The law of conservation of energy:
Energy cannot be created or destroyed; it can only transfer from one form to another
Renewable energy resources:
They are able to replace themselves within a human lifecycle, they will not run out.

advantages of fossil fuels	disadvantages of fossil fuels
readily available	non-renewable
easily transported	green house effect (global warming)
therefore readily cheap	acid rain (sulphur dioxide)

Power station: chemical energy converted to electrical energy
Burn fuel – use heat to boil water – steam made turns turbine – turbine turns generator – get electricity
Nuclear power stations also have a reactor

device	description	input energy	output energy
boiler	fuel is burned to get steam	chemical	heat
turbine	steam turns turbine	heat	kinetic
generator	turbine turns generator	kinetic	electrical

(%) Efficiency= useful output/ total input
(J) Work done = force x distance
Energy is the ability to do work
Weight =mg
Power = work done/time or power = energy transferred/time
PE = mgh
KE= $1/2mv^2$
PE at top = KE at bottom

Power of an electric motor;

- Calculate the weight of the object to be lifted by the motor using the formula w=mg to give F
- Measure the height the object has to be raised using a metre ruler to give D
- Attach object to the motor, turn it on and record the time taken to raise the object through the distance measured
- Do this 3 times for a variety of masses and calculate the average time and from that average power

Pupil power:

- Measure height of 3 steps and get average height
- Count the number of steps
- Multiply by the average height
- Walk/run up the steps several times and record time taken
- Calculate average time
- Use formula power=wd/t to find power in watts