

Taking a course within the Maths Department at The Sixth Form Bolton will not only develop a highly desirable and specialised skill set, but also demonstrate how our fab subject is used in everyday life and the workplace.

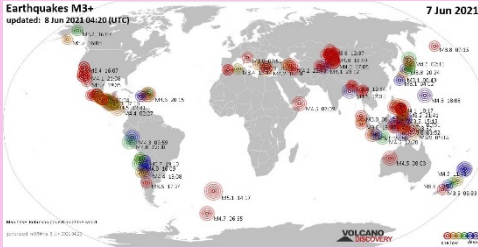
**Role 1:** Graduate Imaging Scientist

## Sequences & Series

There are many different sequences of number. If a list of values follows a rule it is a sequence. Finding sequences within the 'real world' is a huge area of mathematics as it allows predictions to be made.

### Did you know?

- In the last decade, police departments around the world have started to rely more on mathematics. Special algorithms can use the data of past crimes to predict when and where crimes might occur in the future. PredPol, predictive policing, helped decrease the crimes rate in part of Los Angeles by 12%.
- It turns out that earthquakes follow similar patterns to crimes. Just like one crime might trigger retaliations, an earthquake might trigger aftershocks. In mathematics, this is called a "self-exciting process", and there are equations that help predict when the next one might happen.
- Bankers also look at historical data of stock prices, interest rates and currency exchange rates to estimate how financial markets might change in the future. Being able to predict if the value of a stock will go up or down can be extremely lucrative!



**Salary:** Average £ 33000

**Role 2:** Financial Planning & Analysis Coordinator

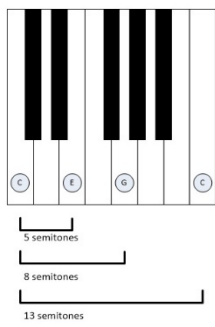
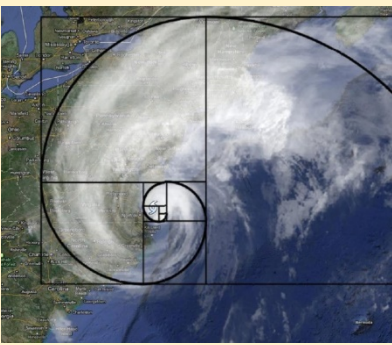
## Fibonacci Sequence

An extremely common sequence that occurring regularly in nature is the Fibonacci Sequence.

1, 1, 2, 3, 5, 8, 13, ...

Numerically formulated by adding the previous two term together.

This sequence occurs within the natural world, music, architecture and more.



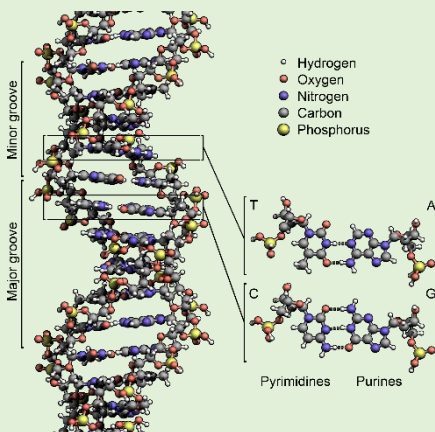
**Salary:** Average £ 46000

**Role 3:** Civil Engineer

## Jobs that use sequencing

**Medical Geneticist** – Average £44 503

A single strand of DNA can be used to identify a range of information, from a paternity test, to identifying if an embryo will grow to have a hereditary genetic disability. All this is done by comparing DNA sequences of potential parents or carriers of the disability.



**Software Design** – Average £45 385

In programming, sequence is a basic algorithm: A set of logical steps carried out in order. Computers need instructions in the form of an algorithm in order to complete a desired task, and this algorithm must have the correct order of steps, or sequence.

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**Earning:** Average £ 77000