Year 9 term 1: Systems and Control

1 Systems	
Systems approach	All systems have three stages; input, process and output.
Systems diagram	This breaks down an operation into its 3 main parts (input, process, output). Complex systems may have more than one of each. Systems diagrams are used to help explain how something works.

2 Inputs, processes & outputs	
Inputs	This is what happens at the start of a system. It is a change that happens that results in something else happening. E.g. a light switch is an input device (when pressed it causes something to happen)
Input devices	Electrical or mechanical sensors that use signals from the environment, such as light levels, temperature and pressure, and convert them into signals that can be passed into processing devices and components.
Processes	A process reacts to an input. They handle information from the input and react with an output. E.g. when the light switch is pressed (input) the circuit is completed and the electricity can flow—the electricity flowing through a circuit is the process.
Outputs	Outputs are the end stage of a system. This is where a physical change takes place. The output can be, for example, light, sound or movement.

Week 6: Explain the key terms 1) input, 2)process 3) output 4)micro controller 5) thermistor

3 Input devices	
Motion sensor	Detects movement. E.g. a light turns on when someone moves.
Thermistor	Picks up on changes in temperature. E.g. Fire alarm which goes off when temperature goes above a certain level.
Light dependent resistor (LDR)	Detects changes in light. E.g. Garden light which comes on when the light levels drop below a set level.
Moisture sensor	Picks up on changes in the amount of moisture present. E.g. plant watering system which lets you know when moisture falls below a certain level—tells us to water the plants.
Pressure sensor	Is activated when pressure is applied. E.g. shop door which opens automatically when someone steps on the mat in front of the door.
Switches	Switches make or break a circuit. When something is switched on the circuit is closed and electricity can flow. When it is switched off the circuit is open and electricity stops flowing.

4 Processes	
Microcontroller	These processes in a system. They are like mini computers with a single circuit which contains a processor, memory and can be programmed to carry out different functions. Often used as counters, timers and for making decisions in a system.

5 Output devices	
Lamps, LED's	Gives out light. E.g. garden light, Red LED on a remote control when you select a channel..
Buzzers	Create sound. E.g. warning buzzer.
Speakers	Allows sound to be heard. E.g. on a stereo.
Sprinkler	Outputs water. E.g. fire sprinklers in an office.