

Waste Audit

Planning a waste audit

You are going to perform a waste audit by carrying out a fair test

You will need to consider which waste bins you are going to measure, when you are going to measure it and how you are going to measure it. You will need to share your results, so think about your audience as well.

What are you going to measure?

Decide which bins to measure: classroom, corridor, office, other. Where are they kept?

When are the bins emptied?

Make sure you know when you are going to collect the rubbish and where you are going to keep it. Also think about when the bin is normally emptied.

Where are you going to do the audit?

Make sure you have enough space.

Who is going to help you?

Involve as many people as possible

What equipment will you need?

Make a list of the equipment that you will need as well as the cost if you have to buy it.

How will you do it?

How are you going to measure and record the data and how are you going to report your findings?

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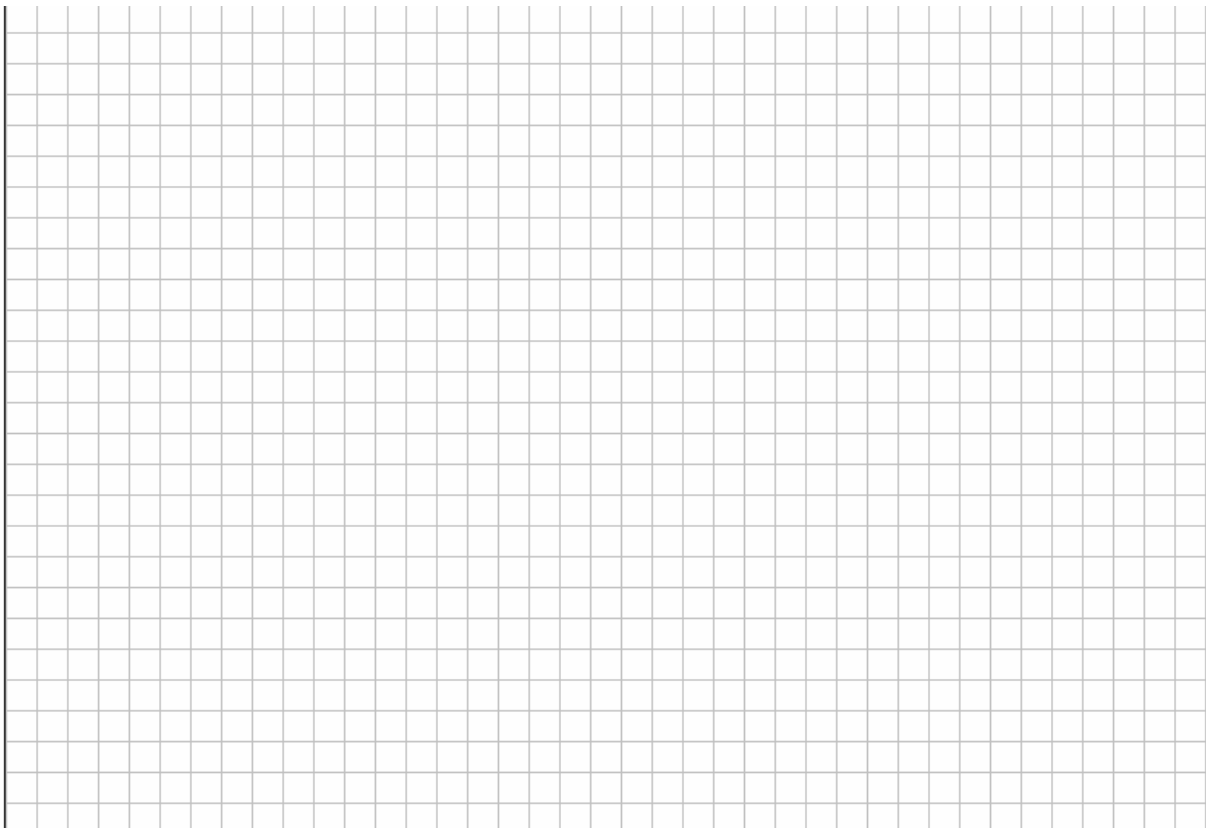
Measuring schools waste

The aim of this activity is to find out what sorts of rubbish are created in your school and which materials create the most rubbish.

Begin by weighing the amount of each material thrown away over a week. Complete the table below and work out the total amount of rubbish created in one week.

Material	Weight in Grams
Paper	
Cardboard	
Metal	
Glass	
Plastic	
Food and green waste	
Textiles	
Wood	
Other	
Total weight in Kg and Grams	

Draw a bar chart to show the different materials thrown away in your school. Place the different materials along the bottom, horizontal axis and the weight in grams and Kgs along the vertical axis.



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Calculating a total year's waste

To take action on waste, you will need to know the total school waste for one year and the type and amount of materials that make up that waste.

How to do this:

Use the information from **Worksheet 2** to fill in the total weight for each material in column B

- Now calculate the total weight for one year (remember how many weeks there are in a school year)
- Can you calculate the material percentage of the total?
- Can you show your results on another bar graph?

A	B	C	D	E
Material Type	Material totals (kgs)	Weight for one week (kgs)	Weight for one year (kgs)	Percentage of total
Paper				
Cardboard				
Cans				
Plastic				
Glass				
Foil				
Organic				
Other				
Total (kgs)				

Use the table from Worksheet 2 and Worksheet 3 to answer the following questions:

- 1** Which material created the most and least waste by weight over the week?
- 2** If every school in Spelthorne throws away the same amount of rubbish as your class, what would be the total amount of waste created by all the classes in one week?
Answer using kg and grams.
- 3** Which of the materials above could be recycled or reused rather than thrown away?
- 4** If these materials are reused or recycled, by how much could your classroom waste have been reduced?
- 5** Do you think weight is a good way of measuring waste? What other ways could you use to measure the amount of waste created?

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Suitability

KS2 age 7 – 11 years

The detailed objectives and approach can be adapted for use with different age groups

Aims:

- Measure and record waste streams in a specific environment
- To bring awareness of the types of waste produced by the school
- Consider disposal of waste and the alternatives within the context of individual waste materials.
- To help children understand the relationship between people and the environment
- To recognise the consequences of choices on other people and the environment both locally and globally
- Establish an action plan to reduce waste.

Specific Objectives

- Use, read and write standard metric units, including their abbreviations
- Know the equivalent of one half, one quarter, three quarters and one tenth of 1kg.
- Suggest suitable units and measuring equipment to estimate or measure length, mass, or capacity
- Record estimates and readings from scales to a suitable degree of accuracy
- Solve a problem by collecting quickly, organising, representing and interpreting data in tables, charts, graphs and diagrams

Problems involving 'real life', money and measures

Use all four operations to solve word problems involving numbers in 'real life', money and measures using one or more steps

Suggested structure

The audit could begin in numeracy lessons with practising and reinforcing previous knowledge on calculating mentally half, quarter, three quarters or one tenth of kg weights. Children could be challenged with reverse calculations, e.g. what is 500g or 2500g presented as kg etc.

Preparation for the main part of the audit

Preparing for this part of the activity will involve some work outside lessons. All of the school's waste will need to be collected and stored for up to a week.

A small group of children could perhaps be responsible for ensuring that rubbish is saved and labelled to identify its different sources.

Alternatively the school could organise separate bins for the week beforehand so that the rubbish is collected as separate materials. This is a good general exercise in itself involving thinking about the different forms of rubbish we create and separating it out at the point of discarding it. Developing such skills and habits are vital if we are to reduce waste and increase recycling.

Worksheet 1 will help the students plan the audit.:

- Will they sample every bin in the school or a percentage from each department.
- How will the audit be timed so as not to clash with waste collection days.

Each material will need weighing. The children might consider how each particular material will be weighed, and decide which measuring equipment is the most suitable for the task. (Spring Balances, Bathroom Scales etc.)

The main activity

The main activity involves introducing and talking through the following tasks:

Children can complete the table on **Worksheet 2** and draw a bar chart before interpreting the data. Some bar charts could be generated on the computer. Less able pupils could complete the bar charts and Question 1 from **Worksheet 4**. **Worksheet 3** is aimed at more able children as it involves more complex calculations. Many of the questions may prompt wider discussion and should be considered in the plenary session or at another time.

Weight is the generally recognised method of measuring waste, but volume or bulk would be another method. Weighing waste fails to account for which types are most damaging to the environment. For example, plastic waste is generally light but often bulky and is non-biodegradable. Conversely food / green waste is generally heavier but will either rot or can be turned into compost.

Plenary session

The main purpose of the plenary session will be to share the information, interpret the bar charts and examine some of the waste issues raised through this activity. The information could be displayed somewhere prominently in the school for visitors to see.

A follow up exercise could involve children suggesting ways for the class/ school to reduce its waste. Once the **school waste reduction action plan** has been devised, the ideas could be tried and the amount of rubbish measured again a few months later to see if the amount of rubbish has decreased.