# Flowol Challenges - Theory

An **algorithm** is a set of instructions to complete a task

Lighthouses need a set of instructions so that the light flashes using the correct flash pattern

Computer scientists design the algorithm and then use it to program the computer system

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**Sequence** is getting the algorithm in the right order

This makes sure that the instructions make sense and the flash pattern is correct

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**Repetition** is used to make part of an algorithm repeat - keep doing the same thing

This makes algorithms a lot shorter to write

Sometimes repetition can carry on forever (like a forever block in Scratch)

At other times, we might want to do something a set number of times - e.g. three long flashes

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**Selection** is used to make a choice in an algorithm - should it go in one direction or another?

For example, the light should only flash when the sun isn't out

In programming we often call this an **IF - ELSE** statement. You probably used those in Scratch to decide if a quiz answer was right