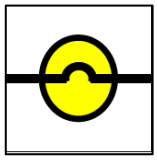
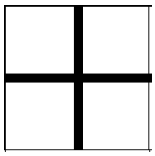
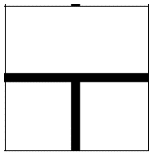
A Physics Game on D.C. Circuits

Relevant concepts:

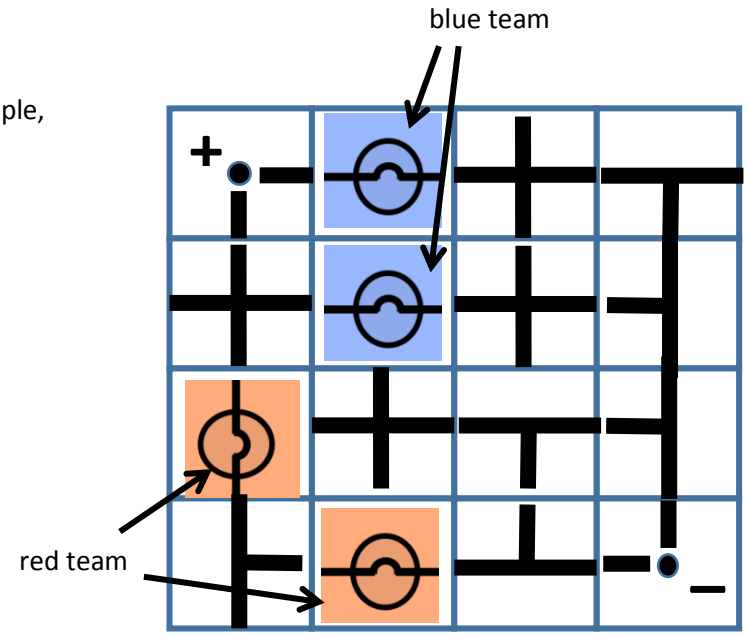
1. Sum of potential difference (p.d.) across parallel branches of a circuit is the same.
2. P.d. across a device is given by the ratio of resistance of device to total resistance multiplied by emf (potential divider rule)
   $V = \frac{R}{R_{total}} \times E$
3. Brightness of light bulb depends on electrical power
   $P = IV = V^2/R = I^2R$
4. Current can bypass a device via a short-circuiting wire.

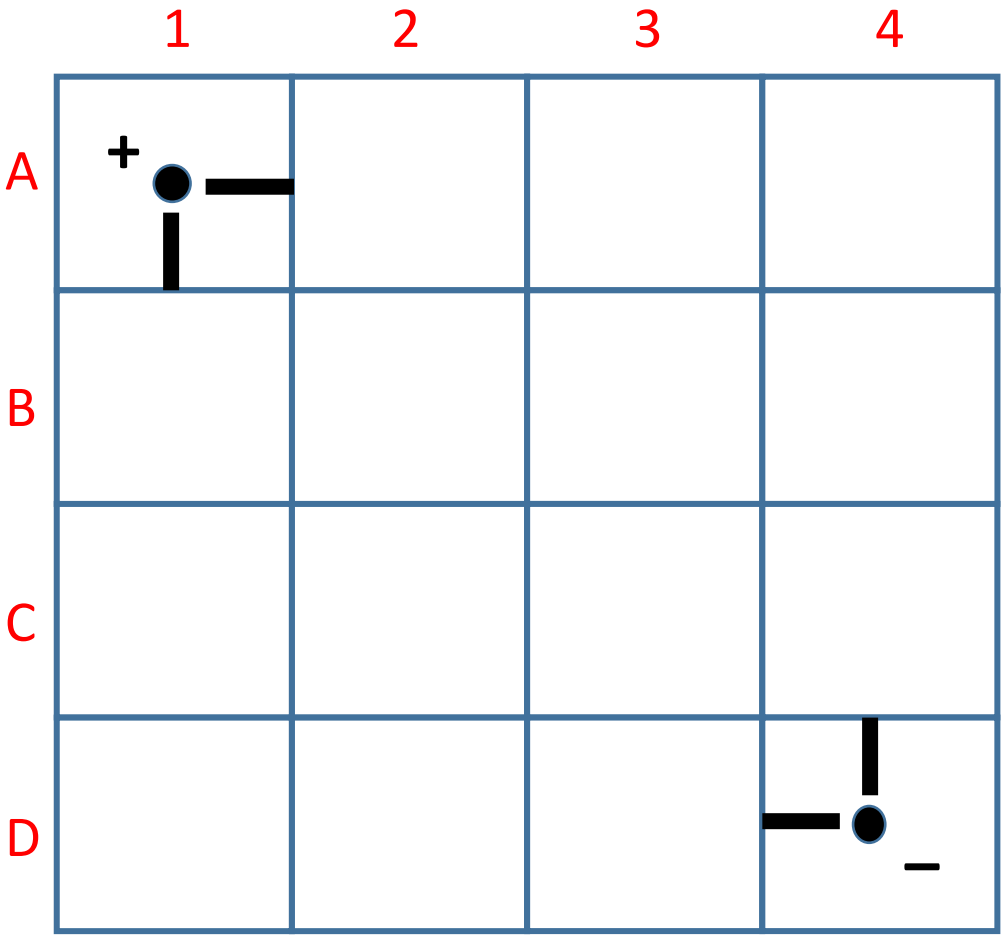
RULES OF GAME

- Each team will take turns to draw in one of the following square tiles within the grid area. Use either a red pen or blue pen to differentiate between each team.
- You may orientate the tile in 4 different ways. Cross out the number in the table on the game board according to the tile chosen in each turn.

		
Light bulb	**Cross-junction wires**	**T-junction wires**
Max 2	Max 2	Max 3

- The objective of the game is to get maximum brightness out of your 2 bulbs.
- For example,





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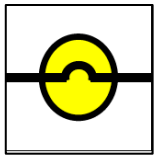		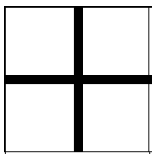		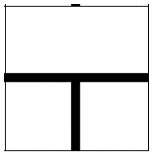	
Light bulb		**Cross-junction wires**		**T-junction wires**	
Max 2		Max 2		Max 3	
Blue team	Red team	Blue team	Red team	Blue team	Red team
1	1	1	1	1	1
2	2	2	2	2	2
				3	3