Name _____ Date _____

6.1 Automated systems

Getting started

Tick (✓) which sensor(s) could be used in each of the automated systems.

System	Temperature sensor	Pressure sensor	Light sensor	Accelerometer	Proximity
An automatic door that opens when a person walks towards it.					
A greenhouse that opens the windows when it gets too hot.					
A burglar alarm that goes off if any doors or windows are opened, or if a person is detected inside the building.					
A theme park where robots move when a person comes near.					
A cooling system that turns on the cooler when it gets too hot, and turns on a heater if it's too cold.					
A computer game, when the user moves their tablet computer the character moves.					

System	Temperature sensor	Pressure sensor	Light sensor	Accelerometer	Proximity
A security light that comes on when it is dark, and turns off when it is daylight.					

Practice

An automatic pet feeder opens when an object that weighs more than 1 kg is placed on a pad on the floor.

Fill the gaps in the sentences about how the pet feeder works using the words given. Some words may be used more than once.

actuator **analogue-to-digital** **compares** **continuously** **digital**

microprocessor **nothing** **pressure** **signal** **stored**

A _____ sensor is in the pad on the floor. It continually records the weight upon it. The microprocessor has the weight of 1 kg stored within it.

The pressure sensor continually records the weight. This data is converted into a _____ _____ using an _____ converter.

The digital signal is sent to the _____

The microprocessor _____ the signal with the _____ weight (1 kg). If the weight is less than the stored value _____ happens.

If the weight is more than or equal to the stored value, the microprocessor sends a _____ to the _____ in the pet feeder to open it.

The process repeats _____

Challenge

Plants in a greenhouse need to kept at a set humidity.
The system will spray water into the air when it is not humid enough.

Describe how an automated system can control the humidity in the greenhouse.