

# 6.2.1 Variation

## AQA GCSE Biology (Higher)

### Question and answer notes

For more resources, visit [www.mooramo.com](http://www.mooramo.com)

#### 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 is variation?

Variation is when there are differences in the characteristics of individuals within a population.

#### What are the causes of variation?

Variation is caused by the following:

- Different individuals inheriting different alleles to each other
- Different individuals experiencing different environmental conditions to each other
- The interactions between alleles and environment

**What is genetic variation?**

Genetic variation is when there are differences in the alleles that different individuals within a population have. There is usually extensive genetic variation within a population.

**How are new alleles created?**

New alleles are created through the process of mutation. Mutation is when DNA is copied incorrectly leading to the creation of a new DNA sequence. Mutations are constantly occurring within every species.

**What are the possible consequences of mutations?**

Most mutations have no effect on the individual's phenotype, some mutations have some influence on the phenotype, and a very small proportion of mutations actually determine the phenotype. If a mutation leads to a new phenotype that is well suited to the environment, the new allele could spread quickly through the population, leading to a relatively rapid change in the species.