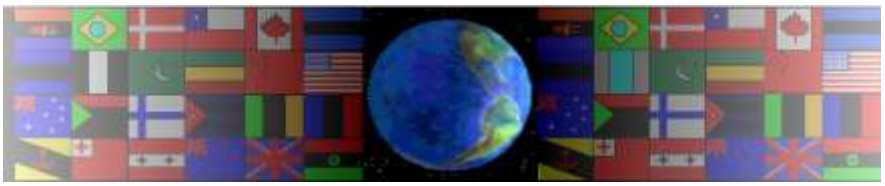
USING ANALOGUE INPUTS - LDRs, POTENTIOMETERS AND THERMISTORS

On behalf of The World Association of Technology Teachers

W.A.T.T.



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This exercise can be printed and used by teachers and students. It is recommended that you view the website (www.technologystudent.com) before attempting the design sheet .

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1. Using either an LDR, potentiometer or thermistors as an example, explain the difference between a digital input and an analogue input.

2. Draw an LDR, potentiometer and thermistor. Include the correct symbol for each of these analogue components.

LDR		POTENTIOMETER		THERMISTOR	
SKETCH	SYMBOL	SKETCH	SYMBOL	SKETCH	SYMBOL

3. A description of a practical application of a thermistor and microcontroller circuit, is written below.

Describe a practical application for two further analogue sensors, LDR and potentiometer.

THERMISTOR: As the temperature changes, the resistance of a thermistor also changes. A thermistor can be used as an analogue sensor, for a programmed microcontroller circuit. If used in a car, as the temperature falls to near freezing, a microcontroller circuit could illuminate an output LED on the dash board. A audio warning (such as a buzzer), could be programmed to sound, as well. This would warn the driver, of the possibility of ice on the roads.

LDR:

POTENTIOMETER:

4. Using the internet as a research tool, find another component or circuit, that could be used as an analogue input, for a microcontroller circuit.

Describe/explain the component / circuit and explain why you think it is 'analogue' not digital.