

# Systems and Control Module

for junior form Technology Education curriculum

## Examples of Parts of Progression within Systems and Control

Systems and Sub-systems	Electrical and Electronic Systems	Mechanical Systems	Pneumatic Systems
Investigate products, applications and examples of systems to identify: <ul style="list-style-type: none"> <li>▶ The overall system and sub-systems</li> <li>▶ Inputs and outputs</li> <li>▶ The processing that turns inputs into outputs</li> </ul> <p style="text-align: center;">↓</p>	Investigate a range of products/ applications containing electrical and electronic sub-systems. <p style="text-align: center;">↓</p>	Investigate a range of products/ applications containing mechanical sub-systems. <p style="text-align: center;">↓</p>	Investigate a range of products/ applications containing pneumatic sub-systems. Use pneumatic kits to show the control and movements of valves and cylinders. <p style="text-align: center;">↓</p>
Ways of representing systems: <ul style="list-style-type: none"> <li>▶ Block-flow diagrams</li> <li>▶ Flow charts</li> </ul> <p style="text-align: center;">↓</p>	Use of electrical and electronic kits to simulate real life control systems <p style="text-align: center;">↓</p>	Identify what the mechanical system is doing: <ul style="list-style-type: none"> <li>▶ Changing the type of movement</li> <li>▶ Changing the force/ torque applied or distance moved</li> <li>▶ Interconnecting different mechanical systems to achieve a particular output</li> </ul> <p style="text-align: center;">↓</p>	Electronic control of pneumatic systems through a solenoid-operated valve. <p style="text-align: center;">↓</p>
Control systems: <ul style="list-style-type: none"> <li>▶ Open-loop</li> <li>▶ Closed-loop – ON/OFF feedback</li> <li>▶ Sequential</li> <li>▶ Proportional (analogue)</li> <li>▶ Ways of representing control systems</li> </ul>	Microprocessor and computer control	Integrate electrical/ electronic sub-systems to form electro-mechanical systems <p style="text-align: center;">↓</p>	Use of microprocessor and/or computer interface to control pneumatic systems
		Use of microprocessor and/or computer interface to control mechanical systems	