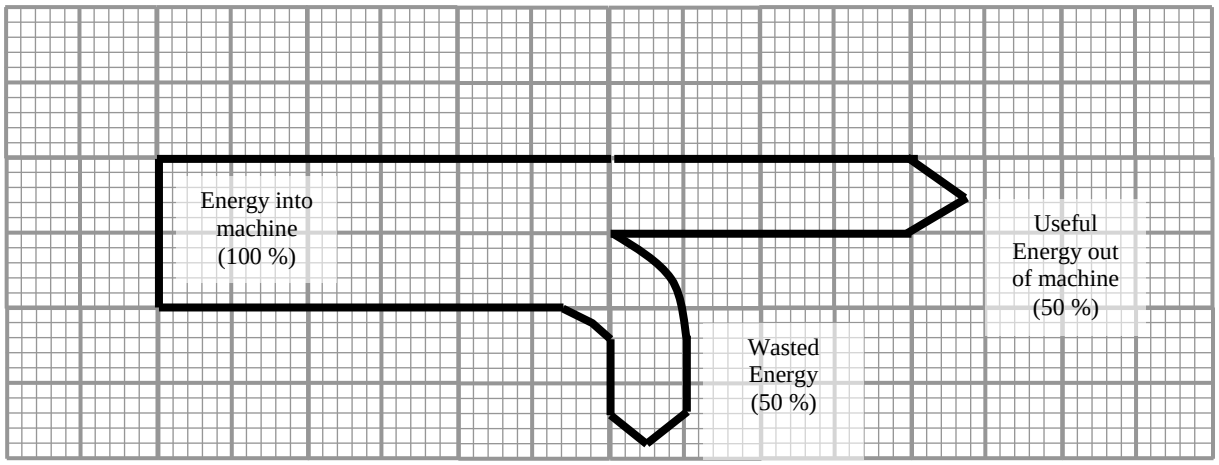
Sankey Diagrams

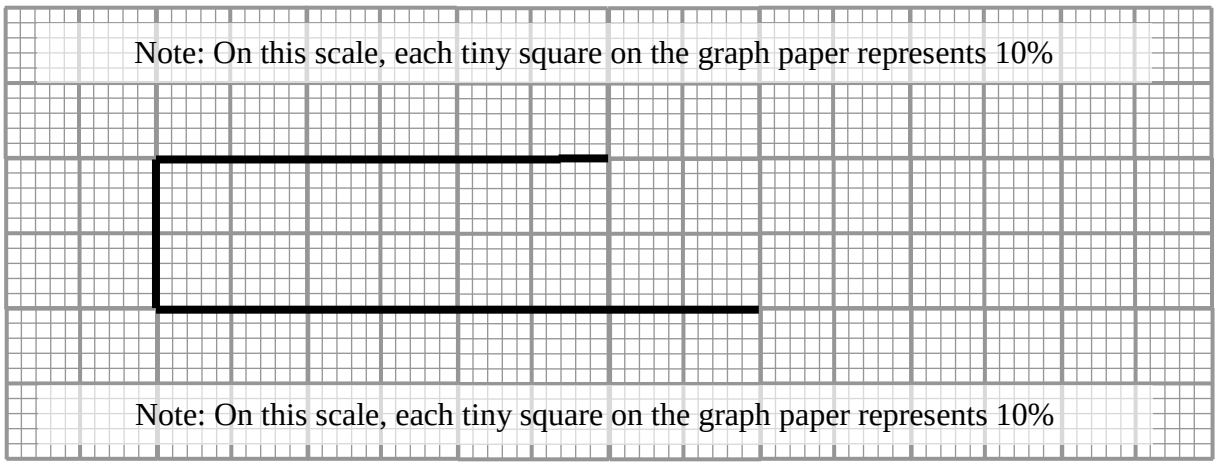
A Sankey diagram shows you how well a machine uses energy. In other words, it tells you if it uses it **efficiently** (without much waste) or **inefficiently** (with a lot of waste).

The thickness of the arrows shows how much energy is involved. (The length of the arrows does not matter in a Sankey Diagram.) Useful energy transfers are shown going left to right. Wasteful energy transfers are shown going upwards.



1. Write in these labels on the diagram above:
    a. INPUT ENERGY
    b. USEFUL OUTPUT ENERGY
    c. WASTED OUTPUT ENERGY

2. A normal filament bulb transfers 10% of energy as light (useful) but 90% as heat energy (wasted). Draw a Sankey diagram in the spac below.



Remember to label it with: INPUT ENERGY, USEFUL OUTPUT ENERGY, WASTED OUTPUT ENERGY

3. An energy efficient bulb transfers 40% of the energy as useful light energy.

    a. How much energy is transferred as heat?

    _____

    b. Draw a Sankey Diagram in the space below

Remember to label it with: INPUT ENERGY, USEFUL OUTPUT ENERGY, WASTED OUTPUT ENERGY

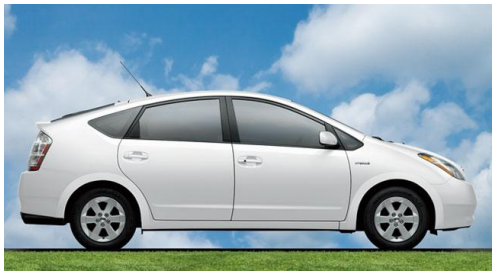
4. A team of scientists test an “old banger” car. They find out that only 10% of the energy is transferred as kinetic energy (useful) and 70% is transferred as heat energy (wasted).

    a. How much energy is wasted as sound?

    _____

    b. Draw a Sankey Diagram in the space below

Label the arrows with input energy, useful output energy (kinetic), wasted output energy (heat), wasted output energy (sound)



5. A team of scientists test a brand new hybrid car. They find out that 40% of the energy is transferred as kinetic energy (useful) and 55% is transferred as heat energy (wasted).

    a. How much energy is wasted as sound? _____

    b. Draw a Sankey Diagram in the space below

Remember to label each of the arrows!!!

6. Explain why driving a newer car is ‘greener’ than driving a very old car.

……

……

……

……

……

……