

Exercise walk-through

16.1

Asexual reproduction

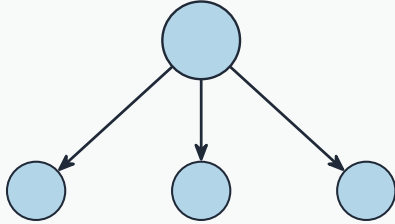
IGCSE Biology

What we will cover

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

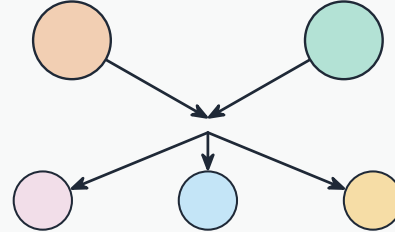
Two kinds of reproduction

asexual - one parent



offspring are **identical** clones

sexual - two parents



gametes join → **varied** offspring

Asexual reproduction needs one parent and gives identical clones; sexual reproduction needs two and gives varied offspring

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.

Exercises 2.1·2.2

2.1 State how many parents are needed in asexual reproduction. [1]

2.2 State how the offspring of asexual reproduction compare with the parent. [1]

Exercises 2.1·2.2

2.1 State how many parents are needed in asexual reproduction. [1]

2.1

- asexual reproduction needs **one** parent
-

2.2 State how the offspring of asexual reproduction compare with the parent. [1]

2.2

- the offspring are **genetically identical** to the parent (clones)

Exercise 3.1

3.1 A disadvantage of asexual reproduction is that the offspring:

[1]

☐

A are all different

B are genetically identical, so a change could kill them all

C need two parents

D grow slowly

Exercise 3.1

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[1]

☐

A are all different

B are genetically identical, so a change could kill them all

C need two parents

D grow slowly

3.1 B

- identical offspring could **all be killed** by a single change
- A is sexual; C is two parents; D is not the main risk

Exercise 3.2 (a)

3.2 A farmer grows a field of genetically identical crop plants.

(a) State one advantage of this.

[1]

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(a) State one advantage of this.

[1]

(a)

- the plants are **uniform** / give an even harvest

Exercise 3.2 (b)

3.2 A farmer grows a field of genetically identical crop plants.

(b) Explain one risk of growing identical plants.

[2]

Exercise 3.2 (b)

3.2 A farmer grows a field of genetically identical crop plants.

(b) Explain one risk of growing identical plants.

[2]

(b)

- the plants are **genetically identical**
- so one disease could **wipe out the whole crop**

Exercise 3.3

3.3 A strawberry plant produces offspring by runners. State two features showing that this is asexual reproduction, then explain one advantage in stable conditions and one disadvantage if a new disease spreads. [4]

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3.3

One parent; no fusion of gametes; rapid reproduction preserves a successful genetic combination in stable conditions; low genetic variation can make many offspring susceptible to the same disease.