


REPRODUCTION

ASEXUAL AND SEXUAL

CELL THEORY

1. All living things are made up of **one** or **more** cells.
 2. The cell is the **structural** and **functional** unit of life.
 3. All cells come from **preexisting** cells.
 4. Organisms of **all species** reproduce.
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DO ALL CELLS REPRODUCE IN THE SAME WAY?

No!

They may reproduce **sexually** or **asexually**.



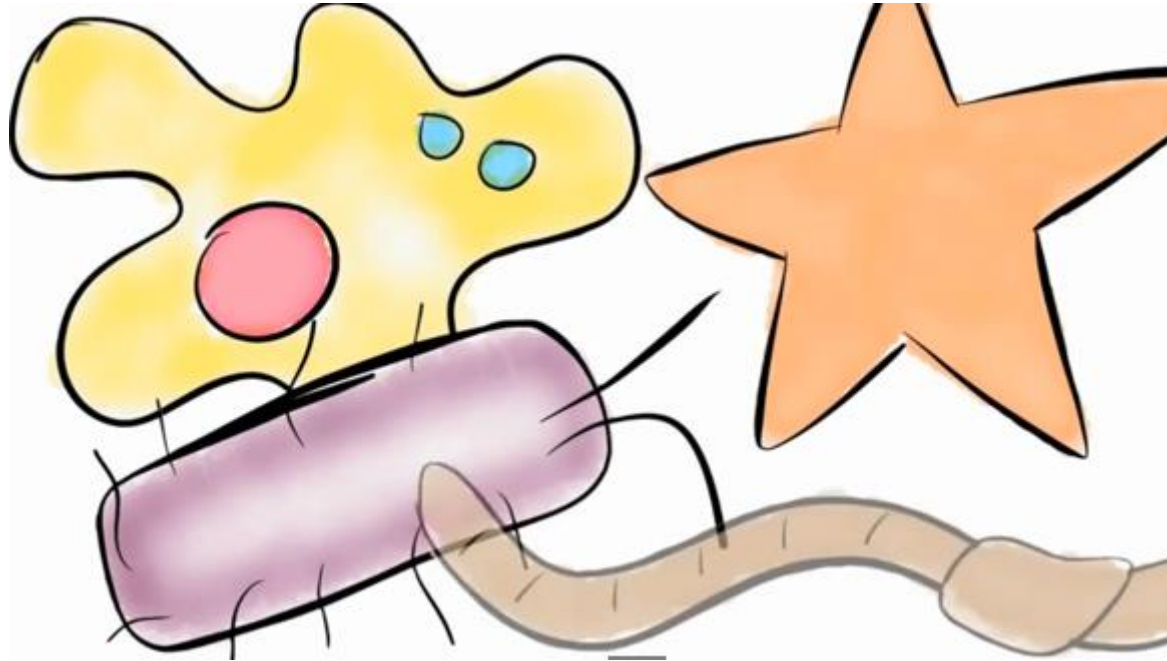
ASEXUAL REPRODUCTION

- In **asexual reproduction** a single organism gives rise to offspring with identical genetic information.
- The **cells** of the human body, other than those found in male and female reproductive organs, reproduce asexually by mitosis.
- Most **single-celled** organisms reproduce asexually through mitosis.




ASEXUAL REPRODUCTION

Video Response Handout

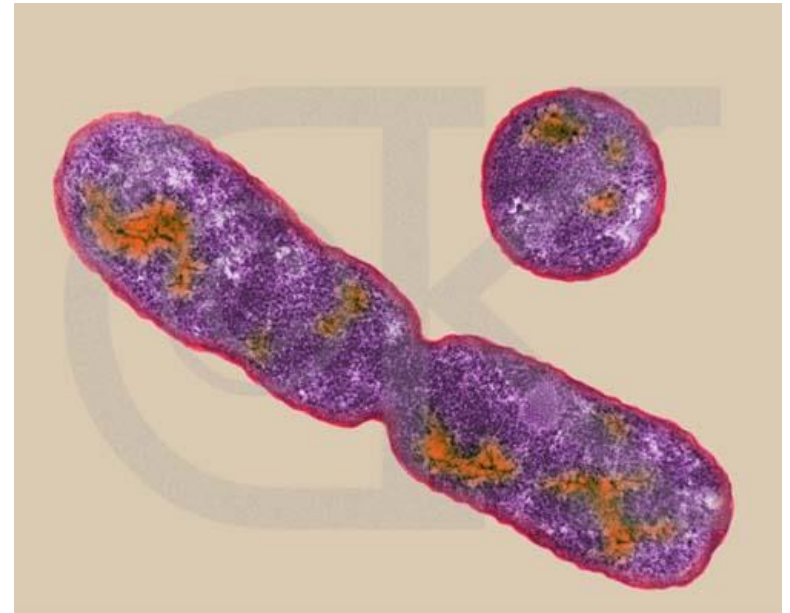


ASEXUAL REPRODUCTION-TYPES


1. Read pages 159-161 in your textbook.
 2. Complete chart on types of asexual reproduction.
 3. Answer questions 1-3 from Understanding Concepts.
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POPULATION GROWTH ACTIVITY


Binary Fission: organism splits directly into two genetically identical, equal-sized offspring. It is common in single celled organisms.



RECAP-ASEXUAL REPRODUCTION

- **Binary Fission:** The organism splits directly into two equal sized offspring, each with a copy of the parent's genetic material.
 - **Budding:** the offspring begins as a small outgrowth from the parent. Eventually, the bud breaks off from the parent, becoming an organism on its own.
 - **Fragmentation:** New organism - part breaks off from the parent
 - **Spore Formation:** Organism undergoes frequent cell division to produce many identical cells called spores. Each spore can develop into a mature organism.
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SEXUAL REPRODUCTION

- In sexual reproduction genetic information from **two cells** is combined to produce a new organism.
 - Sexual reproduction occurs when two specialized sex cells(egg cell and sperm cell) unite to form a fertilized egg called a **zygote**.
 - Common among multicellular organisms.
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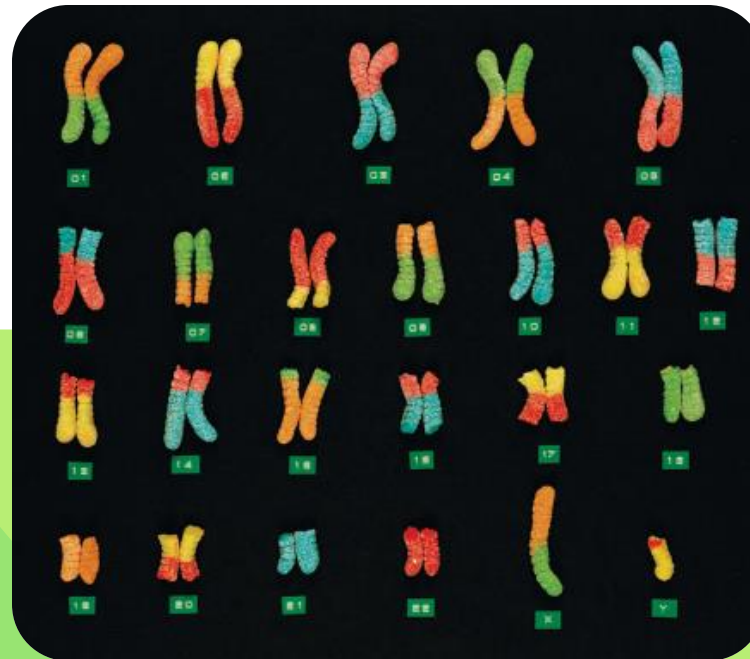
SEXUAL REPRODUCTION

- In sexual reproduction genetic information is combined to form the genetic code for the new organism.
- Produces new combinations of genes that may allow organism to adapt better.
- Offspring are **not** identical to each parent.

SEXUAL REPRODUCTION AT THE GENETIC LEVEL



- Humans have 46 chromosomes, arranged in 23 pairs.
- All chromosomes are composed of the same chemical, deoxyribonucleic acid, DNA.
- One chromosome in each pair comes from your father and the other from your mother.



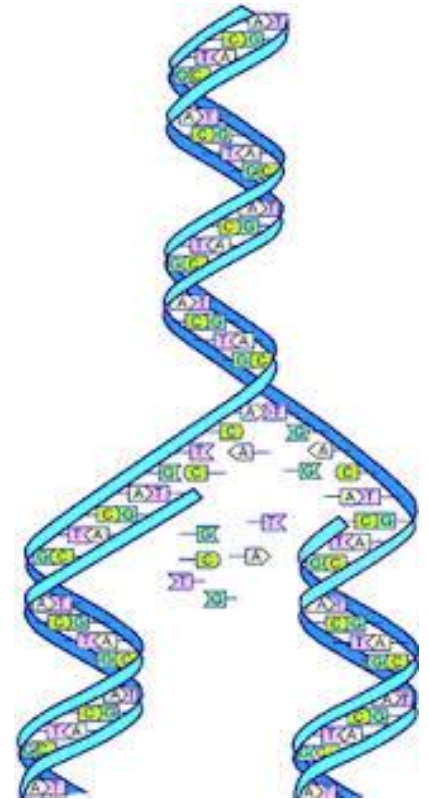


BILL NYE: GENES

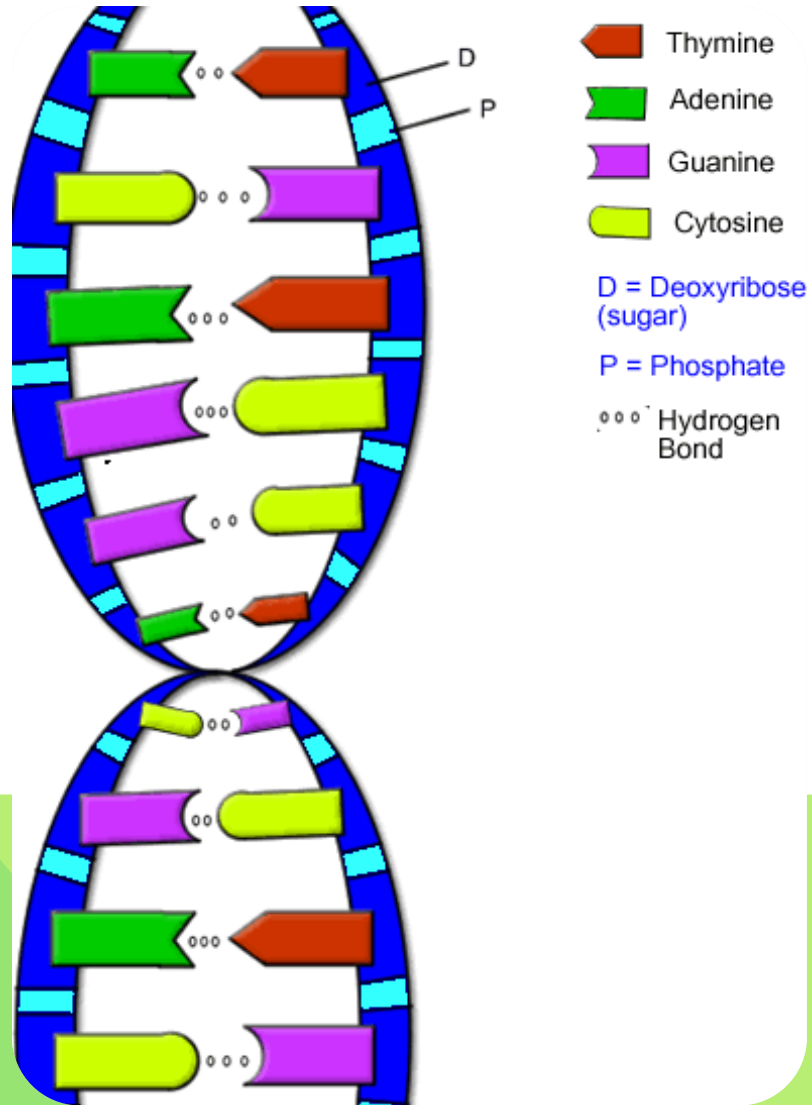


DNA

- Genetic material found in the chromosomes of a cell
- Determines how cells function & respond to environment
- One of few molecules capable of duplicating(DNA Replication)
- Double Helix containing 4 bases (A, T, C, G)
- A=T and C=G



WHAT DOES IT LOOK LIKE?



GENES AT WORK IN OUR SCHOOL

- Some genes represent a **recessive** trait Meaning that they are less common to appear in individuals than another trait.



Hitchhiker's thumb

No hitchhiker's thumb



Attached Earlobes



Detached Earlobes

Observing Human Traits Lab






Greatest Discoveries of Genetics



DNA, MUTATIONS, CANCER

- DNA floats in solutions that contain many chemicals that come from outside the cell and may be harmful.
- DNA may be exposed to radiation from the Sun or to viruses which can cause changes to the sequence of nitrogen bases.
- Changes in the genetic code are called **MUTATIONS**.

CANCER

- One set of damaging mutations are those that cause **cancer**.
 - When cell division goes out of control (**unregulated cell division**), it is called **cancer**.
 - Cancer cells divide more quickly than they should.
 - Unlike normal cells, cancer cells do not change shape and do not specialize as they mature.
 - Because cancer cells do not carry out the regular functions of a normal cell they are inefficient. They use up the energy and resources of the other cells of the body to reproduce but do not do the same work as normal cells.
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CANCER

- Any substance or energy that causes such a mutation is called a **carcinogen**.
- Three carcinogens include:
 - **Viruses** (some of which cause leukemia, cancer of white blood cells)
 - **Radiation** (ultraviolet radiation from the Sun has been linked to skin cancer)
 - **Hazardous chemicals** (such as those found in cigarette smoke which causes lung and other cancers)



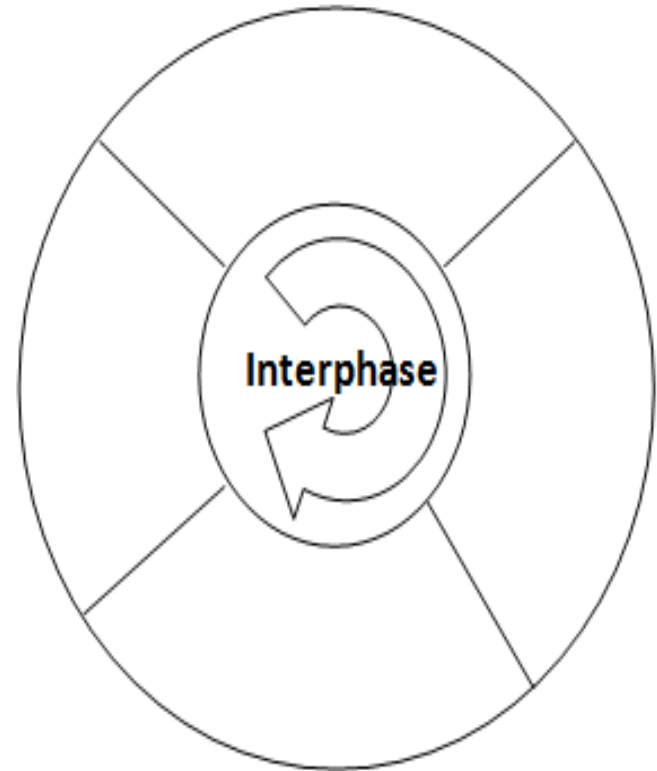
GRUDGE BALL



QUESTION ONE

Label the following parts of the cell cycle:

1. G1 Phase
2. G2 Phase
3. Cell Division
4. S Phase



QUESTION TWO

What occurs during the G1 and G2 phase?

What occurs during the S phase?



QUESTION THREE

What are the four phases of mitosis? Put them in proper order.

What is cytokinesis?



QUESTION FOUR

What are some forms of asexual reproduction?

What is an advantage of asexual reproduction?



QUESTION FIVE

What is cancer?

What are some carcinogen's?

