

Year 7 Independent Learning Project (ILP)



Subject: **Maths**

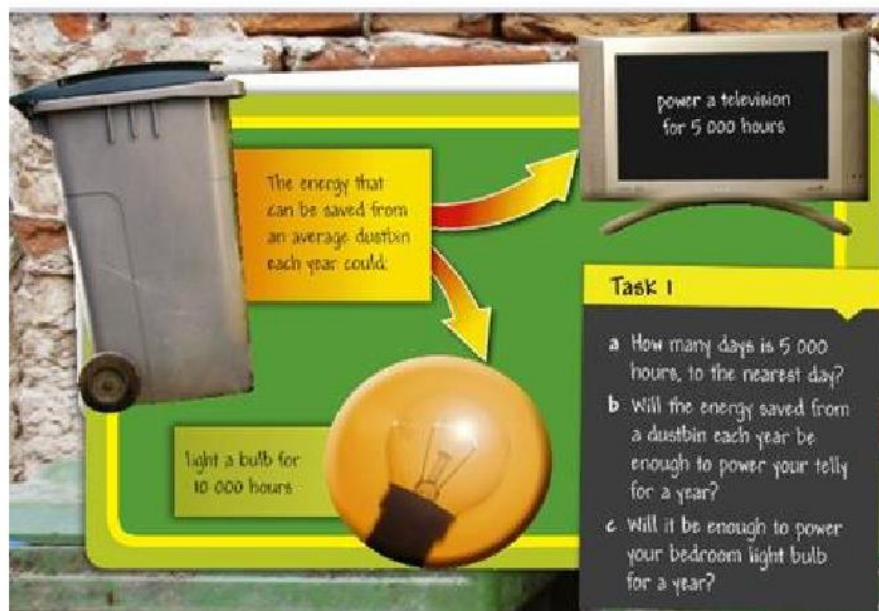
ILP Title: Recycling and energy

In this project you will learn: <ul style="list-style-type: none">• To use both mental and written multiplication and division in real life problem solving.	Time you should spend on this project: No more than 6 hours
At the end of this project you should: <ul style="list-style-type: none">• Have answered all questions and shown your working out.• Checked your answers using a calculator.• Hand your completed activities to your maths teacher.	
You should break down your time in the following way: <p>The five tasks should take no more than 2 hours. You should also spend some time during the week observing which lights get used in your house and how long they are on for. Ask your family to estimate how long they think lights are left on for. Extension – Create a poster that encourages people to reduce, reuse and recycle. (1.5 hours)</p>	
Weblinks you should use to help you with this task: www.mymaths.co.uk : search 1243 for help with value for money calculations, search 1025 for help with multiplying double digits.	
Other resources and ideas which may help you could be:	
Your work will be assessed by: <ul style="list-style-type: none">• Your maths teacher will provide a written or verbal comment on the tasks you have completed.	
The key words to learn in this project are: tonne, kilogram.	
Your parents may be able to help you by: <ul style="list-style-type: none">• Test you on the definitions of key words and explain them if needed.• Checking spelling.• Talking to you about energy use in your house and showing you the energy bills.• Ensure you complete all tasks.	



Case study 2: Recycling and energy

Recycling waste products means that not all of our rubbish ends up being dumped in landfill sites. But recycling does much more than that – it is also an important way of saving energy.



Task 1

- How many days is 5 000 hours, to the nearest day?
- Will the energy saved from a dustbin each year be enough to power your telly for a year?
- Will it be enough to power your bedroom light bulb for a year?

Task 2

- How many hours of television could you power by recycling 20 cans?
- How many hours of television could the average person power per year by recycling aluminium cans?

Aluminium drink cans

- > 20 aluminium drink cans can be recycled for the same amount of energy that it takes to make just 1 new can.
- > Each aluminium can that is recycled saves enough energy to run a television set for three hours.
- > The average person uses around 80 aluminium cans per year.



Steel cans

- < Recycling one steel can saves enough energy to power an energy-saving 18 watt light bulb for about 12 hours.
- < The average household uses 50 steel cans per month.

Task 3

- How many hours of an 18 watt bulb could the average household power per month by recycling steel cans?
- What about per year?

Glass

- < One recycled glass bottle saves enough energy to power a computer for about 30 minutes.
- < Recycling glass uses 50% of the energy needed to make new glass.

Task 4

- How many hours could 10 recycled glass bottles power a computer for?
- How many recycled bottles can be made for the same energy as 1 new bottle?

Task 5

- How many plastic bottles need to be recycled to save enough energy to run the fridge for a day?
- Challenge** Look up what 1 tonne means. How many two litre drinks bottles would you get from 1 kilogram of plastic?

Plastic

- > One recycled plastic bottle would save enough energy to run a fridge for 4 hours.
- > One tonne of plastic is equivalent to 20 000 two litre drinks bottles.

