

Exercise walk-through

# 16.2

## Sexual reproduction

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IGCSE Biology

# What we will cover

- 1 Asexual vs sexual
- 2 Flowers & pollination
- 3 Fertilisation in plants
- 4 Human reproduction
- 5 Pregnancy & hormones
- 6 STIs

# Sexual reproduction, and what crosses the placenta

## the advantage

**variation** means some offspring may survive if the environment changes

## the cost

it needs two parents, and it is slower than asexual reproduction

## the placenta

where dissolved **nutrients, gases and wastes** are exchanged between the mother's blood and the fetus's

## the blood does not mix

the two circulations stay separate; only dissolved substances cross

## amniotic fluid

surrounds the fetus, protecting it from shock and keeping the temperature steady

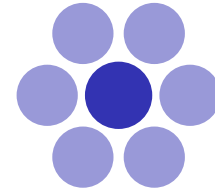
## (Supplement)

some **pathogens** and **toxins** – alcohol, nicotine, rubella, HIV – can **cross the placenta and harm the fetus**

The placenta is a selective exchange surface, not a filter. Naming what it lets through *and* what harms the fetus is the marked pair.

## Check yourself

- 1 Which reproduction gives variation?
- 2 Which flower part makes pollen?
- 3 How is a sperm cell adapted to move?
- 4 On about which day is an egg released?



**Answers** 1. sexual reproduction 2. the anther 3. it has a tail (flagellum) 4. about day 14

## Exercises 2.1·2.2

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**2.1** Define fertilisation.

[1]

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**2.2** State how many parents sexual reproduction needs.

[1]

## Exercises 2.1·2.2

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2.1 Define fertilisation.

[1]

2.1

- fertilisation is the **fusion of the nuclei** of a male and a female gamete

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2.2 State how many parents sexual reproduction needs.

[1]

2.2

- sexual reproduction needs **two** parents

## Exercise 3.1

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**3.1** A gamete nucleus is described as:

[1]

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**A** diploid (two sets of chromosomes)

**B** haploid (one set of chromosomes)

**C** having no chromosomes

**D** identical to the zygote

## Exercise 3.1

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3.1 A gamete nucleus is described as:

[1]

☐

**A** diploid (two sets of chromosomes)

**B** haploid (one set of chromosomes)

**C** having no chromosomes

**D** identical to the zygote

3.1 B

- a gamete nucleus is **haploid** (one set of chromosomes)
- A is a body cell; C and D are false

## Exercise 3.2 (a)

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**3.2** Sexual reproduction produces variation.

(a) Explain why the offspring show variation.

[2]

## Exercise 3.2 (a)

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**3.2** Sexual reproduction produces variation.

(a) Explain why the offspring show variation.

[2]

(a)

- offspring receive a **mix of genes** from two parents
- so they are **genetically different**

## Exercise 3.2 (b)

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**3.2** Sexual reproduction produces variation.

(b) State one advantage of this variation.

[1]

## Exercise 3.2 (b)

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**3.2** Sexual reproduction produces variation.

(b) State one advantage of this variation.

[1]

(b)

- some offspring may **survive if the environment changes**