IGCSE BIOLOGY • EXERCISE SHEET

17.3 Meiosis

Name: _____ Class: _____ Date: _____ **Total: 7 marks**

Objective

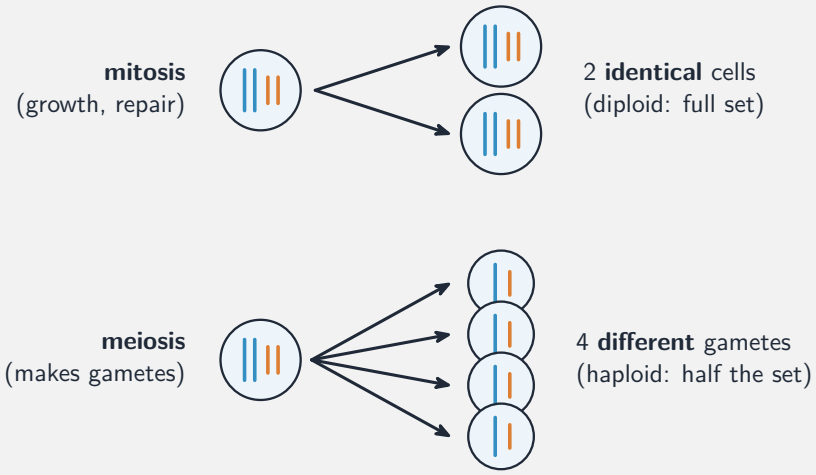
Build the skills to answer exam questions on **meiosis** 减数分裂—what it produces, and how it differs from mitosis.

You must be able to:

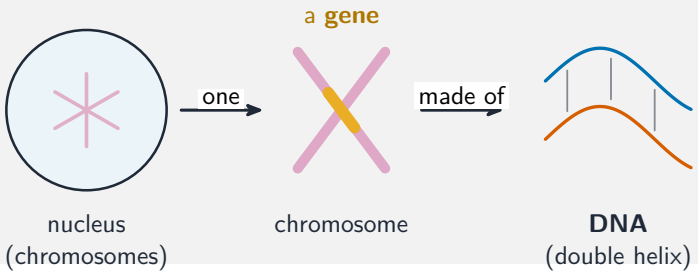
- describe meiosis (a reduction division making gametes)
- state that the gametes are haploid and genetically different
- contrast meiosis with mitosis

1 Worked examples

Meiosis



Meiosis halves the chromosome number (diploid → haploid) and makes four genetically different gametes



Meiosis halves the chromosome number

2 Practice

2.1 State what cells meiosis produces. [1]

2.2 State why meiosis is called a reduction division. [1]

3 Exam-style questions

3.1 The gametes made by meiosis are: [1]

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

3.2 Meiosis differs from mitosis.

(a) State two differences between meiosis and mitosis. [2]

(b) Explain why making genetically different gametes is useful. [2]

4 Go further

You are now ready for the real exam questions on this subtopic. Open the **17.3 Meiosis** past-paper sheet in the Library, or try these in **Practice mode**:

- 0610/21 N25 —Q28 (meiosis)
- 0610/23 N25 —Q33 (cell division)

Solutions

2.1 gametes (sex cells).

2.2 it halves the chromosome number (diploid → haploid).

3.1 B. Gametes are haploid and genetically different.

3.2 (a) any two of: meiosis halves the chromosome number (mitosis keeps it); meiosis makes 4 cells (mitosis 2); meiosis makes different cells (mitosis identical).
(b) it produces variation in the offspring, which helps the species survive if the environment changes.