

Genetics

- Zacharias Janssen invented the first optical compound microscope in 1595
- In 1665 Robert Hooke used a light microscope to look at non living cork cells and therefore coined the term cells
- Anton van Leeuwenhoek made microscopes w/ 10x power and observed the first living organisms which he called animacules.

Cell Theory an Shit

- **Properties of cells** 1) Life is the most basic property of cells 2) Cells are the smallest units of life 3) Cells are highly complex and organized.
- **Cell Theory** 1) All organisms are made of one or more cells 2) Cell is the basic unit of life 3) Cells can only arise from a preexisting cell. (This theory was created in the 1800s by three German scientists.

Organisms

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Unicellular Organisms - have just one cell such as amoebas but have problems functioning when they get too big and they don't have a nervous system nor muscles. | Multicellular- have more than one cell type and each cell type has a different and important role in your body. |
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Prokaryotes - do not have a true Nucleus

Eukaryotes- Have true nuclei



By **Nox**
cheatography.com/nox/

Cloning

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|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Somatic Cell Nucleus Transfer | Gene Cloning |
| Remove the nucleus of a body cell (somatic cell) and place it into an egg cell which has had its nucleus removed | Isolate the gene of interest and Make copies of the gene using a smaller organism (bacteria or yeast) |
| Stimulate the modified egg cell with its new nucleus to divide and develop into a new individual | Transfer the gene into another organism |

Mitosis vs Meiosis

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|---------------------------|-------------------------|
| Meiosis | Mitosis |
| Interphase I | Interphase |
| Prophase I | Prophase |
| Metaphase I | Metaphase |
| Anaphase I | Anaphase |
| Telophase & Cytokinesis I | Telophase & Cytokinesis |
- Repeat all steps again except for Interphase where the DNA is duplicated

Deoxyribonucleic acid = DNA

- Humans have 23 chromosomes (46 in total)
- Karyotype is a DNA chart with Homologous pairs (1 from mum 1 from dad)
- A chromosome is made up of two chromatid
- DNA is made of 4 base compounds (ACTG)

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Flower Reproduction

- | | |
|----------------------------|--------------------------|
| Female Flower Parts | Male Flower Parts |
| Pistil | Stamen |
| Stigma | Anther |
| Style | Filament Pollen |
| Ovary | |
| Ovules | |

Matter is Anything that Takes up Space

- Mass** is the amount of matter in something
- Volume** is the amount of space taken up by something
- Density** is the mass of an object that takes up a certain volume. It is calculated by dividing the mass of an object by its volume

Everything's a Chemical

- Everything in the world that isn't energy is a chemical or contains chemicals**

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