# Year 8 Flowol Knowledge Organiser

Control System	A control system is a system where we want to control the output of devices. We can do this in a variety of different ways including the use of sensors. Your fridge is an example of a control system. The thermostat (sensor) in the fridge ensures that it stays cold according to the desired temperature.
Flowol	Flowol is a software app that allows students to learn how to control devices by creating flowcharts.
Sequence	A sequence is a set of instructions or tasks provided in the correct order. This can be very important, especially for instructions telling someone how to cross the road!
Process	A process is another name for a set of tasks or steps to be carried out in the correct sequence. A process will normally have some impact or effect on something else, like switching off a device or switching it on again.
Decision	When you ask a question and the answer is either YES or NO, then you are making a decision about which path to follow in a flowchart.
Input and Output	Control systems may require information to come into the system (a reading from a sensor for example) or to go out (to start a machine for example).
Subroutine	A subroutine is a smaller process used by a larger process. When the smaller process has finished, the larger process that used it continues from where it left off.
Sensor	A sensor is a device that records changes in data. For example, a thermometer detects changes in temperature. A light diode detects changes in how bright the light is outdoors. Data from sensors is used elsewhere in the systems
Actuator	An actuator is a part of a machine that controls another device. An actuator and a sensor may be part of the same machine. For example, a sensor that detects changes in temperature might trigger an actuator to open a window if the temperature becomes too hot, and to close the window if the sensor detects that the temperature is too cold.
Variable	A variable is a name given to data in your flowchart that you may want to change. You can use maths operators on variables: add (+), subtract ((--), multiply (x), divide (/) to change data.

Key Learning to take place:

- To understand and be able to use flowchart symbols, and to use them to describe control systems.
- To be able to create flowchart solutions for simple control systems.
- To understand and apply sequence (instructions in the correct order).
- To understand and be able to use flowchart symbols: start, stop, process, input/output and decision.
- To understand how a control system might fail & the impact on safety.
- To be able create flowcharts that operate in sequence.
- To understand the role of a sensor and an actuator in control systems, and to create flowcharts that use these.
- To be able to create flowcharts with more than one sensor.
- To understand and be able to use subroutines (subprograms) in control system flowcharts.
- To understand the use of variables in control systems.
- To combine your learning to automate an imaginary house with control systems and flowcharts.

Useful Links:
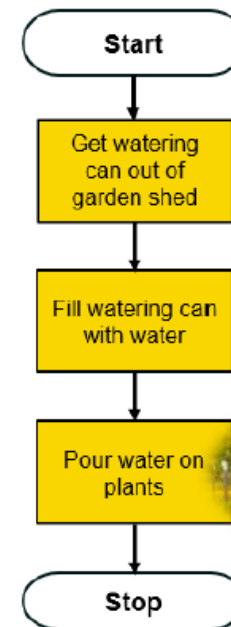
Using variables in Flowol

- A variable can be initialised with a starting value
- The value of a variable can be increased or decreased in a computer program
- The value of a variable can be checked in a computer program and used to make decisions

A variable is a name given to data that you can change while your flow chart is processing. They allow us to change data.

E,g, To count or make numbers smaller or larger