

BIOLOGY – YEAR 9 – CELL DIVISION

KEY KNOWLEDGE

1	Nucleus	Contains the genetic material (DNA) which controls the activities of the cell.
2	Gene	Length of DNA. Each gene gives information for a different characteristic e.g., eye colour
3	Chromosome	The nucleus of a cell contains chromosomes made of DNA molecules. Each chromosome carries a large number of genes. In body cells the chromosomes are normally found in pairs.
4	Mitosis	Division of body cells that results in two daughter cells each having the same number and kind of chromosomes as the parent nucleus. Needed for growth and repair.
5	Differentiation	The process in which a cell changes from one cell type to another
6	Stem Cell	Stem cells are undifferentiated cells that can differentiate into various types of specialised cells
7	Stem Cell Uses	Renewable resource of replacement cells to treat diseases such as paralysis.
8	Embryonic stem cells	Can be cloned and made to differentiate into most different types of human cells
9	Adult stem cells	Found in bone marrow, can become different types of blood cells.
10	Meristem	Tissue in plants can differentiate into any type of plant cell, throughout the life of the plant.
11	Meristem uses	Protects rare species of plant from extinction

B CELL CYCLE

1	Cell grows increasing number of sub-cellular structures such as ribosomes and mitochondria
2	DNA replicates to form two copies of each chromosome
3	One set of chromosomes is pulled to each end of the cell and the nucleus divides
4	Cytoplasm and cell membranes divide to form two identical cells
5	Two genetically identical daughter cells are formed

C THERAPEUTIC CLONING

1	Definition	An embryo is produced with the same genes as the patient
2	Advantage	Not rejected by the body