

Worksheet 1 – Components

Circuit symbol	Name	Function
	Variable capacitor	Changes capacitance by varying area of overlap. It can be used in a radio tuner
	Resistor	Limits the flow of current in a circuit, for example through a light-emitting diode (LED)
		A connection to earth. This is at 0 V (zero volts) on the power supply
	On/off switch	A device with two contacts that will stop the flow of current if the contacts are 'opened'
		A safety device which will melt (blow) if the current flowing through it exceeds a given value
	Capacitor	Stores electrical charge
	Variable resistor (rheostat)	Usually with two contacts. Is used to control current, for example lamp brightness, motor speed
		Only allows current to flow through it in one direction
		Stores electrical charge. Must be connected the right way round
	Variable resistor (potentiometer)	A resistor with three connections, two of which are fixed. The output pd will be a fraction of the pd across it
	Wires joined	A 'blob' to show where wires have been joined
	Wire	To pass current easily from one part of a circuit to another

Worksheet 2 – Transducers

Circuit symbol	Name	Function	Energy conversion	
			From	To
	Motor	A machine that converts electrical energy into kinetic energy (motion)		
		A component that creates a magnetic field when a current flows through it		
	Loudspeaker	A device that converts electrical energy into sound energy		
	Microphone	A device that converts sound energy into electrical energy		
		A component that converts electrical energy into light		
	Bell	A mechanism that converts electrical energy into sound		
	Buzzer	A mechanism that converts electrical energy into sound		
	Light-dependent resistor (LDR)	A component that converts brightness (light) to resistance (an electrical property)		
	Thermistor	A component that converts temperature (heat) to resistance (an electrical property)		
		A piece of equipment that converts electrical energy into heat energy.		
	Lamp (lighting)	A component that converts electrical energy into light, for example car headlamp, torch		

Worksheet 3 – *Power supplies and meters*

Circuit symbol	Name	Function
	AC supply	Supplies electrical energy using an alternating electromagnetic field
		Supplies electrical energy. The current flows in one direction
	Battery	Supplies electrical energy. A battery is more than one cell, for example a car battery is made up of six 2 V cells
	Cell	Supplies DC electrical energy, for example an AA cell you may put in your MP3 player
		Used to measure resistance in ohms
		Used to measure pd in volts
		Used to measure current in amperes
	Galvanometer	Used to measure tiny currents, usually 1 mA or less

Solution sheet

Meters	Power supplies
Ohmmeter	AC supply
Voltmeter	DC supply
Ammeter	Battery
Galvanometer	Cell
Transducers	Other components
Motor	Variable capacitor
Inductor or coil or solenoid	Resistor
Loudspeaker	Earth
Microphone	On/off switch
Light-emitting diode (LED)	Fuse
Bell	Capacitor
Buzzer	Variable resistor (rheostat)
Light-dependent resistor	Diode
Thermistor	Polarised capacitor
Heater	Variable resistor (potentiometer)
Lamp	Wires joined
	Wire