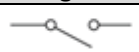
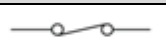
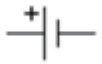
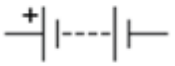
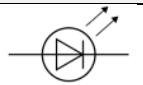
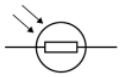
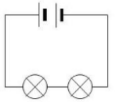
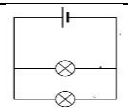
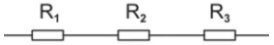
Key Terminology		
1	Charge (Q)	the flow of electrons through a complete circuit
2	Current (I)	the rate of flow of charge
3	Potential Difference (V)	amount of energy transfer between two points in a circuit
4	Resistance (R)	opposition to an electrical current
5	Circuit	complete path around which a circulating current can flow
6	Series circuit	components are connected in a single loop
7	Parallel circuit	current divides into two or more branches before recombining to complete the circuit
8	Power (P)	the amount of energy transferred in each second
9	Energy (E)	the capacity for doing work
10	Electrical work	when energy is transferred
11	Alternating current (ac)	changes directions regularly
12	Direct current (dc)	flows in one direction only

Units			
13	Charge (Q)	Coulombs	C
14	Current (I)	Amperes	A
15	Potential difference (V)	Volts	V
16	Resistance (R)	Ohms	Ω
17	Power (P)	Watts	W
18	Energy transferred (E)	Joules	J
19	Time (t)	seconds	s
20	Frequency (f)	Hertz	Hz

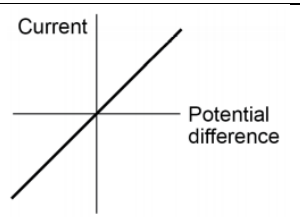
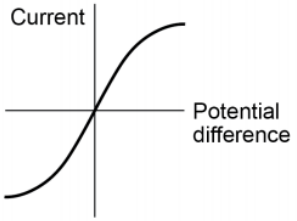
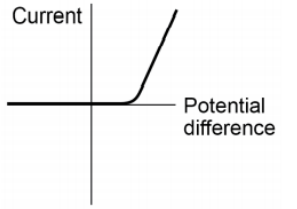
Equations to memorize		
21	charge flow = current x time	$Q = I \times t$
22	potential difference = current x resistance	$V = I \times R$
23	power = current^2 x resistance	$P = I^2 \times R$
24	power = potential difference x current	$P = V \times I$
25	energy transferred = power x time	$E = P \times t$
26	energy transferred = charge x potential difference	$E = Q \times V$

Circuit Symbols – completing a circuit					
27	open switch		28	closed switch	
Providing potential difference					
29	cell		30	battery	
Taking/measuring readings					
31	Ammeter – connect in series		32	Voltmeter – connect in parallel	
Providing resistance					
33	bulb		34	LED (light emitting diode)	
35	resistor		36	variable resistor	
37	thermistor		38	LDR (light dependent resistor)	
39	fuse		40	diode	

Series & Parallel circuits			
		Series	*Parallel*
41	Diagram		
42	Current (I)	the same at any point	shared between each loop
43	Potential difference (V)	shared between each component	the same around each loop
44	Resistors		
45	Total resistance	the sum of the resistance of each component	less than the resistance of smallest individual resistor
46	Calculating resistance	$R_{total} = R_1 + R_2$	-

Resistance, Current & Potential Difference			
47	Relationship	the greater the resistance of a component, the smaller the current for a given potential difference across the component (V = I x R)	
48	**Required Practical: Resistance of a wire**		
A	Independent Variable:	length of wire	
B	Dependent Variable:	resistance	
C	Control Variables:	thickness of wire, type of material of wire, temperature of wire	
D	Method: Resistance of a wire - I. record current & potential difference across a 1m length of wire II. calculate resistance (potential difference / current) III. repeat at 80cm, 60cm, 40cm & 20cm		

National Grid			
49	Mains electricity	UK uses ac supply	
50	Frequency	50Hz	
51	Domestic voltage	230V	
52	National Grid	network of cables and transformers linking power stations to consumers	
53	Step-up transformer	increases the potential difference	
54	Step- down transformer	decreases the potential difference	
Three core cable & plug			
55	Live wire	Brown	carries the alternating potential difference from the supply, at 230V
56	Neutral wire	Blue	completes the circuit. Is at 0V until circuit is completed
57	Earth wire	Green/ Yellow	safety wire to stop appliance becoming live – is at 0V and only carries a current if there is a fault

Resistors and I-V characteristics			
58	Ohms Law	for fixed resistor, the potential difference is directly proportional to the current	
59	Ohmic conductor	the current through it is directly proportional to the pd, at a constant temperature	
60	Filament lamp	resistance of a filament lamp increases as temperature of filament increases	
61	Diode	current flows in one direction only as diode has very high resistance in reverse direction	
62	LDR	resistance decreases as light intensity increases	
63	Thermistor	resistance decreases as temperature increases	