

STATION 1 VOCABULARY

Make sure you know what each of these words mean. If you know, check the box. If you don't, ask someone in your group and write down the definition

- Amino acid : Building block for protein
- Asexual reproduction : Type of reproduction that requires only one parent
- Binary fission : Type of asexual reproduction that occurs in bacteria
- Blastocyste : A set of cells that is created through mitosis after a zygote is formed
- Budding : Type of asexual reproduction where a cell grows a bud that pinches off to become a separate cell.
- Cell Cycle : A series of events for cell reproduction. (interphase, mitosis, cytokinesis)
- Centromere : Links together a pair of sister chromatids
- Chromatid : One half of a replicated chromosome
- Chromatin : Condensed form of DNA
- Chromosome : Condensed form of chromatin (a long DNA molecule)
- Daughter cell : cells that result from the division of a parent cell.
- Diploid : contains paired chromosomes
- DNA : a molecule that contains the genetic code for organisms
- Embryonic stage : first 8 weeks of an offspring developing after fertilization
- Fertilization : when the male & female gametes fuse their nuclei together to create a zygote
- Fetal stage : last 30 weeks of offspring development.
- Fragmentation : Type of asexual reproduction where an organism breaks into 2 or more parts to develop a new individual.
- Gametes : an organisms reproductive cells
- Grafting : Type of artificial vegetative propagation
- Haploid : has a single set of chromosomes (half the number of regular cells)
- Meiosis : type of cell division to produce gametes.
- Mitosis : type of cell division to produce identical daughter cells.
- Nucleotide : building blocks of DNA
- Parent cell : a cell that can divide into 2 or more daughter cells
- Sexual reproduction : type of reproduction that requires 2 parents.
- Spindle fibre : structure in a cell used to move chromosomes
- Spores : type of reproductive cell that can develop into a new individual.
- Vegetative Propagation : type of asexual reproduction where the roots, stems, or leaves of an existing plant grows into a new plant.
- Zygote : a cell that is formed after a sperm cell & egg cell fuse their nuclei together
"first cell of a new offspring"

STATION 2 DNA

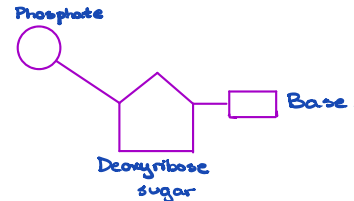
What does the acronym 'DNA' stand for?

Deoxyribonucleic Acid

What is the complimentary base pair for the following strand of DNA?

A C T G A T G G C G A T T A A T C G C
T G A C T A C C G C T A A T T A G C G

Draw and label a nucleotide.



What is the role and purpose of DNA?

- Stores the genetic information of an organism
- The code is used to create amino acids & proteins

STATION 3
ASEXUAL REPRODUCTION

1. What are the advantages of asexual reproduction?

- Fast
- Only one parent needed
- Less energy

2. What are the disadvantages of asexual reproduction?

- No genetic variation

3. Identify how the following organisms are able to asexually reproduce:

- Bacteria: Binary fission
- Yeast: Budding
- Starfish: Fragmentation
- Mold: Spore formation
- Strawberries: Vegetative propagation

4. Describe what would happen to a population that reproduces through asexual reproduction if a new disease were to enter into the population.

The organisms may potentially not be able to fight off the disease → this will wipe out the entire population as they are all genetically identical.

STATION 4
CELL CYCLE

1. Identify the three main stages of the cell cycle.

Interphase, Mitosis, Cytokinesis.

2. Identify which phase of the cell cycle each of the following statements is describing:

- DNA condenses into chromosomes

Prophase

- Cell grows and develops

Interphase

- Nuclear membrane reappears around the chromosomes

Telophase

- DNA is copied

Interphase

- Chromosomes line up across the middle of the cell

Metaphase

- Duplicated chromosomes are pulled apart to the opposite ends of the cell

Anaphase.

STATION 5
SEXUAL REPRODUCTION

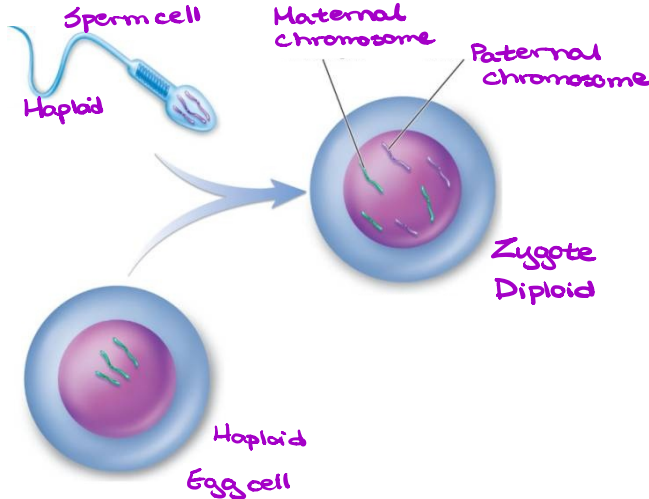
- Determine how many chromosomes are in the gametes and body cells of the following organisms:

Organism	Number of chromosomes in the gametes	Number of chromosomes in the body cells
Dog	39	78
Housefly	6	12
Cow	30	60
Deer	35	70

- What process must cells undergo in order to produce gametes?

Meiosis

- Label the following diagram with the following terms: sperm cell, egg cell, zygote, haploid, diploid, maternal chromosome, paternal chromosome



STATION 6
MEIOSIS

- Which stage of meiosis does each of the following statements describe?

- Nuclear membrane starts to disappear and homologous chromosomes pair

Prophase I

- DNA condenses into chromosomes

Prophase I

- Two nuclei are formed

Telophase I

- Chromosomes separate and move to opposite ends of the cell

Anaphase II

- Homologous chromosomes line up in two lines in the middle of the cell

Metaphase I

- DNA exists as chromosomes but not as homologous pairs

Prophase II

- In order for chromosomes to move, they need help from structures in the cell.

- Which structure helps these chromosomes move in the cell?

Spindle fibres

- Where do these structures attach to on the chromosome?

On the chromosome's centromere

- What is the end result of meiosis?

4 different haploid gametes

