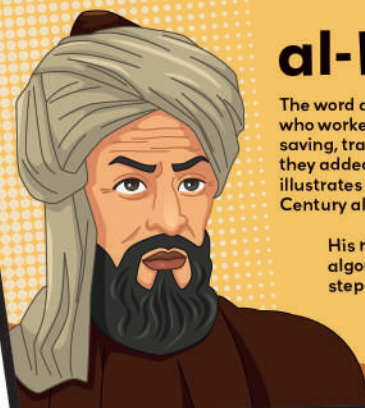


A is for:

Algorithms influence our lives

An algorithm is a set of step-by-step instructions used to complete a task. In maths algorithms are a set of instructions to solve a problem. If you go through the required steps in the correct order, you will get the correct solution. For example, to find the area of a circle: find the radius, then square it, then multiply that number by pi.



al-Kwarizmi

The word algorithm derives from the name of the great Persian mathematician, al-Khwarizmi who worked in Baghdad in the 9th Century. Baghdad was then the major centre of learning: saving, translating and extending the works of the Greek philosophers. To Greek mathematics they added the Hindu-Arabic numbers which we use today and developed algebra. This illustrates that mathematics was developed by many cultures throughout history. In the 12th Century al-Khwarizmi's works were translated into Latin and were read throughout Europe.

His name was first translated as Algorizmi and this became algorithm over time and was used to describe a set of step-by-step rules to solve a problem.



Ada Lovelace

Ada Lovelace (1815-1852) lived at a time when there were great barriers in education for women. However, Ada was from an aristocratic family and her mother ensured she was educated at home by private tutors and this included maths and science. Ada excelled at maths and became friendly with Charles Babbage, one of the top mathematicians of the age.



Charles Babbage



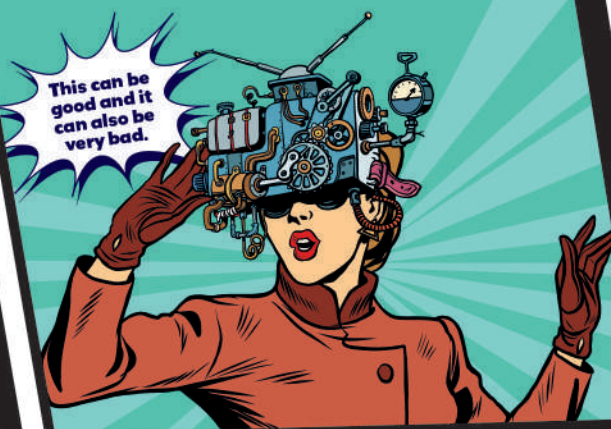
Babbage invented a mechanical computer (which was never built) and Ada is credited with writing the first computer program for it. Babbage saw the purpose of his machine as merely doing large calculations, but Ada saw beyond this and suggested it could be used for wider information processing. She is commemorated on Ada Lovelace Day, which will be celebrated during Maths Week 2025 on the 14 October.



Algorithms and social media

Algorithms are essential parts of computer programs: our digital world runs on algorithms, but how much are algorithms running our lives?

Social media platforms earn money from advertising so they want you to stay on as long as possible and keep coming back so they can feed you ads. To do this they have developed algorithms that use your age, gender, location and scrolling history to select content for you.



Artificial Intelligence (AI)



Algorithms are the building block of artificial intelligence (AI). An AI system uses algorithms to learn from large amounts of data but can go beyond those algorithms.

A recipe is a type of algorithm where you use specific ingredients and a sequence of steps to make a particular dish. People learn to cook by following recipes closely. After making lots of recipes, you start to learn what works and what tastes nice and eventually you can make new variations and even new recipes.

So once computers just followed algorithms written by humans but now with machine learning they can learn from data and make decisions without direct instructions.

