



Energy from Waste Maths Worksheet

This sheet is designed as a follow-up activity to a school trip to Exeter or Plymouth Energy from Waste plant.

Section I: Word Problems

1. a) If there are 5 waste collection vehicles (rubbish trucks) in Exeter, holding 6.5 tonnes of waste each, how much waste could they collect in one round?

b) One morning in June they visit 5000 homes in Exeter and have to each unload at the Energy from Waste plant twice. How much rubbish has everyone put out for collection in tonnes (assuming the trucks are completely full)?

c) Would they need to unload more often if it rains? Write the answer below.

2. The grabber at Exeter can hold 1 tonne or 1000kg of waste at a time.

a) How many tonnes is 850kg of waste?

b) Calculate how much waste is loaded into the incinerator if the following loads are put in:

0.75 tonnes	0.9 tonnes	1.1 tonnes	1.25 tonnes
0.8 tonnes	1 tonne	1.2 tonnes	1 tonne

c) If the operators load the grabber with exactly 1 tonne of waste each time and feed the hopper 8 times an hour for 24 hours, how much waste is being fed to the incinerator kiln in a day?

d) The temperature of the kiln is monitored day and night to make sure it is always over the minimum legal limit of 850°C. Most of the time the temperature is 930°C. How much higher than 850°C does the kiln usually run?

Section II: Data Interpretation

This table shows the amount of carbon dioxide (CO₂) emitted and waste treated by the plant over the course of a whole year. The units are both in tonnes.

Use a calculator to work out the following sums.

	April	May	June	July	August	September
CO ₂ Production	3,860	1,454	4,109	4,404	4,408	4,341
Waste treated	4,937	1,909	5,108	5,228	4,970	4,756
	October	November	December	January	February	March
CO ₂ Production	4,720	4,214	4,950	5,068	4,520	4,964
Waste treated	4,862	4,865	5,141	5,322	4,578	5,130

1. How much waste was treated over the entire year?

2. How much CO₂ was emitted over the entire year?

3. What is the proportion of CO₂ to waste?

Section III: Estimation

Using the table above can you estimate the average CO₂ emitted each month (rounded to the nearest 1000)?

Section IV: Statistics

1. Using the table above can you calculate the mean waste treated each month?

2. Which month was closest to the mean?

Section V: Fractions and Percentages

One day the EfW plant burns 120 tonnes of rubbish.

1. Plastic forms $\frac{1}{10}$ of the total rubbish. How much plastic was burnt?

2. Food waste is 25% of the rubbish.

a) How much food waste was burnt that day?

b) How much food waste would be burnt in a year if every day was like this?
