

Visual bin audit toolkit

- Quickly check if bins are being used correctly.
- Identify opportunities to improve your bins.
- Class or green team learning activity.
- Optional technology to engage students.



Introduction

A visual bin audit involves staff or students reporting on items they can see at the top of bins. It is a great way to assess if bins are being used correctly.

Why do a visual bin audit?

Schools have found that a visual audit can help:

- monitor the use of bins
- identify actions to improve waste disposal actions
- raise student awareness and ownership of waste disposal behaviours
- support a 'whole of school approach' to waste through engagement with students, teachers and cleaning staff.

The visual bin audit is not a replacement for a more traditional waste audit, where all waste is tipped out, sorted and weighed.

When should we do it?

You could conduct a visual bin audit anytime. Most schools find it useful when they have not completed a traditional waste audit for more than a year. Conducting visual bin audits is encouraged to monitor new waste policies, canteen guidelines, bin infrastructure or waste-related education activities.

How long does it take?

The entire activity takes most schools between one to two hours. This includes planning, data entry, data analysis and discussion.

How often should we collect the data for each bin?

As a quick activity, many schools conduct one audit of each bin. Some schools monitor their waste by conducting multiple audits over time. Information on multiple audits is included in the Advanced visual bin audit section at the end of this guide.

What time should we do a visual audit?

Bins should be audited as close as possible to the bin collection time. You will need to speak to your cleaner or grounds staff to identify the most appropriate day and times.

For example, if bins are emptied at the end of each day, conduct the audit late in the school day or just after school. If auditing larger bins that are picked up by the waste services provider, then you may need to conduct the audit on the morning of collection.

Please note, different types of bins may be collected on different days, so you may need to spread your audit activity over more than one day.

How many and which bins should we audit?

You can choose the number of bins to audit and their location; however, we have outlined some guidelines to help you make a decision.

Waste streams

Most schools audit each different waste stream they collect (e.g. general waste, comingled recycling, paper, cardboard and organic waste). If time is limited, you may choose to audit just five indoor general waste bins and five outdoor general waste bins, combined with five recycling bins from other areas of the school.

Class activity

If running the audit as a class activity, then each group of students should aim to audit three to five bins. Each group should focus on a different area of the school.

Green team activity

Many schools have a motivated 'green team' of students. When working in pairs, green teams can complete a visual audit of all bins quickly. Some schools cap the numbers at 10 bins per pair of students, and audit bins in different school locations (e.g. canteen, classroom, sports oval, hard court area, staff room and teacher offices).

Other influencing factors

You may choose to audit locations where changes to bins have already been made or areas affected by policy changes. For example, if you introduce a waste-free lunch day, then target the areas where students eat their lunch.

What do we need?

Equipment & tools:

- visual bin audit activity planning table (see Annex A)
- visual bin audit activity worksheet for each student group (see Annex B)
- [visual bin audit results spreadsheet](#).

Optional items:

- temporary labels to stick on bins
- map of school to help with planning
- camera for taking photos of bin contents and students conducting the activity.

Who can do it?

All students can participate. Students should work in pairs or small groups. The planning and oversight of the activity is best led by the schools Waste Wise School's coordinator or more senior secondary school students.

Let's get started

Follow the simple steps below to conduct the audit and make use of your findings.

Step 1: Plan it

1. Seek support from the school principal to conduct the activity.
2. Collect required information such as bin collection dates, times and frequency from the school cleaner or grounds staff.
3. (Optional) Place a temporary label containing a unique number on each bin. This helps avoid skipping bins or double auditing. The use of labels is more important when conducting repeat audits on the same bin to compare results over time.
4. Use the visual bin audit activity planning table (see Annex A) to plan your audit.
5. Notify staff about the planned audit (see Annex E for a sample notice).
6. Notify school cleaners about the planned audit (see Annex F for a sample notice).

Step 2: Set it up

1. Print copies of the visual bin audit activity worksheets for students to use (see Annex B). Alternatively, older students may be able to enter data directly into an Excel spreadsheet (see Annex D for details).
 - Printing tip: many schools re-use scrap copy paper that has only been printed on one side.

Bin audit group practice

2. Brief the students on the activity and lead a practice audit on a bin. Make sure everyone understands how to record the audit results. Ask small groups of students to conduct another practice audit on a different bin. Compare answers as a way of checking everyone understands what to do.

Step 3: Run it

Reminders and handouts

1. On the day of the audit, distribute the visual bin audit activity worksheets and remind students about how to conduct an audit.
2. Refer to the visual bin audit activity planning document. Have students fill out the locations/rooms and bin numbers they are auditing on their visual bin audit activity worksheets.

Do the audits

3. Student groups should conduct the audit of the bins assigned to them. The visual bin audit activity worksheet contains step-by-step instructions for students to follow.
4. Coordinating staff may want to take some photos of students conducting the visual audit to support a future story or newsletter article.

Data entry

5. After the audit activity, gather the activity worksheets from students. Enter the results from each bin audited into a new row of the visual bin audit results spreadsheet data table. If students used a spreadsheet to collect data, then refer to Annex D for instructions on aggregating all the data collected.

Step 4: Analysis and discussion

Once all data is entered into the spreadsheet, data analysis can be carried out by staff, students or as a class activity. Data can be analysed using the automatically generated Excel charts and table reports. Alternatively, students can create their own summary tables and charts.

Update tables and charts in Excel

Once all data is entered into the spreadsheet, you can update the reports and charts by following the instructions on the 'Reports' worksheet tab.

Student discussion

A list of student discussion questions is provided in Annex H.

Step 5: Using your findings and recommendations

A table of recommendations has been prepared in Annex G to help you take the next steps in making use of your findings.

Sharing findings with WasteSorted Schools

Email a copy of your visual bin audit results spreadsheet to wastesortedschools@dwer.wa.gov.au. By sharing your results, you will be helping the Waste Wise Schools team understand the waste disposal behaviours of schools across Western Australia.

Sharing findings with cleaners

Staff and students may choose to share the audit findings with school cleaning staff. Cleaning staff might be able to verify that the results reported are generally correct and provide an indication of the waste typically generated and disposed of by the school as a whole.

Please be aware that you should not indicate that there will be any additional work for cleaning staff because of the audit findings or recommendations. Generally, the work undertaken by cleaning staff is governed by a contract and any additional work needs to be considered in future contract negotiations.

Sharing findings with school students

Many schools share the findings of the visual bin audit at a school assembly or have students create a poster of the results.

Sharing findings with the school community

Some schools write a short article for inclusion in the school newsletter. If appropriate, don't forget to include a photo of the students in action doing their audits and a chart or table to show the results.

Making improvements to the school's waste system

Update the school's waste plan to mark off the completed visual bin audit activity and include any new activities which relate to the audit findings and recommendations.

If you are considering introducing any new bins or services, we recommend completing a [school waste system assessment](#). This is a useful tool for identifying current waste services, waste types and costs.

Consider contacting the WasteSorted Schools team for advice on making any changes to your school's waste system. You may be eligible for a grant to support your project or the team may have some activities and ideas which target specific issues experienced by your school.

Keeping it safe

Always conduct the visual bin audit in a safe manner which adheres to the school's occupational health and safety guidelines. Some key points to remember:

- Students are advised not to touch the waste in the bins. They should only observe the waste they can see at the top of the bin.
- Students should wash their hands with soap after the activity if they have been in contact with waste or bin lids.

Advanced visual bin audit

There are several options that can help deepen your understanding of the school waste system and integrate more technology to increase student engagement.

Complete the advanced visual bin audit activity worksheet (Annex C) to familiarise yourself with these options. Enter the additional audit data in the same visual bin audit results spreadsheet.

Option 1. Bin health check

The bin health check collects data on bin condition, signage, smell and nearby litter. It only takes an extra minute to conduct for each bin.

Option 2. Multiple audits of the same bin

By auditing the same bins on different days, you can compare data over time. If audit findings are consistent for each audit, then you can have more confidence in the results obtained.

Conducting multiple audits is easy. Allocate bin numbers to each bin and record these bin numbers when conducting the audit. Audit the same bins at different periods in time (e.g. every day or once a week).

Option 3. Students entering data directly into a spreadsheet

Students can use a laptop or tablet with a spreadsheet application to capture the data from the bin audit. If you are auditing a large number of bins, it may be faster to have students enter the data into Excel. This spreadsheet data can be taken from each student and then combined into one file to undertake the analysis. More details on this process are documented in Annex D.

Option 4. Using scannable QR codes

QR codes are special bar codes that can be scanned by mobile phones or tablets. Upon scanning, they can open up a website which contains a Microsoft Excel Online worksheet which will enable students to enter bin audit data directly into the spreadsheet.



Here are some basic instructions on using QR codes to achieve this:

- Teachers and students can upload the visual bin audit results spreadsheet to [Microsoft OneDrive](#). A link to the spreadsheet can be created with the permission 'Anyone with this link can access'. Copy the link to the spreadsheet and paste it into a document for safe keeping.
- To create a QR code using the link copied above, visit a QR code generator website such as [QR Code generator](#). Paste the link into the QR code generator, create the QR code and save/download it to your computer. Print the QR code and stick it on the first bin, or all the bins your team will audit.
- Some mobile phones and tablets come with QR code readers built in; in other cases, you will need to download a free QR code reader. For example, there are QR and barcode scanners for [Android](#) or [Apple \(iPhone/iPad\)](#) devices.
- Students can now use a phone or tablet to scan the QR code on the bin. This will open the spreadsheet in Microsoft Excel Online and allow students to enter necessary data into a centralised spreadsheet.

Form filling tips

Form item	Tips
Bin location	List the area of the school where the bin is located (i.e. undercover area, classroom, etc.)
Bin number	This is optional. Ideally each bin will be labelled with a unique number to help tracking. If you have put temporary labels on your bins, then write down the unique bin numbers. This will help students identify which bins they should audit.
Waste streams	Note the type of waste collected. Use a legend if you have many bins (e.g. G = general waste, R = comingled recycling, P = paper, C = cardboard, O = organic waste).
Bin collection date or frequency	Dates that bins are normally collected by the cleaner, waste services provider or others. If they are collected daily or on the last day of the week, then note this instead.
Bin audit date and time	The date and time that you plan for the visual bin audit to be done. Remember this should be close to, but before the time when the bin is collected.
Person/group responsible	List the names of students or groups who are assigned to audit the bins in this location/room
Notes	Any reminders or safety notes, or keys needed to unlock bins.

ANNEX B. Visual bin audit activity worksheet

Complete one worksheet for each bin audited.

Visual bin audit data collection table				
Student/group name(s):		Date:		Time:
Bin location or room name:	Bin number:	Waste stream: <input type="checkbox"/> General waste <input type="checkbox"/> Paper/cardboard <input type="checkbox"/> Comingled (bottles/cans/plastic) <input type="checkbox"/> Organic waste (food or garden waste) <input type="checkbox"/> Other _____	How full: <input type="checkbox"/> Empty or nearly empty <input type="checkbox"/> Quarter full <input type="checkbox"/> Half full <input type="checkbox"/> Three quarters full <input type="checkbox"/> Full <input type="checkbox"/> Overflowing	List most common items you can see in the bin. 1. 2. 3. 4. 5.
Questions about general waste bins			Questions about recycling bins (e.g. paper, cardboard, comingled, organic bins)	
What items can you see in the general waste bin that could be recycled or composted?			What items can you see in this recycling bin which should not be in there? (For example, glass should not be placed in the paper recycling bin or plastic in the organic bin).	
How much of what you see in the general waste bin could be recycled or composted? <input type="checkbox"/> No items could be recycled <input type="checkbox"/> A few items <input type="checkbox"/> Many items <input type="checkbox"/> Most items			How much of what you see in this recycling bin should not be there? <input type="checkbox"/> No items <input type="checkbox"/> A few items <input type="checkbox"/> Many items <input type="checkbox"/> Most items	

ANNEX C. Advanced visual bin audit activity worksheet

Use this worksheet if you are conducting an advanced bin audit. Complete one worksheet for each bin audited.

1. You can use the bin size guide to help you to identify the correct size.
2. If your school has recycling bins, then rate the signs on your general waste or recycling bin. If your school only has general waste bins, then you can select 'Great or no sign needed'.
3. To complete the 'Litter around bin' section, stand close to the bin and imagine you take two big steps away from the bin in all directions. Look at the area around the bin where you would have walked and count the number of pieces of litter you can see.

Advanced visual bin audit data collection table

Student/group name(s):			Date:	Time:		
Location/room(s):	Bin number:	Waste stream: <input type="checkbox"/> General waste <input type="checkbox"/> Paper/cardboard <input type="checkbox"/> Comingled (bottles/cans/plastic) <input type="checkbox"/> Organic waste (food or garden waste) <input type="checkbox"/> Other	Bin size: <input type="checkbox"/> 10 Litres <input type="checkbox"/> 40 Litres <input type="checkbox"/> 60 Litres <input type="checkbox"/> 120 Litres <input type="checkbox"/> 240 Litres <input type="checkbox"/> 660 Litres <input type="checkbox"/> 1100 Litres	How full: <input type="checkbox"/> Empty or nearly empty <input type="checkbox"/> Quarter full <input type="checkbox"/> Half full <input type="checkbox"/> Three quarters full <input type="checkbox"/> Full <input type="checkbox"/> Overflowing	List most common items you can see in the bin. 1. 2. 3. 4. 5.	
Questions about general waste bins				Questions about recycling bins (e.g. Paper, cardboard, comingled, organic bins)		
What items can you see in the general waste bin that could be recycled?				What items can you see in this recycling bin that should not be in there? (For example, glass should not be placed in the paper recycling bin).		
How much of what you see in the general waste bin could be recycled? <input type="checkbox"/> No items could be recycled <input type="checkbox"/> A few items <input type="checkbox"/> Many items <input type="checkbox"/> Most items				How much of what you see in this recycling bin cannot be recycled? <input type="checkbox"/> No items <input type="checkbox"/> A few items <input type="checkbox"/> Many items <input type="checkbox"/> Most items		
Bin health check						
Bin condition: <input type="checkbox"/> 😊 Great (clean and looks new) <input type="checkbox"/> 😐 OK (a bit dirty and looks old) <input type="checkbox"/> 😞 Poor (dirty or broken)		Bin smell: <input type="checkbox"/> 😊 No smell <input type="checkbox"/> 😐 Some bad smell <input type="checkbox"/> 😞 Very bad smell		Bin signage: <input type="checkbox"/> 😊 Great sign or no sign needed <input type="checkbox"/> 😐 OK sign <input type="checkbox"/> 😞 Poor sign or sign is needed		Litter around the bin: <input type="checkbox"/> 😊 No litter <input type="checkbox"/> 😐 Some litter (1 to 5 items) <input type="checkbox"/> 😞 Lots of litter (6 or more items) Common litter items I can see are:

Bin size guide

Use this guide to help identify the size of the bins you are auditing.



10 litres



40 litres



45 litres



60 litres
60cm high



120 litres
92cm high



240 litres
107cm high



660 litres (120cm long x
74cm wide x 120cm high)



1100 litres (120cm long x 100cm
wide x 130 cm high)

ANNEX D. Using a spreadsheet to capture data

Students can use a laptop or tablet with a spreadsheet application to capture the data from the visual bin audit. The spreadsheet template provided has been developed for use in either the Microsoft Office Excel application (Mac or Windows version) or Microsoft Excel Online. It is free to create [Microsoft Office 365 Online account](#) and access Excel Online.

Each group of students will need access to a copy of the [visual bin audit data analysis spreadsheet](#). Electronic versions of the supporting documents, such as the visual bin audit activity worksheet, should be provided to students.

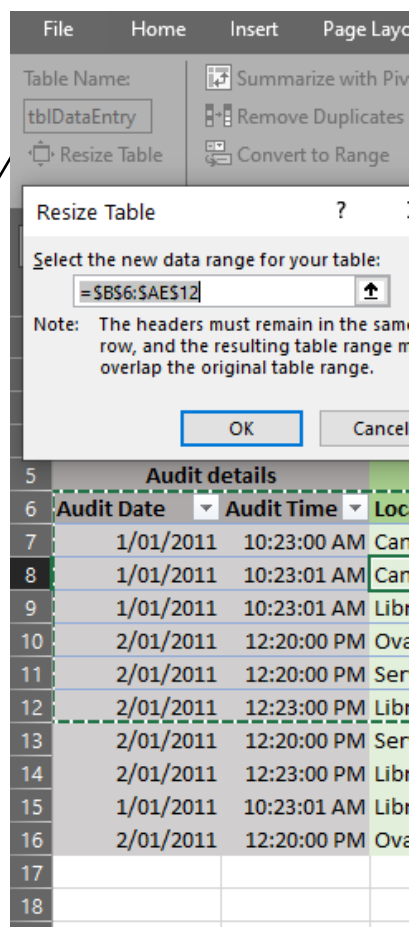
Students should refer to and use the instructions in the visual bin audit activity worksheet to conduct the audit; however, instead of writing the bin audit data on the worksheet, they enter data directly into the spreadsheet.

Once the audits are completed, you will need to collate all the data captured by students into one central spreadsheet. After pasting in all the new rows, you may need to resize the table in the 'Enter Data' worksheet. Once the table is resized, you can then follow the instructions in 'Step 4. Analysis and discussion'.

Resizing the Excel table

1. Open the [spreadsheet](#), click on the 'Audit Data' worksheet tab.
2. Click on one of the table column headings (e.g. 'Audit Date').
3. At the top of the spreadsheet window, click on 'Table Tools'.
4. Select the 'Design' menu ribbon.
5. On the far left, select 'Resize table'.
6. Ensure the last number in the range matches the last spreadsheet row number containing the bin data. See the example in the image to the right.
7. Click 'OK' button.

The last number '12' should be changed to 16 to match the last row with data in the table.
`=B$6:$AE$16`



ANNEX E. Briefing notice to staff

Dear Staff,

Students from XXXXXXXXX have been given permission to conduct visual bin audits at our school as part of our involvement in the WasteSorted Schools Program.

The visual bin audit involves selected students looking at the types of waste items that are visible at the top of the different types of bins at our school.

The audit is scheduled to take place at the following dates(s) and times: _____

While the audit may take place during recess, we ask that you be tolerant of any short 2-minute interruptions to your class whilst students conduct the bin inspections in classrooms, administrative buildings and staff facilities.

Students will be briefed and able to explain why they are conducting the bin audit. You may use this as an opportunity to have the students explain why they are conducting the visual bin assessment and how the results will be used.

If you have any concerns or are interested in being involved in future audits, please contact me via email.

Regards,

XXXXXX

ANNEX F. Briefing notice to the cleaner

Dear XXXXXXXXX,

Students from XXXXXXXXX have been given permission to conduct visual bin audits at our school as part of our involvement in the WasteSorted Schools Program.

The visual bin audit involves selected students looking at the types of waste items that are visible at the top of the different types of bins at our school. This may involve students looking at bins in classrooms, administrative buildings, staff facilities, and in outdoor spaces.

The audit is scheduled to take place at the following dates(s) and times: _____

Students should be able to complete this activity independently; however, on the date of the audits, could we please ask for your cooperation if students make any small requests for information or assistance?

If you have any concerns or are interested in being involved, please contact me.

Regards,

XXXXXX

ANNEX G. Findings analysis helper

This table provides tips on how to interpret the visual bin audit results. You can use it as a guide to create recommendations.

Audit findings	Suggested recommendation
Several bins were overflowing with waste.	Conduct one or more repeat audits on these bins to verify if this is a recurring issue. Alternatively, check with the cleaner as they may know if it is a recurring issue. Many schools reduce waste by worm farming, composting or promoting waste-free lunches. Consider increasing the size of the bin or placing another bin in a nearby location. You can also check if it is possible to empty the bin more frequently.
Many general waste bins have high volumes of waste items that could be recycled.	Some schools introduce recycling services for comingled waste, paper, cardboard and organics. Many of these schools conduct a waste audit to gather more accurate data about the volumes of each kind of waste. We recommend using the school waste system assessment before making changes to your waste services.
A small number of recycling bins have medium to high levels of contamination.	<p>If not already in place, ensure there is a general waste bin next to the recycling bin. Convenience is a big factor in correct waste disposal so having both bin options next to each other is considered good practice. It's also a good idea to check that your bin lid colour is correct for the specific waste type according to the Australian standards.</p> <p>Check bin signage is clear and shows what items can and cannot go in the bin. Many schools find the WasteSorted signs useful. A new sign will draw attention to the bin and may make students think before incorrectly disposing of an item. You can create your own sign to target one or more specific contaminated items which were visible.</p> <p>If the bins are in an area used by a specific group of students, then you could target this group with some simple waste education messages.</p> <p>Observe the bins at recess (or when most likely used) and reward correct use of the bins with general praise and provide feedback to students who are not using the bins correctly.</p>
A large number of bins contain contamination.	<p>Many schools deliver waste education messages through assemblies. The most effective messages are simple. For example, recycle just these five: paper, cardboard, cans, plastic and glass bottles and containers. Sharing examples of students doing the right thing can also help to create a social norm (and encourage more students to do the right thing).</p> <p>Conduct a class quiz to check student knowledge about what can and cannot be placed in the bins.</p>

Audit findings	Suggested recommendation
	Pin up some posters on school noticeboards which highlight the benefits of recycling and what can and cannot go in the different recycle bins at school. Creating the posters could be a student or class art project.
Analysis of advanced findings	
There is a lot of litter around the bin.	<p>If the bins are full or overflowing, this could explain why there is litter on the ground. Refer to recommendations for finding 'Several bins were overflowing with waste' above.</p> <p>If the bin is not full or overflowing, then more analysis is needed to identify if the litter was generated by students or if it has blown in from other locations. Many schools have found the Clean Schools program helpful in reducing litter.</p>
Bins are in poor condition.	Consider replacing or repairing bins. A WasteSorted Schools grant may be able to support this.
Bins are smelly.	Speak with the cleaning staff and ask if there are any time and cost-effective ways of cleaning the bins to decrease bad odours. This may be a one-off activity or there may be a need for regular cleaning. Please note that the additional cleansing task may fall outside of the work the cleaner is contracted to do, please be sensitive of this.

ANNEX H. Discussion questions

Use the following questions to discuss the results with students. When discussing your results, remember that the students only observed what items were visible on the top of the bin contents. This may mean that heavier items such as fruit scraps or whole sandwiches are not seen as they sink to the bottom and lighter items such as plastic wrappers are reported more as they are lighter and remain at the top of the bin.

General waste bin questions

1. What were the most common waste items found in general waste bins in the classrooms?
2. What were the most common waste items found in general waste bins located outside?
3. How many general waste bins contained waste items that we could recycle or recover (e.g. compost)?
4. We audited <NUMBER> of general waste bins, so what percentage of bins contained waste that could be recycled (or composted)?
5. What were the most common recyclable items we found in the general waste bins?
6. Overall, was there a small, medium or large number of items that could be recycled (or composted) in the general waste bins?
7. Do you have any suggestions on how to increase the amount of waste we recycle (or compost)?

Recycling bin discussion questions

You can repeat the questions below for each waste stream recycled or recovered by your school.

1. How many <WASTE STREAM> bins contained items that shouldn't be in there?
2. We audited <NUMBER> <WASTE STREAM> bins, so what percentage of bins contained waste that shouldn't be there? (We call this waste that shouldn't be in the bin 'contamination', so <xx> % of our <WASTE STREAM> bins are contaminated.)
3. Overall, was there a small, medium or large number of items in the bin that should not be there?
4. Do you have any suggestions on how we could reduce contamination?

General discussion questions

1. How many bins were full or overflowing?
2. What could we do to address the issue of full or overflowing bins?

Prompts: Can we prevent the waste from being generated? How? Could we increase the size of bins? Could we add another bin of the same size? Could we increase how often the bin gets emptied?

Advanced visual bin audit questions

1. Looking at the bin health check data, do you have any recommendations for how we could improve the bins at our school?