



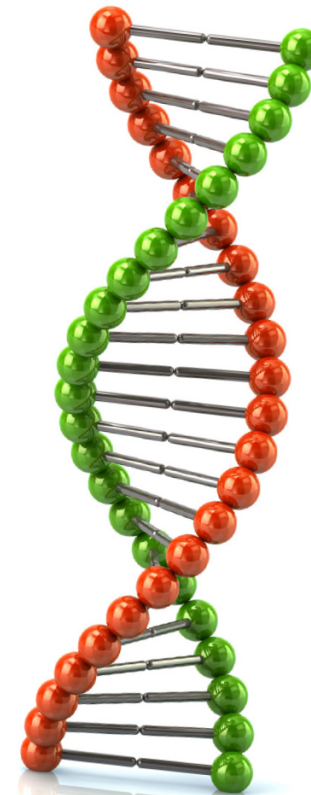
Cornerstones

Genetics: hot topics

Genetics

Genetics is a rapidly-changing field of scientific development, which can often be controversial. Three often-debated techniques include:

- artificial selection (selective breeding)
- genetic engineering (also called genetic modification or GM)
- genetic cloning



A model of human DNA

Artificial selection

Also known as **selective breeding**, this process involves breeding animals and plants for particular characteristics.

For example, chickens can be bred to increase their egg production. Certain genetic defects can also be 'bred out' of animals and plants.

However, selective breeding can sometimes result in **genetic defects**. For example, Pug dogs (a breed with flat noses) can suffer from breathing problems.



Genetic engineering

This process is also known as genetic modification (GM). It involves manipulating **DNA** in an **organism** to add or remove different characteristics.

GM crops have been developed to produce **disease-resistant** varieties.

Gene therapy is the genetic engineering of humans to treat inherited diseases. It is a controversial topic; some people are concerned that the technology could be used to **modify** a person's appearance or intelligence.



Genetic cloning

Genetic cloning is a process that produces **exact copies** of a particular gene or whole organism.

The first genetically-cloned mammal, a sheep named Dolly, was born in 1996 and became world-famous.

Cloning can help scientific studies and the development of medical treatments. However, some people are concerned about the **ethics** of cloning.





What can you find out about these topical genetic issues?

Remember to find arguments both for and against the different processes.

Now you know more about genetics, what do you think about each issue?