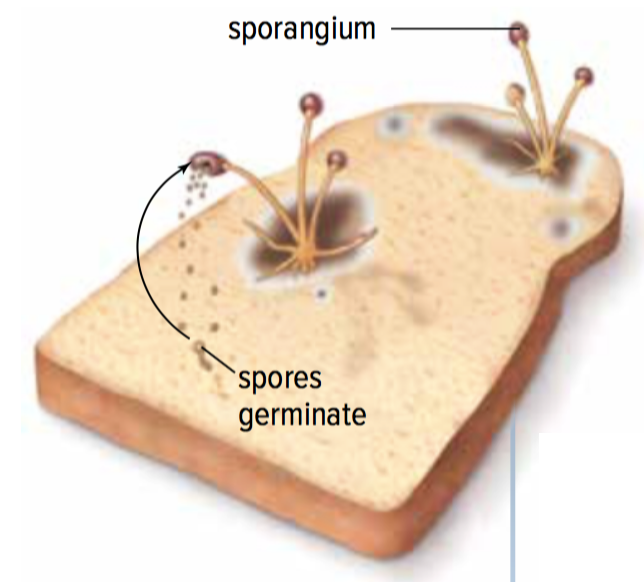
\* Watch this video to review the phases of the cell cycle <https://goo.gl/xI0jGS>

**Concept 3: Yeast reproduce by budding** 

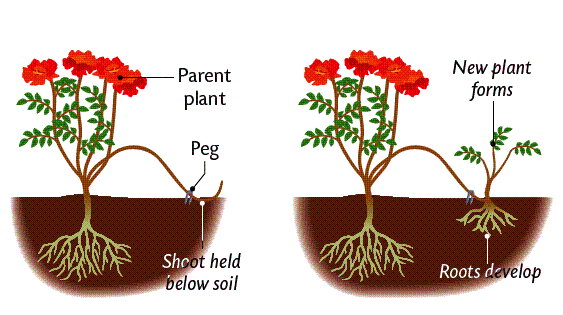
* Yeasts are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, eukayotic, micro organisms

**Budding**

* Yeast cell grows a bud that pinches off to become a separate \_\_\_\_\_\_\_\_\_\_\_\_\_
* New cell is smaller than original cell at first
  + Eventually grows to the \_\_\_\_\_\_\_\_\_\_\_ size as other yeast cells

**Concept 4: Molds reproduce using spores** 

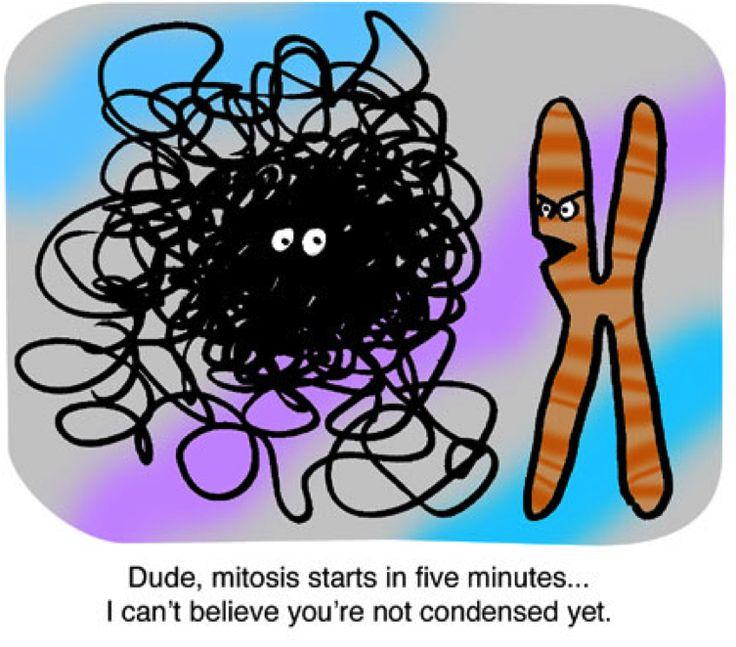
* Moulds are composed of \_\_\_\_\_\_\_\_\_ eukaryotic cells
* Moulds form spores that are genetically \_\_\_\_\_\_\_\_\_\_\_\_ to the mould cells they come from
  + Spores are released into the air from a structure called a *sporangium*
  + When a spore lands in a favourable environment (warm, moist), it grows and divides by \_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Concept 5: Plants have many ways to reproduce asexually.**

* Plants reproduce sexually and asexually
* Asexual reproduction: **vegetative propagation**
  + New plants grow from a portion of the roots, stems, or leaves from an existing plant
  + New plants are \_\_\_\_\_\_\_\_\_\_\_\_\_ (copies) of the parent plant

Which of the methods of asexual reproduction use mitosis?



Explain this cartoon on the right. Who is talking to who? What are they talking about and why?