Complete Equipment List found at the end of this document

Kimbriki Waste Audit Guide

For Teachers, Educators, Community or Businesses

Please read and familiarise yourself with these instructions before undertaking a Waste Audit to ensure you are adequately prepared.

SYLLABUS OUTCOMES: HS2-GEO-01, ST2-SCI-01, ST2-PQU-01, SC2-DAT-01, ST2-DDT-01, ST2-DDT-02, ST3-SCI-01, ST3-PQU-01, ST3-DAT-01, ST3-DDT-01, ST3-CWT-01, HS3-GEO-01

Preparation - Before the Day

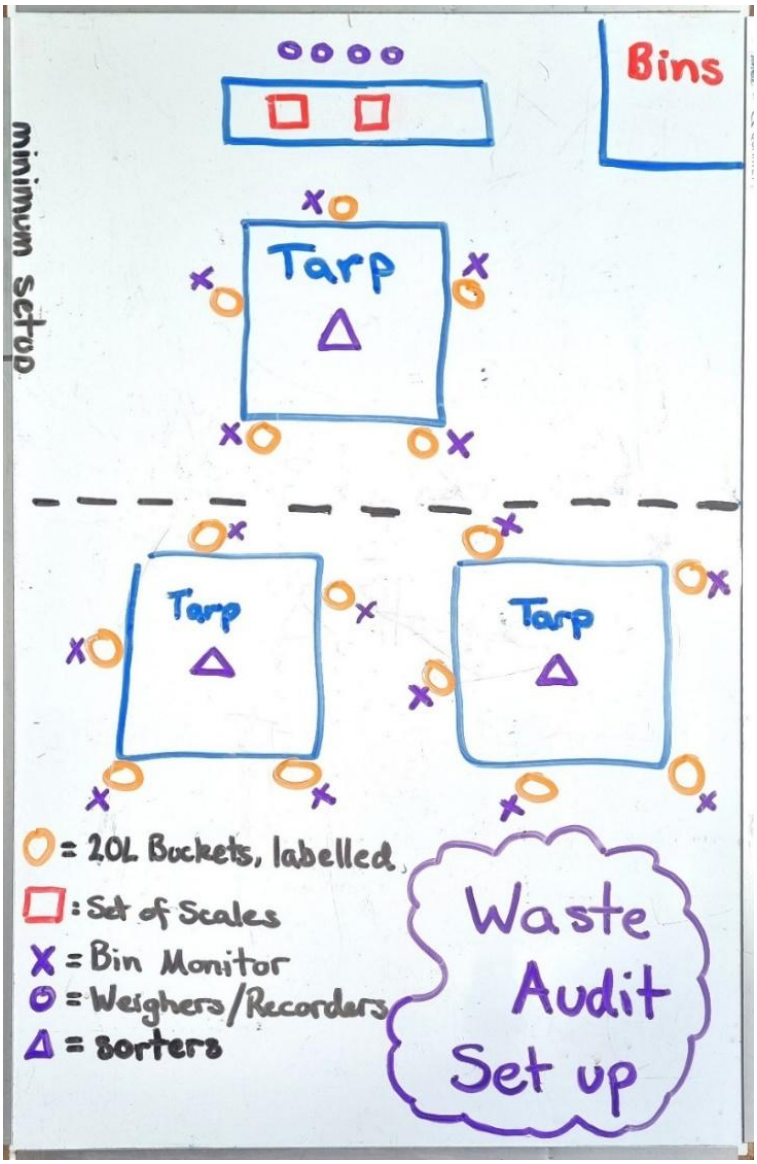
1. Organise with the relevant cleaners for the waste from the night before to be kept in its bags, onsite for you to access. Do not organise your waste audit on a Monday or at any time where the waste will have to be stored for multiple days/nights.
    - If you already have recycling bins in use at your site it is still valuable to audit these bins as this is still waste. However, be sure to record these bins on separate recording sheets so you can clearly see differentiate where the waste was destined.
    - If you are short on time you may wish to only audit your landfill destined waste.
    - Try to plan your Waste Audit to capture a period of “regular activity”. Ie. Don’t plan your waste audit on a week when half of the school is on school camp as this won’t be reflective of the average.
2. Source the equipment, as per the **Waste Audit Equipment List,** on the last page of these instructions.
    - Having identical (or close enough) containers will remove confusion around volume and weight calculations. Highly recommended.
    - Reach out to your community to avoid buying new, maybe the school in the next suburb over has done a waste audit before and can share where they got their equipment. Go to buy-back shops.
    - Councils are another great resource, ask your local Council if they have a waste audit kit or know where you could borrow one. If nothing exists, consider buying a kit and loaning it out to others.
    - If you are a school with more than 1 class participating in the waste audit you may want to set up multiple sorting tarps to accommodate more students. This includes additional tarp and an additional set of containers with signs. This will also allow you to have more students doing the sorting and means you will process the waste faster. Recommended for larger schools.
3. Make sure you have a place prepared for the waste to go after it has been audited.
4. Print or draw the signage for the relevant waste streams to be stuck as labels onto the containers. Useful Waste Signage - Kimbriki
    - **Avoid** – rubbish/garbage/landfill eg. soft plastics
    - **Mixed Containers** – yellow bin plastic/glass/metal containers.
    - **Paper** – blue bin, clean paper, cardboard and magazines.

- **Food Scraps –** All food waste including meat, bread, dairy and soiled paper.
- **Garden Vegetation** – Any plant material that is not food scraps.
- (Optional) Return and Earn – 10c deposit. Weigh and record these items as mixed containers in the waste audit first, once it is recorded you may like to count these containers to see how much money could be earnt if you were to collect return and earn separately.

5. For schools, you may like to give your students a whole day waste audit experience. Kimbriki's **Whole Day Lesson Plan** walks you through a timetable for conducting the waste audit with the addition of an introductory presentation and an afternoon School Litter Survey. Check it out on the Kimbriki Resource Hive.

Set Up - On the Day

This diagram shows the basic set up needed to conduct a Waste Audit. The minimum setup requirements are shown in the top half of the diagram above the dotted black line.



If you are not in a school setting, be mindful that 1 adult can do the work of many students and roles can even be doubled up.

A simple set up is shown above the dotted line in the diagram.

The 'Bin Monitors' (shown by the purple X's) are not necessary in a small team, or if all the sorters know what items go in each container.

In a school setting: If you are a school with more than 1 class participating in the waste audit you may want to set up multiple sorting tarps to accommodate more students. You should include the additional set up shown under the dotted line in this diagram. Recommended for groups of >20 students.

Conducting the Waste Audit – On the Day

1. Allocate jobs if working with students. The job position is shown in the diagram in the previous section, and their tasks are detailed further in the following steps.
   a) **Weighers/Recorders** - 1-3 people
      - Responsible for weighing the containers and accurately recording the weight and volumes on the weighing sheet.
   b) **Sorters** - max 15 per tarp to avoid overcrowding
      - Responsible for moving the waste from the centre of the tarp into the appropriate containers. Will use gloves and/or tongs to do this.
   c) **Bin Monitors** (Optional) -1 per container
      - An expert in their allocated waste stream, responsible for making sure only the correct things are put in their container. Will stand next to the container for their allocated waste stream and monitor. Also responsible for taking their container over to the weigher/recorders when it is full.
   d) **Disposal Supervisors** (Optional) - 1-3 people
      - To ensure that waste goes to the correct bin AFTER it has been weighed and recorded.
2. Tackle the waste that has already been sorted first. For example, if you are already collecting paper recycling and have it in some bins separately, then tip the contents into the container labelled Paper. Then weigh and record as per Step 5. Ensure you check that all the contents of your recycling can be recycled.
3. Once you have audited your pre-sorted waste, move on to the landfill destined waste (red garbage bin). **Be sure to record the waste from the landfill bins on a separate Waste Audit Weighing sheet.**
4. Tip the waste into the centre of the tarp and start separating it into the correct waste stream containers, arranged around the edges of the tarp.
5. When a container is full (do not squash), take the container to the scales and record the weight and volume of the full container.
   a) **Recording Weight**: Take note of how much your empty containers weigh. Your empty containers should hopefully all weigh the same or similar amount. This number needs to be subtracted from each individual weight measurements either at the time of weighing, or just before the final total is calculated. Or, if your scales allow, set the tare weight to account for the weight of a single the container.
   b) **Recording Volume**: If a container is 100% full, the volume will be equal to the total container volume e.g. 10L. **If a container is NOT full** – weighers should estimate how full it is, as a percentage and then use this decimal in their total volume calculations. For example, a 10L container that is half/50% full will be calculated as 10L x 0.5(50%) = 5L
6. Dispose of the waste after it is recorded and return the container to the tarp for more sorting.
7. Continue until all the waste is removed from the centre of the tarp.
8. Once all the waste has been sorted, tidy up the area that has been used and hose down the tarps and containers. Don't forget to wash your hands when you've finished
9. Complete the final calculations of the **Waste Audit Weighing Sheet**.
   a) Ensure the weight of the containers has been subtracted from all measurements before adding together.

10. To display data simply, particularly if you used multiple weigh sheets, use the **Waste Audit Collation of Results Sheet** to collate data to show a simple final spread of your results.
    a) It will be useful to have a Collation sheet JUST for the waste that was destined for landfill. This will enable you to see more easily, how you can reduce the volume of wasted resources going to landfill.
11. Create a plan of action to try to reduce total waste weight and volume and prevent recyclable resources going to landfill.
    - Are there any problem areas?
    - Are there any known solutions to these problem areas or do you need to seek further clarification on those problem items?
    - Does your waste collection service offer recycling collections?
    - How could you encourage users of your bins to sort their waste better?
    - Estimate the emissions created from the food and garden waste portion of your waste if it were to go to landfill at wastebits.com/co2-calc.
    - Could you start a compost system on your site and sequester this carbon in the soil?
    - It's a good idea to redo the above in 6-12 months' time to see the results of your sustainability actions.

Waste Audit Equipment List

- ☐ Digital weighing scales (to 50g or less, ideally).
- ☐ This ***Kimbriki Waste Audit Guide*** from Kimbriki Resource Hive.
- ☐ ***Waste Audit Weighing Sheet*** from Kimbriki Resource Hive***.***
- ☐ ***Waste Audit Collation of Results*** sheet from Kimbriki Resource Hive.
- ☐ 1 large tarp.
- ☐ 5 containers with equal volume (e.g. 20L).
- ☐ 5 signs for containers (see ***Useful Waste Signage*** on Kimbriki Resource Hive).
    - ☐ **Avoid** – rubbish/garbage/landfill.
    - ☐ **Mixed Containers** – yellow bin plastic/glass/metal containers recycling.
    - ☐ **Paper** – blue bin paper and cardboard.
    - ☐ **Food Scraps** – ALL types of food waste.
    - ☐ **Garden Vegetation** – any plant material, not food scraps.
- ☐ Gloves – can use tongs instead or as well.
- ☐ Tongs to sort waste - for those that don't want to touch with gloves.
- ☐ Relevant bins to put waste after the audit is complete.
- ☐ Table for weighing and recording.
- ☐ Pencils for recorders.
- ☐ Camera for your own records.
- ☐ All site waste collected from the day before, including staff areas and canteen. If recycling is separated already ensure it is labelled so you know which is which.
- ☐ Access to hose and cloths to clean containers.
- ☐ (Optional) Return and Earn container – to count containers into ***after*** they have been accounted for in the waste audit as mixed containers.

If you are a school with more than 1 class participating in the waste audit you may want to set up multiple sorting tarps to accommodate more students, as per the diagram on Page 2. This includes additional tarp and an additional set of containers with signs. This will also allow you to have more participants doing the sorting and means you will process the waste faster. Recommended for larger volumes of Waste.