The mitotic cell cycle

A-Level Biology · Vocabulary in context

Word	Example
chromosome /ˈkrəʊməsəʊm/	Each **chromosome** is one long DNA molecule with many genes. DNA
protein /ˈprəʊtiːn/	Meat, eggs and beans are rich in **protein**. 、
histone /ˈhɪstəʊn/	DNA winds around **histone** proteins, like thread around a spool. DNA
replication /ˌreplɪˈkeɪʃn/	DNA **replication** happens before the cell divides. DNA
sister chromatids /ˈsɪstə ˈkrəʊmətɪdz/	After DNA copies, each chromosome has two **sister chromatids**, joined in the middle. DNA
centromere /ˈsentrəʊmə/	The **centromere** is where the two chromatids are held together.
telomere /ˈteləʊmə/	A **telomere** at each end of a chromosome protects it, like the plastic tip of a shoelace.
mitosis /maɪˈtəʊsɪs/	**Mitosis** makes two identical cells.
daughter cell /ˈdɔːtə sel/	Each **daughter cell** gets a full set of chromosomes.
gene /dʒiːn/	A **gene** is a piece of DNA that codes for one protein. DNA
multicellular /ˌmʌltiˈseljʊlə/	Humans are **multicellular**: we are made of trillions of cells.
organism /ˈɔːgənɪzəm/	A tree is an **organism**.

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tissue /ˈtɪʃuː/	Muscle is a **tissue**.
asexual reproduction /eɪˈsekʃuːəl rɪprəˈdʌkʃn/	Strawberry plants can make new plants by **asexual reproduction**.
cell cycle /sel ˈsaɪkl/	The **cell cycle** has three stages: growth, copying DNA, and division. 、 DNA
interphase /ˌɪntəˈfeɪz/	A cell spends most of its time in **interphase**, growing and copying its DNA. DNA
cytokinesis /ˌsaɪtəkəˈniːsɪs/	In **cytokinesis**, the cytoplasm splits and two new cells form.
telomerase	Stem cells make **telomerase**, which rebuilds their telomeres so they can keep dividing.
stem cell /stem sel/	A **stem cell** can divide and turn into other kinds of cell.
differentiate /ˌdɪfəˈrenʃɪeɪt/	Stem cells **differentiate** into muscle, nerve or blood cells. 、
totipotent /ˈtəʊtɪpəʊtənt/	A **totipotent** cell, such as a fertilised egg, can become any kind of cell.
pluripotent /ˈplʊərɪpəʊtənt/	Embryonic stem cells are **pluripotent**: they can become almost any cell type, but not the placenta.
multipotent	Bone marrow stem cells are **multipotent**: they can become several kinds of blood cell.
tumour /ˈtjuːmə/	A **tumour** is a lump of cells that divide out of control.
mutation /mjuːˈteɪʃn/	A **mutation** is a change in the DNA. DNA

Word	Example
carcinogens	Tobacco smoke and UV light are **carcinogens**: they make cancer more likely.
benign	A **benign** tumour grows slowly and stays in one place, inside a capsule.
malignant	A **malignant** tumour grows quickly and can spread to other parts of the body.
metastasis	In **metastasis**, cancer cells travel in the blood and start new tumours elsewhere.
prophase /ˈprɒfeɪz/	In **prophase**, the chromosomes become short and thick, and the nuclear envelope breaks down.
nuclear envelope /ˈnjuːklɪə ˈenvələʊp/	The **nuclear envelope** is a double membrane with small holes, called pores.
spindle /ˈspɪndl/	The **spindle** is made of protein fibres that pull chromosomes apart.
metaphase /ˌmetəˈfeɪz/	In **metaphase**, the chromosomes line up across the middle of the cell.
equator /ɪˈkweɪtə/	The **equator** goes round the middle of the Earth.
anaphase /ˈænəfeɪz/	In **anaphase**, the chromatids are pulled to opposite ends of the cell.
telophase /ˈteləfeɪz/	In **telophase**, a new nuclear envelope forms around each set of chromosomes.
centrioles /ˈsentrɪəʊlz/	In animal cells, two **centrioles** move to opposite poles and help to organise the spindle fibres.

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Word	Example
meristems	Plants keep dividing cells in **meristems**, found at the tips of roots and shoots.