Exercise walk-through

Sexual reproduction ▪ 16.2

eXercise

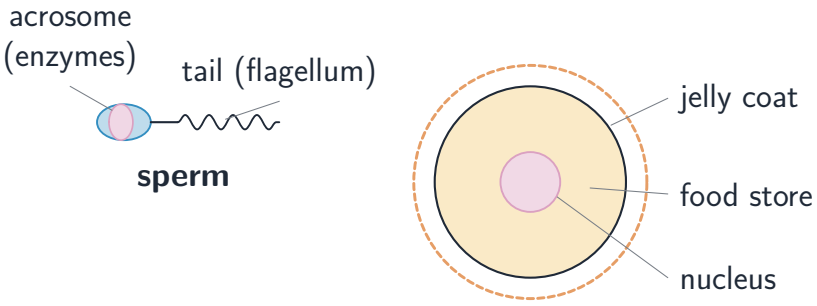
You must be able to

- define sexual reproduction and fertilisation
- explain why it produces variation
- use the terms haploid and diploid

Method — Gametes and fertilisation

- gametes are **haploid** (one set of chromosomes); the zygote is **diploid** (two sets).
- offspring get a mix of genes from both parents $\rightarrow$ variation.

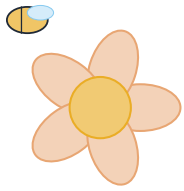
Method — Gametes and fertilisation



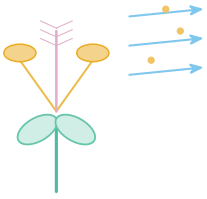
sperm: small, millions, swims | egg: large, few, carried

A sperm and an egg cell

Method — Gametes and fertilisation



insect-pollinated
bright petals, scent + nectar;
sticky, spiky pollen



wind-pollinated
small dull petals; anthers &
stigma hang out; light pollen

Pollination begins plant sexual reproduction

Practice 2.1 ▪ 1 mark

Define fertilisation.

Solution 2.1

Worked steps

the fusion of the nuclei of a male and a female gamete B1.

Practice 2.2 ▪ 1 mark

State how many parents sexual reproduction needs.

Solution 2.2

Method: Gametes and fertilisation

Worked steps

two B1.

Exam-style 3.1 ▪ 1 mark

A gamete nucleus is described as:

A diploid (two sets of chromosomes)

B haploid (one set of chromosomes)

C having no chromosomes

D identical to the zygote

Solution 3.1

A diploid (two sets of chromosomes)

B haploid (one set of chromosomes) ✓

C having no chromosomes

D identical to the zygote

Worked steps

B. A gamete nucleus is haploid (one set of chromosomes).

Exam-style 3.2 ▪ 2 marks

Sexual reproduction produces variation.
(a) Explain why the offspring show variation.
(b) State one advantage of this variation.

Solution 3.2

Method: Gametes and fertilisation

Worked steps

(a) the offspring receive a mix of genes from two parents **M1**; so they are genetically different **A1**.
(b) some offspring may survive if the environment changes **B1**.