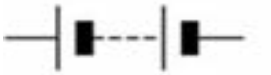
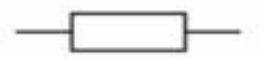
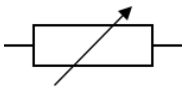
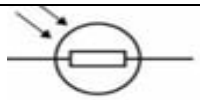
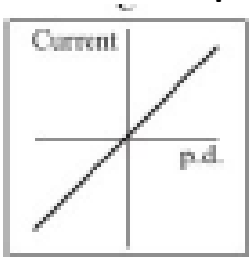
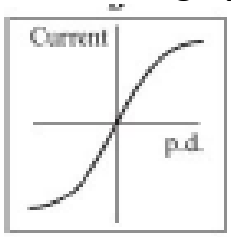
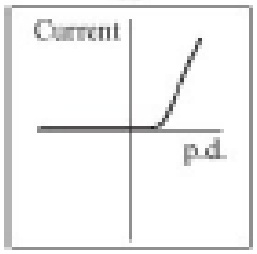
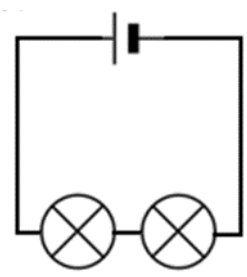
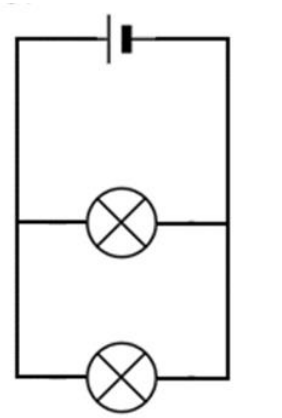
P3 Electricity: Fact sheet

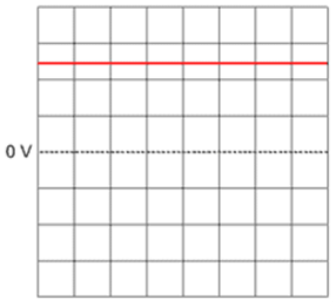
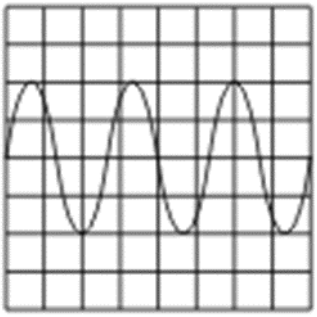
NOTE: YOU CAN CONSIDER POTENTIAL DIFFERENCE = VOLTAGE

Electrical symbols	
1. 	**Switch (open)**
2. 	**Cell**
3. 	**Battery**
4. 	**Lamp**
5. 	**Voltmeter**
6. 	**Ammeter**
7. 	**Resistor**
8. 	**Thermistor**
9. 	**Variable resistor**
10. 	**LDR**
11. 	**LED**
12. 	**Fuse**
13. 	**Diode**
Definitions and units	
14.What is electric current?	**Flow of electric charge**
15.What are the units for current?	**Amps (A)**
16.State 2 factors that affect the current in a circuit	• Voltage/ potential difference • Resistance

17. What is the work done per coulomb of charge that passes between 2 points called?	Potential difference or voltage
18. What are the units for potential difference?	**Volts (V)**
19. What are the units for electric charge?	**Coulombs (C)**
20. What are the units for work?	**Joules (J)**
21. What reduces current in a circuit?	**Resistance**
22. What are the units for resistance?	**Ohms (Ω)**
23. How do you calculate voltage, when you know current and resistance?	Voltage = current x resistance
24. How do you calculate resistance, when you know voltage and current?	**Resistance = voltage ÷ current**
25. How do you calculate charge flow, when you know the current and time?	Charge flow = current x time
Functions of electrical components	
26. Which component only lets current flow in one direction?	**Diode (and LED)**
27. Why will current not flow backwards through a diode?	The resistance is very high
28. Which component will only emit light when current flows through it in the forward direction?	LED (light emitting diode)
29. Which components can change their resistance?	**Variable resistor, thermistor, LDR**
30. Give a use of LDRs	**Switching lights on when it gets dark**
31. When is the resistance in a light dependent resistor very high?	When it is dark
32. When is the resistance in a light depenendent resistor very low?	When it is very light
33. Give a use of thermistors	**Freezer alarms/car engine**
34. When is the resistance in a thermistor very high?	When it is very cold
35. What happens to the current through a thermistor as temperature increases?	Increases

Resistance and current/voltage graphs	
36. What happens to the current if the resistance is increased?	**Decreases**
37. What happens to the current if the resistance is decreased?	**Increases**
38. Under what conditions is the current through a resistor directly proportional to the potential difference across the resistor?	Constant temperature
39. Which component is shown in this graph? 	**Resistor (at constant temperature)**
40. Which component is shown in this graph? Why does the graph curve 	**Filament bulb** **It curves because the bulb gets hot**
41. Which component is shown in this graph? 	**Diode**
Series circuits	
42. What type of circuit is shown below? 	**Series**
43. How do you work out the resistance in a series circuit?	Add up the resistances of each component

44. The current in a series circuit is…..	the same through each component
45. The potential difference in a series circuit is…..	shared between the components
Parallel circuits	
45. What type of circuit is shown below? 	**Parallel**
46. How is a parallel circuit different to a series circuit?	**A parallel circuit has branches in it**
47. The current in a parallel circuit is….	Shared between the components
48. The potential difference in a parallel circuit is….	the same through each component
49. The total resistance of a parallel circuit is _____ than the lowest value resistor.	Lower/smaller
Household electricity	
50. What do we call current that always flows in the same direction?	**Direct current (DC)**
51. What do we call current that is constantly changing direction?	**Alternating current (AC)**
52. What type of current is provided by batteries and cells?	**Direct**
53. What type of current is provided by mains electricity?	**Alternating**

54. Which type of current is shown in this graph? 	**Direct**
55. Which type of current is shown in this graph? 	**Alternating**
56. What are the units for electrical frequency	**Hertz (Hz)**
57. What is the frequency of UK mains electricity	**50Hz**
58. What is the voltage of UK mains electricity?	**230V**
59. Name the wires, with their colours, in an electrical cable	**Live brown** **Neutral blue** **Earth green and yellow stripy**
60. Which wire takes current to the device?	**Live**
61. Which wire completes the circuit, by taking current away from the device?	**Neutral**
62. Which wire is there for safety, to stop the appliance becoming live?	**Earth**
63. What is the potential difference between the live and neutral wires?	230V
64. Which wire is at 0V?	Earth
65. Which wire is at nearly 0V?	Neutral

Current, charge, power	
66. What do we call the rate at which energy is transferred through an appliance?	Power
67. What are the units for power	**Watt (W)**
68. How do you calculate power, when you know the potential difference and current?	Power = potential difference x current
69. How do you calculate power, when you know the current and resistance?	Power = current x current x resistance (same as = current^2 x resistance)
70. How do you calculate the energy transferred, when you know the charge flow and potential difference?	Energy = charge flow x potential difference