

1. Light bulbs lose a lot of their energy as heat to the surroundings. A 40 W light bulb provides 120 J of luminous energy when it runs for 1 minute. Find its % energy efficiency.

2. Four enthusiastic science students have a remote control car race. The following table gives information about the distance covered by each car at different moments in the race

| Car | Distance Covered (m) | Time (s) |
|-----|----------------------|----------|
| 1 | 18 | 5 |
| 2 | 21 | 4 |
| 3 | 24 | 9 |
| 4 | 16 | 10 |

Which car had the highest average speed?

3. While conducting a test a technician notices that an electrical device consumes 720 000 J of energy, but wastes 230 000 J when in use. What is the energy efficiency of this device?

4. You were running to get to class on time! Your speed was 0.8 m/s. You are 178 m away from class and you have 3 minutes until the bell rings. Will you make it on time? Show your .

5. Your weight on earth is 735 N, whereas your weight on planet X is 279 N. a) What is the intensity of the gravitational field on the surface of planet X. b) Which planet is it? P82

Ch 4

1. List 5 signs that a chemical change has occurred.

1. _____
2. _____
3. _____
4. _____
5. _____

2. Two molecules of ethane gas (C_2H_6) react with seven molecules of oxygen gas to produce four molecules of carbon dioxide and six molecules of water vapour. Write out the chemical equation using the proper notation (formula & put the phase (g, s, l, aq) in brackets).

3. Combustion requires the perfect combination of certain conditions. Draw the "triangle of fire" and explain the three components.

4. Draw the particle model for $2H_2 + O_2 \rightarrow 2H_2O$

Hydrogen = 

Oxygen = 