

17.2 Mitosis

Name: _____ Class: _____ Date: _____

Total: 6 marks

KEY WORDS mitosis 有丝分裂 • daughter cell 子细胞 • stem cells 干细胞 • diploid 二倍体 • asexual reproduction 无性生殖

Objective

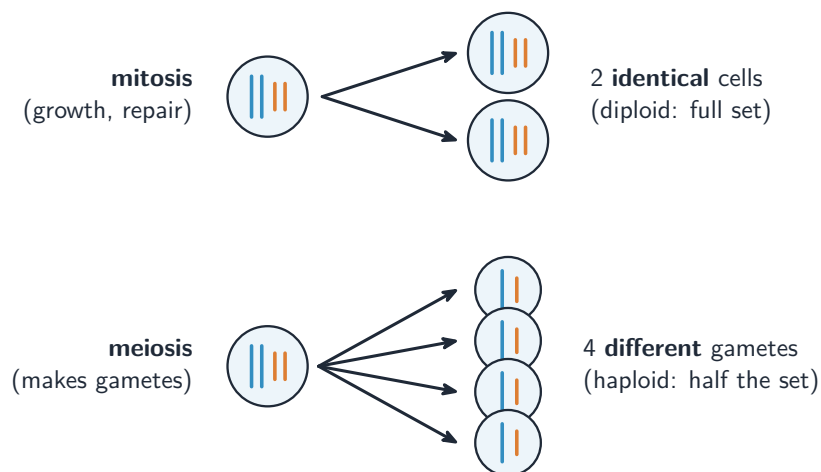
Build the skills to answer exam questions on **mitosis** 有丝分裂 — what it produces, when it is used, and **stem cells** 干细胞.

You must be able to:

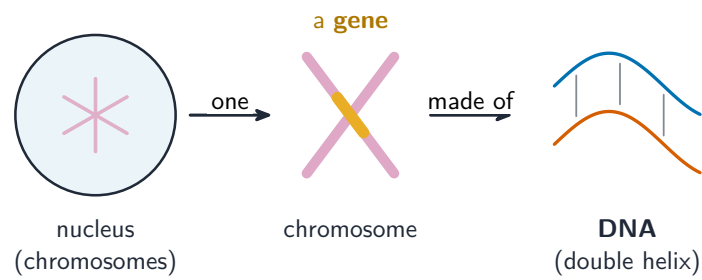
- describe mitosis (two genetically identical diploid cells)
- state where mitosis is used
- describe stem cells

1 Worked examples

■ Mitosis



Mitosis makes two genetically identical diploid daughter cells



Chromosomes carry the genes copied in mitosis

- chromosomes are copied (replication) first, so each daughter keeps the full number.
- used for **growth, repair, replacing cells and asexual reproduction**.
- **stem cells** are unspecialised cells that divide by mitosis.

2 Practice

2.1 State how the daughter cells of mitosis compare with the parent. [1]

2.2 State one use of mitosis in the body. [1]

3 Exam-style questions

3.1 Mitosis produces cells that are: [1]

- **A** haploid and different
 - **B** diploid and identical
 - **C** haploid and identical
 - **D** diploid and different
-

3.2 Mitosis is important for growth and repair.

(a) Explain why the chromosomes are copied before mitosis. [2]

(b) State what a stem cell is. [1]

Solutions

2.1 they are genetically identical to the parent.

2.2 any of: growth; repair; replacing cells; asexual reproduction.

3.1 B. Mitosis produces diploid, genetically identical cells.

3.2 (a) so each daughter cell receives a full, identical set of chromosomes; keeping the diploid number.

(b) an unspecialised cell that divides by mitosis (and can become specialised).