# Real-Life Applications of Difference Equations

- Origin unclear but Isaac Newton and George Boole did a lot of work on them in the late 1600s and 1870s respectively
- Very useful to model any situation with steady increase/decrease at regular intervals
- Can be computed much easier than differential equations due to their recurrent/recursive nature

Isaac Newton
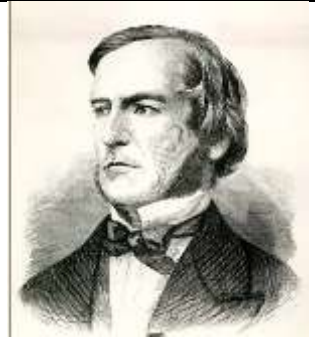
George Boole

1) Used in the study of predator/prey populations - can be used to calculate culling numbers required to maintain or control a population of a particular species. Similar applications in populations of plants and trees.

2) Used in systems with recurring identical sections, like acoustic filters and the crankshaft in multi-cylinder engines

3) Used in deriving dosages of common medications like Aspirin, Gaviscon, Tylenol etc. Would be important to ensure minimisation of side effects and risk of overdoses, while also providing effective treatment of the ailment.

4) Used in the calculation of fixed regular loan and mortgage repayments. Can also be used in any situation involving regular interest payments/repayments.