Systems approach to designing · notes sheet

Name: _____ Date: _____ AQA 3.1.4

1. The systems approach

Draw the three blocks of a burglar alarm and label each with a component:

Why do designers use the systems approach? _____

Lab test: a burglar alarm: which block is the PIR?	
I predict:	**What happened and why:**

2. Light sensors

An LDR's resistance goes _____ when it gets darker. Two products that use an LDR: _____, _____

Lab test: dusk falls: what happens to the LDR?	
I predict:	**What happened and why:**

3. Temperature sensors

An NTC thermistor's resistance goes _____ when it gets hotter. Two products: _____, _____

Lab test: the greenhouse warms up.	
I predict:	**What happened and why:**

4. Switches

Switch	How it works	Product that uses it
Push-to-make		
Micro switch		
Tilt switch		
Reed switch		
Pressure pad		

Lab test: what closes a reed switch?	
I predict:	**What happened and why:**

5. Processes

Process	What it does	Example
Decision (AND / OR)		
Timer		
Counter		
Microcontroller		

Lab test: dark AND movement, or dark OR movement?	
I predict:	**What happened and why:**

6. Outputs

Output	What it does	Example
Buzzer		
Speaker		
Lamp		
LED		
Motor		

Lab test: buzzer or speaker for a tune?	
I predict:	**What happened and why:**

7. Quick fire

Situation	Answer
Detects darkness	
Detects a window opening	
Counts visitors	
Plays a tune	
Bike alarm sensor	
Both conditions must be true	

Exam question (3 marks)

Draw a labelled block diagram for a frost alarm that flashes a lamp when the temperature drops below 2 °C. *Tip: make a point, then link it with **so…***