

# 6.1.8 Sex determination

## 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.

#### **How many pairs of chromosomes does an ordinary human body cell contain? How many chromosomes is that in total?**

An ordinary human body cell contains 23 pairs of chromosomes. That is 46 chromosomes in total (2 in each pair).

#### **What are sex chromosomes?**

Sex chromosomes are the chromosomes that determine an individual's sex (male or female for most humans). In an ordinary human body cell, there is one pair of sex chromosomes. The other 22 pairs of chromosomes are not sex chromosomes.

#### **What are the different types of sex chromosomes that exist in humans?**

In humans, there are two types of sex chromosomes, called X and Y.

**What sex chromosomes does an ordinary body cell from a human female contain?**

An ordinary body cell from a human female contains two X chromosomes. This is represented by writing XX.

**What sex chromosomes does an ordinary body cell from a human male contain?**

An ordinary body cell from a human male contains one X chromosome and one Y chromosome. This is represented by writing XY.

**What sex chromosomes do human egg cells contain?**

Human egg cells usually contain a single X chromosome.

**What sex chromosomes do human sperm cells contain?**

Usually, 50% of human sperm cells contain a single X chromosome and the other 50% contain a single Y chromosome.

**How is the sex of a new human determined at fertilisation?**

The sex of a new human depends on whether the sperm cell contains an X or a Y chromosome. Since the egg cell contains a single X chromosome, if the sperm cell also contains an X chromosome then the new human's genotype will be XX, making it female. If the sperm cell contains a Y chromosome, then the new human's genotype will be XY, making it male.