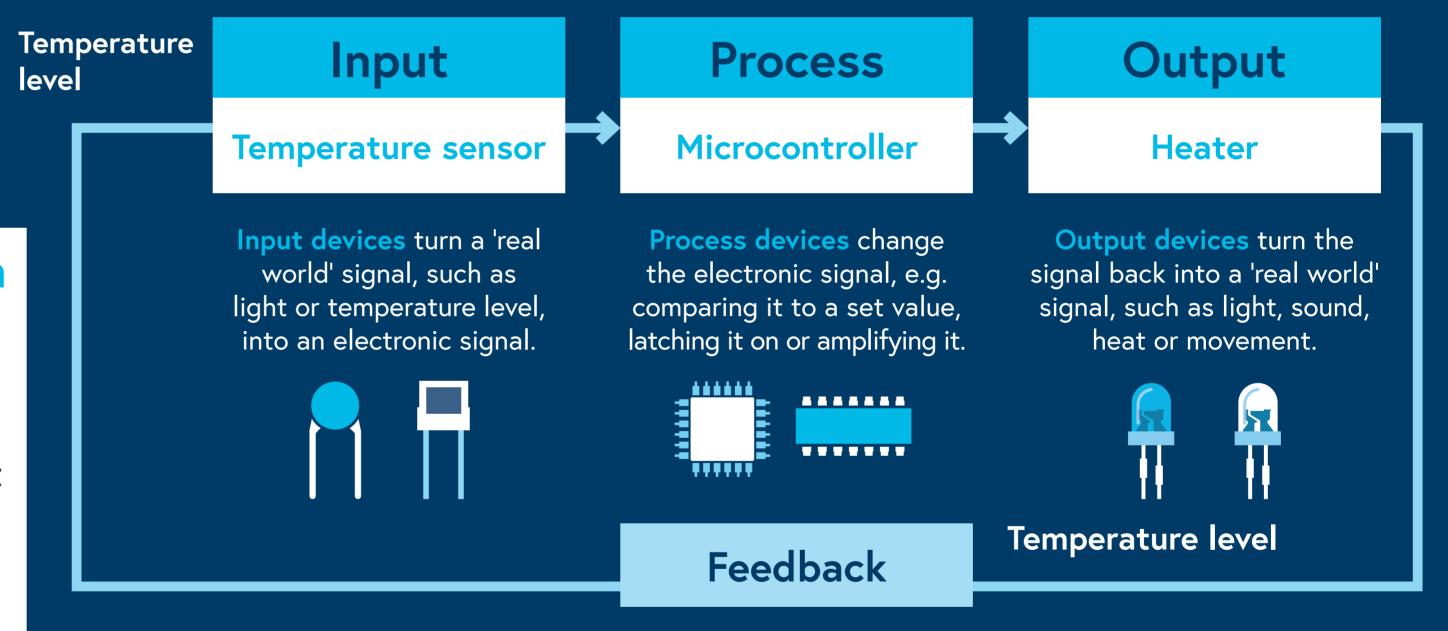
## Systems thinking

Systems are described in terms of their inputs, processes and outputs. They are shown using block diagrams.

## Closed loop heating system

When the temperature sensor detects that it is too cold, it sends a signal to the microcontroller. This then turns the heater on. The output signal is fed back to the input, so the system knows when it is warm enough to turn the heater off.

The blocks show the sub-systems. The arrows show the signals.



theiet.org/education



Feedback is when the output signal of a system has a direct effect on the input.

Closed loop systems make use of feedback - open loop systems do not.