9.12 Review

4a cell

b series circuit

c switch

d parallel circuit

5a

Position of switch on the left	Position of switch on the right	Are the bulbs on or off?
1	2	on
1	4	off
3	2	off
3	4	on

b The circuit works because each switch does not have an on and off position, it is relative to the other switch. So if the circuit is connected by turning on one switch, changing the position of the other switch will break the circuit even though the position of the first switch has not changed.

6a Parallel circuit with two branches. Lamp A is in the circuit before it splits into branches. Then one branch containing only D. The second branch has B and C. **8**

b Lamp A will be the brightest as all of the current will flow through it. **9 1**

c Lamps B and C will be the dimmest because that branch of the circuit has the greatest resistance.

7a Lamps Y and Z are connected in series, but they are connected in parallel with lamp X.

b A2 will show the lowest reading because it is on the branch with most resistance

c $A_3 = A_1 + A_2$

d Lamp X will be the brightest because the same voltage is passing along that branch, but there is only one component.

e **i** Lamps Y and Z would continue to shine.
ii Lamp Z would go out and Lamp X would
iii Lamp Y would go out and Lamp X would

8a diagram

b 3 V

c The voltage is shared equally between components in a circuit if they are identical.

9 C, A, D, B, E

10a The ammeter should be connected in series. The voltmeter should be connected in parallel with the buzzer.

b Corrected diagram with voltmeter connected in parallel with the buzzer and the ammeter in series.