

6.1.1 Sexual and asexual reproduction

AQA GCSE Biology (Higher) Question and answer notes

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How to use these notes

These notes cover everything you need to know for this part of the specification. They have been written in question-answer format to make them easier for you to study from.

In order to study successfully, I recommend you do the following for each question and answer:

- Read it carefully and make sure you **understand** it.
- **Memorise** the answer.
- **Practice** applying your understanding to past exam questions.

A good way to memorise information is to use **retrieval practice**. This is when you practise retrieving information from your memory. You could do this by making a flashcard for each question with the question on one side and the answer on the other. Or you could use a flashcard app. Alternatively, use a sheet of paper to cover up the answer so you can only see the question. Try to answer the question and then check how you did.

You should practise retrieving each answer from your memory until you can do it perfectly. Even once you can retrieve the answer perfectly, your ability to retrieve it will probably fade as time passes without practising. Therefore you will need to keep going back to the questions that you have previously mastered and practising them again. However, each time you re-learn the answer, the memory will be stronger and will last longer than the time before.

What are the two processes by which cell division can happen in eukaryotes?

In eukaryotes, cell division can happen through mitosis or meiosis.

What does mitosis produce?

Mitosis produces two cells which are genetically identical to each other and to the parent cell that they were made from.

What does meiosis produce?

Meiosis produces four gametes (sex cells). These cells are **not** genetically identical to each other or to the parent cell. These cells are all haploid, meaning that their nucleus only contains one set of chromosomes.

What is sexual reproduction?

Sexual reproduction is when a female gamete and a male gamete fuse together to form a cell called a zygote, which then develops into a new organism.

In animals, what are the female and male gametes called?

In animals, the female gametes are called egg cells and the male gametes are called sperm cells.

In flowering plants, what are the female and male gametes called?

In flowering plants, the female gametes are called egg cells and the male gametes are called pollen grains.

[Note: Technically, pollen grains are not gametes - they contain gametes. However, in the specification it says that pollen is the male gamete in flowering plants, so that is what you should write if it comes up in the exam].

How does sexual reproduction create variation in a population?

Every gamete produced is genetically different to every other gamete produced. The fusing together of two gametes leads to a mixing of genetic information which leads to variation in the offspring.

What is asexual reproduction?

Asexual reproduction is a form of reproduction which produces offspring that are genetically identical to the parent (i.e. clones). It only involves one parent. It does not involve the fusion of gametes or the mixing of genetic information. Only mitosis is involved (not meiosis).