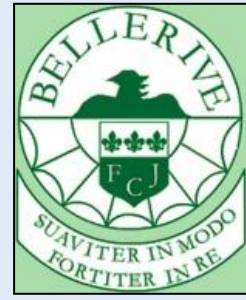


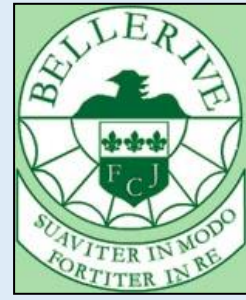
Lesson 1: Stores of energy



Key points to learn:

- The **unit** for energy is **joules, J**
- The different **stores of energy** are: **kinetic, electrostatic, magnetic, elastic, chemical, thermal and gravitational potential**

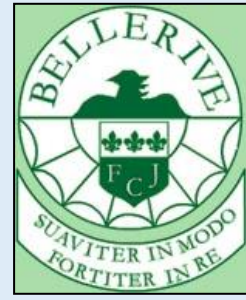
Lesson 2: Transfer of energy



Key points to learn:

- Energy is transferred from one store to another
- Transfer of energy can happen **mechanically** due to **forces**, **electrically**, by **heating** or by **light** and **sound waves**

Lesson 3: Energy in food



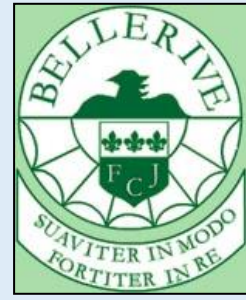
Key points to learn:

- **1000J = 1kJ**

- A **conclusion** is a **summary of what you have learnt**, by looking at the **data** collected and **describing the pattern**

- An **evaluation** describes how an **investigation could be improved** due to errors, reliability & furthering the investigation

Lesson 4: Calculating energy transfer

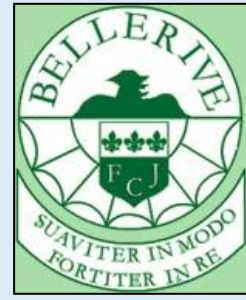


Key points to learn:

- Energy is transferred mechanically when a force makes an object move

• **Energy transferred = force x distance**
(joules, J) (newtons, N) (metres, m)

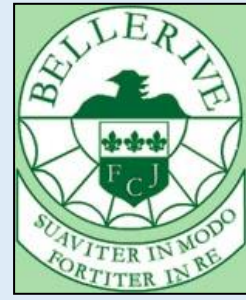
Lesson 5: Conservation of energy



Key points to learn:

- Energy cannot be created or destroyed, it can only transfer from one store to another
- Energy is only useful when it is transferred from one store to another
- Most energy transfers waste some energy during the process

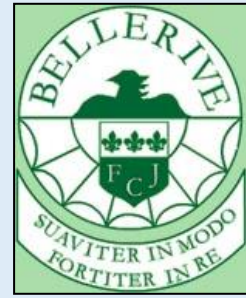
Lesson 6: Applications of conservation of energy



Key points to learn:

- Conservation of energy has many practical applications, including a bouncing ball and a bungee jumper
- Investigations need to be repeated
- Data needs to be organised in a table
- You can process your data, for example by calculating a mean

Lesson 7: Efficiency

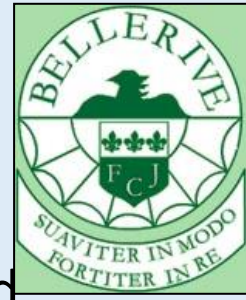


Key points to learn:

- Efficiency is a measure of the proportion of total energy from a device that is transferred to useful energy
- We can calculate efficiency using the equation:

$$\text{efficiency} = \frac{\text{useful energy output}}{\text{total energy input}}$$

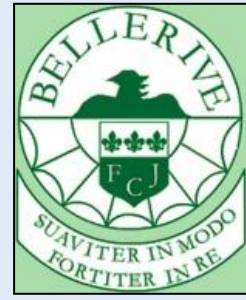
Lesson 8: Non-renewable energy resources



Key points to learn:

- Fossil fuels (coal, oil & gas) originate from the remains of dead animals and plants buried millions of years ago
- Most energy originates from the Sun
- A non-renewable energy resource is one that is not easily replenished as it is used
- Fossil fuels and nuclear fission power stations are non-renewable
- Fossil fuel power stations produce polluting gases
- Nuclear power stations create radioactive waste

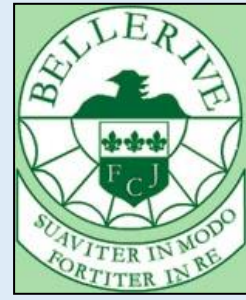
Lesson 9: Renewable energy resources



Key points to learn:

- **Some** renewable energy sources are: wind, plants (biomass), waves and solar
- Renewable energy sources are easily replenished as they are used
- Renewable energy sources do not produce polluting gases

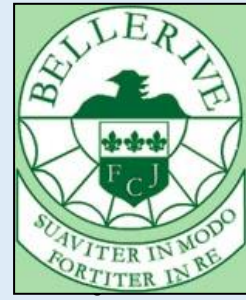
Lesson 10: Comparing fuels



Key points to learn:

- A hazard can cause harm
- Scientists reduce the risks from hazards by putting safety measures in place using a risk assessment
- Investigations need to be fair tests. To do this you must only change one thing, and everything else must be kept the same

Lesson 11: Generating electricity



Key points to learn:

- Energy can be produced from energy resources in different ways
- Most ways of generating electricity involve transferring kinetic energy to a turbine, which is connected to a generator, generating electrical energy
- Currently most of the energy we use is generated using fossil fuels