

Exercise walk-through

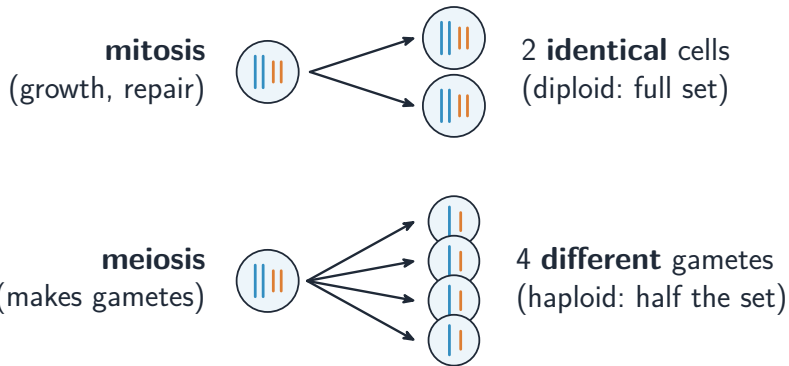
Meiosis ■ 17.3

eXercise

You must be able to

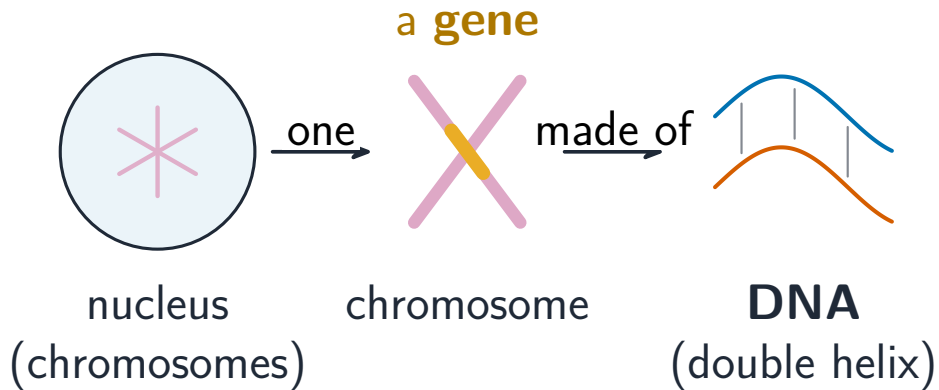
- describe meiosis (a reduction division making gametes)
- state that the gametes are haploid and genetically different
- contrast meiosis with mitosis

Method — Meiosis



Mitosis (2 identical diploid) vs meiosis (4 different haploid gametes)

Method — Meiosis



Meiosis halves the chromosome number

Practice 2.1 ■ 1 mark

State what cells meiosis produces.

Solution 2.1

Worked steps

gametes (sex cells) **B1**.

Practice 2.2 ■ 1 mark

State why meiosis is called a reduction division.

Solution 2.2

Worked steps

it halves the chromosome number (diploid $\rightarrow$ haploid) **B1**.

Exam-style 3.1 ■ 1 mark

The gametes made by meiosis are:

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

Solution 3.1

Method: Meiosis

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



Worked steps

B. Gametes are haploid and genetically different.

Exam-style 3.2 ■ 2 marks

Meiosis differs from mitosis.

- (a) State two differences between meiosis and mitosis.
- (b) Explain why making genetically different gametes is useful.

Solution 3.2

Method: Meiosis

Worked steps

- (a) any two of: meiosis halves the chromosome number (mitosis keeps it); meiosis makes 4 cells (mitosis 2); meiosis makes different cells (mitosis identical) **B1 B1**.
- (b) it produces variation in the offspring **M1**, which helps the species survive if the environment changes **A1**.