

Waste Audit Guide

Acknowledgements

The Waste Audit Lending Kit was developed by West Lothian Council Waste Service for schools to plan and implement a waste audit and develop a waste minimisation and recycling action plan.

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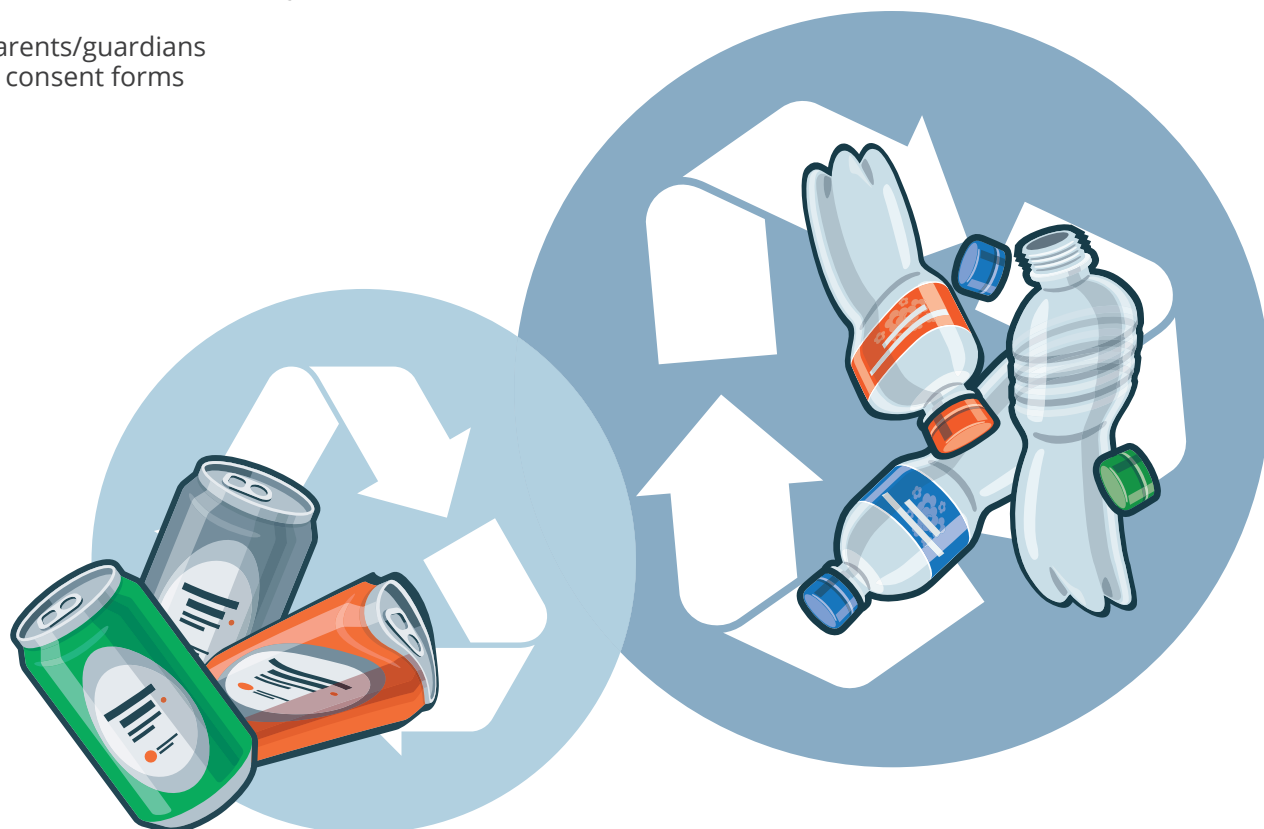
Follow-up waste audit to be carried out 12 months after first waste audit

Task Based Risk Assessment/Safe Systems of Work

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Overview

In Scotland, the average primary school produces 45kg of waste per pupil per academic year. This figure is 22kg per pupil per academic year for secondary schools. Much of this is sent to landfill.

Schools can play a significant role in minimising the waste they generate, reducing the amount of waste destined for landfill and increasing recycling rates.

A waste audit allows teachers and pupils to understand the types and quantities of waste generated within their school and where the waste is generated.

(www.recyclenow.com, 2017)

This information will help schools to prioritise which materials should be recycled, what size and number of rubbish/recycling bins each school will need and where the bins should be located.

A waste audit will aid the development of a waste minimisation and recycling action plan to identify effective waste reduction initiatives. These initiatives will ensure regulation compliance, enhance pupil learning experiences and may reduce waste management costs.

A follow up waste audit is required in order to monitor and evaluate the success of any waste minimisation initiatives and highlight any further improvements.

The waste audit is designed to be carried out by second, third and fourth and senior curriculum levels due to the complex nature of the theory and practical elements. This version is tailored towards second level pupils. The waste audit is not advised for younger pupils for health and safety reasons.

The waste audit is divided into five lessons with approximate times. Schools may wish to spend more or less time on each section depending on the number of participants, teaching time restrictions and size of school. It is recommended that all sessions are completed to ensure the reliability of data and a comprehensive learning experience for the pupils.

The waste audit comprises of:

- ▶ This waste audit guide
- ▶ A series of worksheets for pupils to complete
- ▶ All the personal protective equipment and resources required to carry out the waste audit
- ▶ A sample risk assessment and safe system of work (for reference only, teachers are advised to follow school health and safety policies and procedures)

By the end of the waste audit pupils should be able to:

- ▶ Discuss why a waste audit and action plan are beneficial for their school
- ▶ Identify which areas of the school generate waste and what types of waste are generated
- ▶ Discuss and follow health and safety procedures
- ▶ Organise the collection and sorting of waste streams with other pupils, teachers, parents and Facilities Management
- ▶ Accurately measure and record the school's waste
- ▶ Present the data and draw conclusions about their school's waste
- ▶ Develop an action plan to **reduce**, **reuse** and **recycle** as much of the school's waste as possible
- ▶ Monitor and evaluate the success of the **reduce**, **reuse** and **recycle** initiatives by completing a follow up waste audit and report findings

Links to Eco-Schools and Curriculum for Excellence

The table below shows how the waste audit meets aspects of a range of Eco-School topics.

Eco-School Topics		Waste Audit		
Litter	Litter pick and waste audit of school grounds (optional)	Litter survey of playground and volume of litter bins	Waste action plan to create posters to encourage people not to throw litter	
Waste Minimisation	Identification of waste types and volumes	Waste action plan activities	Follow up waste audit	Monitoring and evaluation
School Grounds	Litter pick	Waste audit photographs and result displays	Waste action plan activity displays	
Health and Wellbeing	Encourage healthy snacks that reduce packaging waste e.g. fruit instead of crisps			
Food and the Environment	Food waste audit	Waste action plan to reduce food waste		
Sustaining Our World	Share findings on Eco-Schools website	Global links to resources needed to make new products and resources saved by recycling		

The waste audit encompasses the following Inter-Disciplinary Learning at Second Level.

Through contributing my views, time and talents, I play a part in bringing about positive change in my school and wider community. HWB 2-13a

Waste Action Plan

I can discuss the environmental impact of human activity and suggest ways in which we can live in a more environmentally responsible way. SOC 2-08a

(Landfill issues and the importance of waste minimisation and recycling)

I have carried out investigations and surveys, devising and using a variety of methods to gather information and have worked with others to collate, organise and communicate the results in an appropriate way. MNU 2-20b

(Waste Audit results and Action Plan write up)

I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making efficient use of technology. MTH 2-21a

(Write up of results, presentation of results to schools and parents, information posters)

I consider the impact that layout and presentation will have and can combine lettering, graphics and other features to engage my reader. LIT 2-24a

(Lay out and presentation of Waste Audit data results and Action Plan)

Having analysed how lifestyle can impact on the environment and Earth's resources, I can make suggestions about how to live in a more sustainable way. TCH 2-35a

(Consider the durability of materials and whether they are reused or recycled)

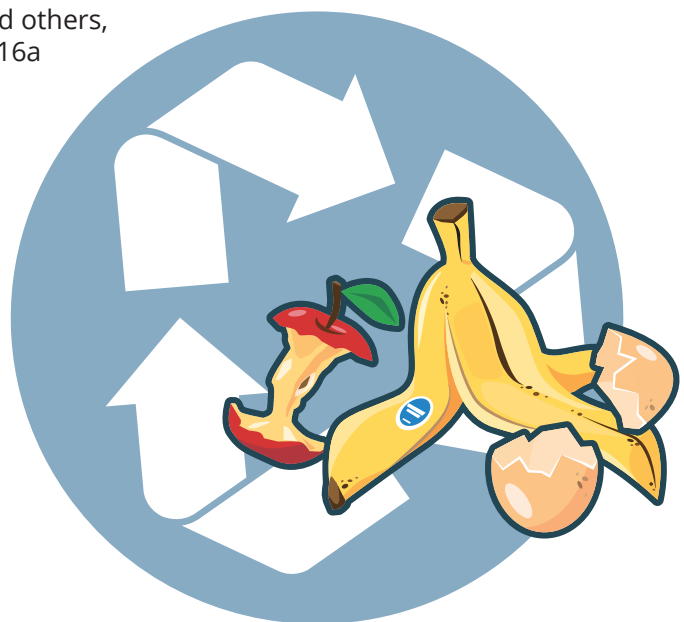
I have the opportunity to choose and explore an extended range of media....to create images and objects. EXA 2-02a

(Re-using materials as an art resource and rubbish collages)

I am learning to assess and manage risk, to protect myself and others, and to reduce the potential for harm where possible. HWB 2-16a

(Risk Assessment and Safe Systems of Work)

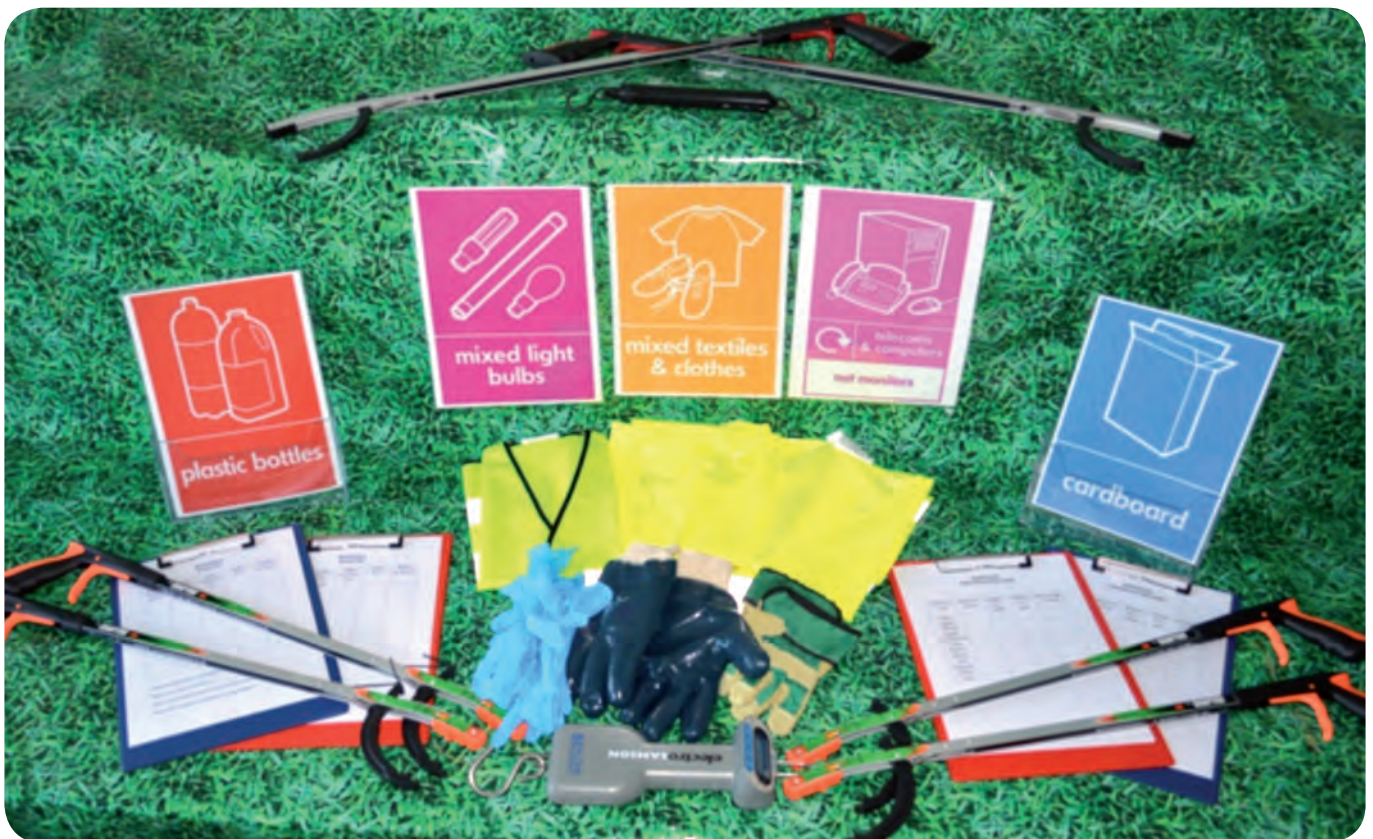
Each lesson plan incorporates the Curriculum for Excellence and includes the Lesson Focus, Experiences and Outcomes, Learning Intentions, Success Criteria, Suggested Resources and Activities.



Equipment

The waste audit contains:

- ▶ Clear bags
- ▶ Clip boards
- ▶ Gloves (small and large)
- ▶ Bag hoops
- ▶ Hi-visibility vests (small, medium and large)
- ▶ Labels
- ▶ Litter pickers
- ▶ Marker pens
- ▶ Material signs (paper, cardboard, tin cans, glass, food, plastic bottles, 'other' plastic, metal, wood, textiles, 'other' recyclables, landfill)
- ▶ Risk Assessment and Safe System of Work
- ▶ Sharps kit
- ▶ Spring balances
- ▶ Tarpaulin
- ▶ Waste audit guide
- ▶ Worksheets



Planning the waste audit (40 minutes) and walk-a-round (20 minutes)

Teachers, pupils, catering staff and janitorial staff need to discuss the waste audit in advance of the waste sorting to ensure everyone is aware of what is involved.

Level: Second

Lesson Time: 60 mins

Lesson Focus: Waste audit plan, procedures and Health and Safety

Experiences and Outcomes:

I can select ideas and relevant information, organise these in an appropriate way for my purpose and use suitable vocabulary for my audience. LIT 2-05a

As I listen or watch, I can identify and discuss the purpose, main ideas and supporting detail contained within the text, and use this info for different purposes.

I can show my understanding of what I listen to or watch by responding to literal, inferential, evaluative and other types of questions, and by asking different questions of my own. LIT 2-07a

I am learning to assess and manage risk, to protect myself and others, and to reduce the potential for harm where possible. HWB 2-16a

I know and can demonstrate how to keep myself and others safe and how to respond in a range of emergency situations. HWB 2-17a

Having learned about cleanliness, hygiene and safety, I can apply the principles to my everyday routines, understanding their importance to health and wellbeing. HWB 2-33a

Learning Intensions:

We are discussing what a waste audit is and why it will benefit the school

We are discussing what needs to be considered when planning a waste audit

We are walking around and mapping bins

We are talking about health and safety and being introduced to equipment

We are running through waste audit procedures and the delegation of tasks

We are handing out letters to parents/guardians

Success Criteria:

I can describe what a waste audit is and say why it will benefit our school

I can contribute my ideas and help to plan a waste audit with my class and teacher

I can map the locations, sizes and numbers of bins in the school

I can identify the required health and safety procedures

I can identify the waste audit procedures and delegate tasks

I can hand the waste audit letter to my parent/guardian and explain what our school is planning to do.

Suggested Resources:

Teachers' notes in waste audit guide

Worksheet 1, (2-8 for reference only)

Clipboards (supplied with Lending Kit)

Pencils

Coloured pencils, coloured pens or coloured sticky dots

Floor plan of school (use photocopies of the floor plan found in the school office)

Activities:

Activity 1- Pupils and teachers to complete Worksheet 1 to identify what considerations they think will be important (20 minutes)

Activity 2- Pupils and teachers to walk around school to note locations, sizes and numbers of rubbish/recycling bins in each location. Decide if the waste audit should be partial or whole school (20 minutes).

Activity 3- Run through waste audit procedures in Lesson 2 and delegate tasks. Discuss the health and safety procedures and describe possible hazards and risks (20 minutes).

Teachers' Notes

To carry out a waste audit effectively and safely, a plan needs to be drawn up. There are many questions that your class may have about the waste audit.

Pupils can use Worksheet 1 to make notes. The following questions can be asked to aid discussion:

What is a waste audit?

A waste audit is the collection of the school's waste for an agreed period of time, usually one day, from most areas of the school including, canteens, classrooms, staff rooms and common rooms e.g. GP rooms and libraries.

This waste is collected from rubbish bins, recycling bins and blue recycling bags.

Waste that is not safe to collect e.g. cleaning chemicals or washroom paper towel waste can be visually estimated and noted but must never be physically audited. Once collected, the waste is sorted into different categories, weighed and recorded. The data produced is then collated and shared with the rest of the school, parents and Facilities Managers.

Why will a waste audit benefit the school?

Possible reasons include:

- ▶ To identify how much waste the school produces
- ▶ To provide a visual representation of the quantities and types of waste produced
- ▶ To reduce the environmental and economic costs of landfilling
- ▶ To identify waste within the rubbish bins that could be reduced, reused or recycled
- ▶ To help develop a waste minimisation and recycling action plan
- ▶ To provide baseline data so any initiatives can be monitored and evaluated
- ▶ To provide evidence for Eco-Schools accreditation

When should we carry out the waste audit?

The time of year and the day of the week you carry out your waste audit will determine the results. It is best to avoid induction 'half days' for P1 pupils, induction days when P7's attend secondary schools or days when there is a school outing and not all the pupils will be in school. Obviously, school holidays and 'half day' Fridays are to be avoided when the school is occupied for less time. You may wish to combine the waste audit with a litter pick event within the school grounds.

Waste has to be stored so it is best to conduct the waste audit the day after the waste has been collected to prevent the waste from smelling, especially in warmer weather. Avoid conducting a waste audit on a Monday as the waste would have been stored all weekend.

Who needs to be involved in the waste audit?

Teachers, school staff, pupils and parents may wish to help carry out the waste audit as there will need to be sufficient adult supervision and plenty of helpers to collect, sort, weigh and record the rubbish. Do not forget to have people ready to help clear up afterwards! You may wish to ask cleaning staff to leave the hoover out and cleaners/janitors will need to replace the black bags with clear bags the day before collection e.g.

Monday evening....cleaners to replace black bags in refuse bins with clear sacks and recycling bins to be emptied.

Tuesday....waste and recycling bins are filled with refuse and recycling. Cleaners tie refuse and recycling sacks, label them with location and leave beside bins or store in agreed area overnight.

Wednesday....teachers collect these refuse and recycling bags and take them to waste audit area.

Involving parents can really raise awareness of the waste audit and encourage waste minimisation and recycling at home.

Parents and guardians should be sent the letter provided to let them know what the waste audit involves and how their child/children will be participating. These letters must be signed and returned before the waste audit takes place, for pupils to participate.

You could ask a teacher/staff member to take photographs or video the event using school equipment or arrange external media coverage. Photograph consent forms are available for any school who would like West Lothian Council Corporate Communications to provide media coverage.

It is important to speak to janitorial staff to find out when the bins are emptied, how they are emptied, if there is any space to store the rubbish before the waste audit and if there is any waste stored that needs to be recorded but not sorted (remember that chemical waste etc must never be physically audited).

Janitorial staff may be happy to help with the waste audit but at the very least they should be consulted and informed.

Teachers should also consult with their Health and Safety Officer and Facilities Management to ensure all risk assessments and safety procedures are adhered to. The Risk Assessment and Safe System of Work documents, provided by West Lothian Council's Waste Service, are only to be used as a guide and the school's own procedures must be followed.

Where should we collect the waste from?

A walk-a-round allows teachers and pupils to identify the areas where waste is generated and stored. A map of rubbish/recycling bin locations can help everyone to visualise all these areas and check that no areas are missed. Classrooms, staff rooms, dinner halls, school canteens and playgrounds are all common areas for waste to be generated but your school may also have other areas where waste is collected e.g. paper towels in toilets, toner cartridges in printer rooms.

Playground waste should not be collected as there is a possibility of dog foul, needle sticks and other hazardous materials due to unrestricted access.

An alternative collection could be organised where nominated pupils collect waste from break time directly from pupils in the playground. Separate clear sacks can be used to collect crisp packets, wrappers, juice bottles and perishable waste e.g. fruit peelings. The waste can be weighed and data recorded without the need for storage and sorting and placed in the playground bins immediately after.

How much waste are we collecting?

For an effective waste audit, one day's waste from the whole school needs to be audited. This could be a lot of waste for a larger school, and a lot of sorting, so it might be a good idea to consider a partial school audit. Partial and whole school options are discussed in a following section.

How should we store the waste?

Cleaning staff can leave the waste beside the bins or the waste can be stored in a secure area to ensure that the waste is not disposed of by mistake.

It is important to keep the waste from each area separate and clearly labelled to avoid confusion when recording data. Label the bags with the location e.g. Classroom 2B. Clear sacks will be supplied by the Waste Officer so any sharps or hazardous material can be easily identified and removed. If clear sacks are not used then the waste audit cannot be carried out.

Ask kitchen staff to keep mixed recycling, rubbish and food waste separate. Food waste can be messy so

keeping it separate allows for the bags to be weighed without the need for sorting.

Ask cleaners and janitors where the best storage location is to make sure the rubbish is secure, dry and is not a fire or trip hazard.

Where should we carry out the waste audit?

A large space is required to carry out the waste audit as there needs to be enough room to spread out and sort the waste before bagging and weighing it. It is possible to carry out a waste audit outside in the playground although wet and windy weather can make this difficult. A gym hall is ideal but remember, any communal areas will need to be booked and access denied to anyone other than waste audit participants for health and safety reasons.

Make sure the waste audit is not interrupted by break/lunch times as the rubbish and equipment must be supervised at all times and cannot be cleared away quickly to make room for lunch tables. Check there are no after school clubs booked for the evening as time is required to clean up after the waste is sorted.

What equipment will we need?

All the equipment, required for the waste audit, will be provided by West Lothian Council's Waste Service and can be booked by the school, free of charge, as part of the Waste Education Lending Kits.

The only resource the school needs to provide is writing paper, pencils/coloured pens and a camera/recorder/tablet etc if they plan to take photographs or videos. Floor plans of the school can be photocopied to provide a map for pupils to mark the location and types of bins. (These floor plans are usually displayed in the school office).

Where are the bins we will be auditing?

Walk around the school with pupils to locate all the refuse and recycling bins. Each classroom, staffroom, the common rooms e.g. libraries, GP rooms and school office should be visited so that pupils can see the different types of bins in each area. Remember, lessons will be in progress so it is advisable to send one or two pupils into each classroom or split pupils into smaller groups if they can go unsupervised.

It is important to remind pupils that there will be bins in the toilets but sanitary waste will not be sorted and there is no need to enter the toilet cubicles.

Bins in the playground can be visually audited to note how full they are and what is in them but the waste from them should not be sorted.

Pupils can also discuss the types of waste generated in photocopier rooms e.g. toner/ink cartridges but these should not be sorted as the chemicals can be harmful.

Kitchen bins can be weighed and inspected visually but the waste from them does not need to be sorted as this can be messy. Food waste bins can be weighed but please always consult with kitchen staff and do not allow children into kitchen areas. It is best to weigh these bins after lunch time when the kitchen and dining rooms are quiet and all food has been prepared and disposed of.

Whole waste audit V's partial waste audit

Ideally, a waste audit should include all refuse and recycling bins for one day to provide comprehensive and accurate data. However, some schools may be too large for this to be viable due to time, storage and staff constraints. The waste generated from larger schools may be too much to collect, weigh and sort within the time frame available to conduct a whole waste audit.

It may be more practical to conduct a partial waste audit so that the exercise is more manageable. This involves dividing the school into areas so that only a percentage of the bins are measured.

You must make sure that all different types of areas are included, for example, classrooms, staff rooms, canteens, offices, store rooms, hallways as each type of area will generate different types of waste.

The amount of waste collected from the partial waste audit must be multiplied to calculate the waste generated from the whole school. Please see examples below for how to multiply the waste generated from different areas.

Area	Waste Collected	% of waste from area	Multiplication
Offices	Quarter of bins collected from all offices	25%	4
Classrooms	All the bins from half of classrooms	50%	2
Canteens	All bins collected from all canteens	100%	1

Participants should use the walk-a-round time to decide if a whole waste audit or partial waste audit is most appropriate depending on:

- ▶ How many participants are conducting the waste audit
- ▶ How much time they have allocated to collect, sort and weigh the waste
- ▶ How large the area is to store and sort the waste
- ▶ How much waste is generated within their school or organisation

Health and Safety

A Health and Safety Risk Assessment and Safe System of Work have been completed by West Lothian Council's Waste Service. Schools should refer to them for guidance when considering possible risks and complete their own risk assessments. A letter template has been provided to inform parents and guardians about the waste audit. Schools should receive written permission for each pupil participating in the waste audit (including those weighing and recording the waste).

A maximum of 10 pupils are allowed to participate in the waste audit.

Teachers should be aware of any pupil allergies (for example, food allergies) that may cause concern during the waste audit.

Please note, teachers are responsible for pupil discipline and pupils who are not adhering to health and safety procedures will be removed from the activity.

Conducting a waste audit

(Approx 90 minutes)

Level: Second

Lesson Time: 90 mins

Lesson focus: Conducting a waste audit

Experiences and Outcomes:

When I engage with others, I can respond in ways appropriate to my role, show that I value others contributions and use these to build on thinking. LIT 2-01a

As I listen or watch, I can make notes, organise these under suitable headings and use these to understand ideas and information and create new texts, using my own words as appropriate. LIT 2-05a

I can use the common units of measure, convert between related units of the metric system and carry out calculations when problem solving. MNU 2-11b

I can use my knowledge of the series of familiar objects or places to assist me when making an estimate of measure. MNU 2-11a

During practical activities and design challenges, I can estimate and measure using appropriate instruments and units TCH 2-13a

I have carried out investigations and surveys, devising and using a variety of methods to gather information and have worked with others to collate, organise and communicate the results in an appropriate way. MNU 2-20b

I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology. MTH 2-21a

I know and can demonstrate how to keep myself and others safe and how to respond in a range of emergency situation. HWB 2-17a

Having learned about cleanliness, hygiene and safety, I can apply the principles to my everyday routines, understanding their importance to health and wellbeing. HWB 2-33a

Learning Intensions:

We are collecting waste from each area of the school

We are sorting the waste into different categories using litter pickers and handi-hoops

We are weighing each waste category using spring balances and scales

We are recording the weight of each waste category and providing a visual representation by taking photographic evidence

We are recording where the waste has been generated from within the school

Success Criteria:

I can safely collect and sort waste into categories

I can measure and quantify waste categories

I can work in a safe and responsible manner

I can follow instruction within my role and interact with other pupils

I can present data clearly and complete the appropriate worksheets

Suggested Resources:

Teachers' notes in this guide

Worksheet 2

Litter pickers, bag hoops, clear sacks, spring balances, safety gloves, hi-visibility jackets, clipboards, tarpaulin, brush, shovel, rubbish bags and waste icon cards

Activities:

Activity 1- Pupils to observe teachers collecting waste from beside bins or storage area (10 minutes)

Activity 2- Pupils to note where rubbish/recycling has been generated and weigh unsorted waste and recycling bags (15 minutes)

Activity 3- Sort waste into separate categories within designated waste audit area (50 minutes)

Activity 4- Weigh waste from each location and waste stream and record the data using Worksheet 2 (15 minutes)

Teachers' Notes

Preparing the waste audit area

All participants should be wearing gloves and hi-visibility vests. No one other than participants should enter the waste audit area.

Pupils should be split into groups to sort and weigh the waste.

Pupils, chosen to sort the waste, should be shown the selection of cards depicting the material types. The cards with the most abundant materials e.g. paper, card, plastic, bottles, tins/cans and food should be placed evenly around the outside of the tarpaulin.

The clear plastic bags should be put onto the bag hoops.

All bags of waste should be stickered with the location they were collected from. Bags from each location e.g. classrooms, canteens, hallways should be kept together and separated from other locations so that accurate weights are recorded from each location to show any data trends.

A clean area should be designated on the tarpaulin for pupils who are weighing and recording so that pencils, clipboards and spring balances can be kept clean and tidy.

A brush, shovel and rubbish bags should be made available for any spillages. Waste will need to be swept from the outer edges of the tarpaulin back into the middle when waste is being sorted.

The tarpaulin should be spread out in the selected area. The mixed waste should be emptied onto the middle of the tarpaulin.

Sorting the waste

Pupils who are recording the waste types and weights should make a note of each bag location, onto Worksheet 2 and weigh this unsorted waste, before the bags are emptied onto the tarpaulin.

Bags from the recycling bins, which only contain one waste stream e.g. paper or food waste, do not need to be sorted unless contamination is present. These bags can just be weighed and recorded.

Pupils should work in pairs to sort the mixed waste, one pupil can use the litter picker and the other can hold the clear sack attached to the bag hoop. Each pair should choose a material type and place that material into their clear bag. Once the bag is full they should place the bag beside their designated material type card.

Those pupils, chosen to weigh the waste, should use the spring balances or scales to weigh the filled bags, at each material type card, and record the weight on the Worksheet 2.

Visual Representation

Once all the waste has been sorted and weighed, all the bags of waste can be gathered together for a photograph. The photograph allows for a visual representation of how much waste can still be recycled and what the overall volume of waste is for one day. Photographs can be used as evidence for Eco-Schools, displayed in the classroom and used in a presentation for the whole school or parents' evening.

Clean up

All bags of waste should be collected and disposed of via the recycling and refuse bins. The tarpaulin should be folded up and returned to the Waste Officer. All gloves and hi-visibility vests should be returned to the Waste Officer and hands should be thoroughly washed with soap and warm water before pupils return to classrooms.



Classroom calculations

(Approx 30 minutes)

Level: Second

Lesson Time: 30 mins

Lesson Focus: Classroom Calculations

Experiences and Outcomes:

Having determined which calculations are needed, I can solve problems involving whole numbers using a range of methods, sharing my approaches and solutions with others. MNU 2-03a

I have explored the contexts in which problems involving decimal fractions occur and can solve related problems using a variety of methods. MNU 2-03b

I can use the common units of measure, convert between related units of the metric system and carry out calculations when problem solving. MNU 2-11b

I can show the equivalent forms of simple fractions, decimal fractions and percentages and can choose my preferred form when solving a problem, explaining my choice of method. MNU 2-07b

Having discussed the variety of ways and range of media used to present data, I can interpret and draw conclusions from the information displayed, recognising that the presentation may be misleading. MNU 2-20a

I have carried out investigations and surveys, devising and using a variety of methods to gather info and have worked with others to collate, organise and communicate the results in an appropriate way. MNU 2-20b

When listening and talking with others for different purposes, I can:

- ▶ Share information, experiences and opinions
- ▶ Identify issues raised and summarise main points or findings
- ▶ Clarify points by asking questions or by asking others to say more. LIT 2-09a

Learning Intensions:

- ▶ We are calculating each material total collected during the waste audit
- ▶ We are calculating how much mixed waste was collected from each area of school during the waste audit

Success Criteria:

- ▶ I can calculate how much waste is produced per day, month and year
- ▶ I can calculate the percentage of each type of waste produced in school
- ▶ I can follow instructions within my role and interact with other pupils
- ▶ I can present data clearly and complete the appropriate worksheets

Suggested Resources:

Worksheets 2-5

Pencils, calculators, smart board

Activities:

Activity 1- Collect all the Worksheet 2's to collate the raw data (5 minutes)

Use Worksheet 3 only if conducting a partial school waste audit to multiply the weight of each waste type by the multiplication factor to calculate the total weight of all waste in each area (additional 15 minutes are required to do this).

Activity 2- Use Worksheet 4 to calculate the total day's waste from each area of the school and for the whole school.

Activity 3- Use Worksheet 5 to calculate the material totals for 1 week, 1 year and the percentage of each waste type.

Teachers' Notes

Weight for 1 week

Ask pupils to think about how long 'a week' is at school. A school week is only 5 days not 7.

Weight for 1 year

Ask pupils how long they think 'a year' is at school. Pupils need to think about how many holidays they have. Teachers will be able to estimate how many days pupils attend school in one year.



Presenting results from initial waste audit (Approx 60 minutes)

Level: Second

Lesson Time: 60 mins

Lesson Focus: Presenting results from initial waste audit

Experiences and Outcomes:

I have carried out investigations and surveys, devising and using a variety of methods to gather info and have worked with others to collate, organise and communicate the results in an appropriate way. MNU 2-20b

I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology. MTH 2-21a

I can select ideas and relevant information, organise these in an appropriate way for my purpose and use suitable vocabulary for my audience LIT 2-06a

When listening and talking with others for different purposes, I can:

- ▶ Share information, experiences and opinions
- ▶ Explain processes and ideas
- ▶ Identify issues raised and summarise main points and findings
- ▶ Clarify points by asking questions or by asking others to say more. LIT 2-09a

I can convey information, describe events, explain processes and combine ideas in different ways. LIT 2-28a

I can create, capture and manipulate sounds, text and images to communicate experiences, ideas and information in creative and engaging ways. TCH 2-04b

I have experienced the energy and excitement of presenting/performing for audiences and being part of an audience for other people's presentations/performances. EXA 2-01a

Learning Intensions:

- ▶ We are presenting the Waste Audit results to our fellow pupils, teachers and school staff
- ▶ We are using a range of media to show results to a range of audiences

Success Criteria:

- ▶ I can inform my school about the Waste Audit results
- ▶ I can choose appropriate types of media to show the results
- ▶ I can identify who needs to be informed about the results and how best to communicate with them.

Suggested Resources:

Teachers' Notes

Scrap note paper

Class art resources (e.g. paper, paint)

Electronic resources (e.g. tablet, PowerPoint, camera)

Activities:

Activity 1- Discuss the results of the Waste Audit, what materials are thrown away most and where they come from (20 minutes)

Activity 2- Discuss ways in which awareness can be raised about the amount of waste produced and the results from the Waste Audit (e.g. posters, PowerPoint presentation, video, wall displays) (20 minutes)

Activity 3- Choose which media is most appropriate for which audiences and produce the communications materials (20 minutes).

Teacher's Notes

Discuss the results of the Waste Audit by listing the main types of material being thrown away, where the materials are coming from and why you think materials are being wasted. For example, the main type of material thrown away in classrooms could be paper because there are no paper recycling bins in the classrooms and pupils use new paper to make notes rather than being encouraged to reuse scrap paper.

The results of the Waste Audit should be shared with the rest of the school so that pupils, teachers, school staff and parents are aware of how much waste the school produces and how much is being sent to landfill instead of being recycled.

A school assembly can be arranged to describe the Waste Audit process and present the findings. A video, photographs and PowerPoint presentation allow viewers to visualise the Waste Audit procedure and the waste produced. Wall displays and posters act as a reminder to reinforce the message.



Waste Minimisation and Action Plan (Approx 60 minutes)

Level: Second

Lesson Time: 60 mins

Lesson Focus: Waste Minimisation and Action Plan

Experiences and Outcomes:

Having analysed how lifestyle can impact on the environment and Earth's resources, I can make suggestions about how to live in a more sustainable way. TCH 2-02a

I can discuss the environmental impact of human activity and can suggest ways in which we can live in a more environmentally-responsible way. SOC 2-08a

I am learning to use language and style in a way that engages and/or influences my reader. ENG 2-27a

I can create, capture and manipulate sounds, text and images to communicate experiences, ideas and information in creative and engaging ways. TCH 2-04b

As I write for different purposes and readers, I can describe and share experiences, expressing what they made me think about and how they made me feel. ENG 2-30a

I have experienced the energy and excitement of presenting/performing for audiences and being part of an audience for other people's presentations/performances. EXA 2-01a

I can create and present work that shows developing skill in using the visual elements and concepts. EXA 2-03a

Learning Intensions:

- ▶ We are discussing what the 'Reduce, Reuse and Recycle' message means
- ▶ We are suggesting ways that we can reduce, reuse and recycle waste in school
- ▶ We are setting waste minimisation and recycling targets
- ▶ We are organising our thoughts and suggestions to develop a Waste Action Plan
- ▶ We are taking part in decision making processes
- ▶ We are delegating roles and responsibilities
- ▶ We are discussing how to advertise our Waste Action Plan

Success Criteria:

- ▶ I can explain the concept of 'Reduce, Reuse, Recycle'
- ▶ I can list suggestions to reduce, reuse and recycle waste in school
- ▶ I can set waste minimisation and recycling targets
- ▶ I can write a Waste Action Plan
- ▶ I can list a variety of ways in which we can advertise our Waste Action Plan
- ▶ I can contribute to the development of the Waste Action Plan and delegate roles and responsibilities
- ▶ I can become part of my school's decision making process

Suggested Resources:

Teachers' Notes

Note paper, pencils

Worksheet 6

Activities:

Activity 1- Discuss what the 'Reduce, Reuse and Recycle' message is and how it can be applied to the school (10 minutes)

Activity 2- Use Worksheet 6 to set waste minimisation and recycling targets and detail how these targets will be achieved (30 minutes)

Activity 3- Determine how you will advertise the Waste Action Plan (10 minutes)

Activity 4- Delegate roles and responsibilities (10 minutes)

Teacher's Notes

The Waste Action Plan will set out ways in which waste can be reduced in school. Pupils, teachers, school staff and Facilities Management are encouraged to research how practical each proposed action is and who would be responsible for each task.

In groups, select a material type that is thrown away the most e.g. paper and write the main types of waste made from that material, such as, post-it notes and envelopes.

Underneath the material type, write an example of how the material can be reduced, reused and recycled.

Worksheet 6 can be used to write down each action to produce a Waste Action Plan for the school.

In groups, discuss:

- ▶ How each action will be carried out
- ▶ Who will carry out the action
- ▶ When the action will be carried out
- ▶ What equipment will be needed e.g. new recycling bins
- ▶ What staff need to be involved e.g. Facilities Management, cleaning staff, canteen staff
- ▶ What outside organisations need to be involved e.g. Local Authority, charity clothes banks, reuse schemes

The Waste Action Plan should have specific timescales and a further Waste Audit should be carried out in 12 months to monitor and evaluate action progress.



Worksheet 2

Measuring and recording waste

Where did the rubbish come from?

Material type	Weight
Office paper	
Mixed paper	
Cardboard	
Cans	
Plastic bottles	
Glass	
Foil	
Food waste/garden waste	
Other	
TOTAL	

Where did the rubbish come from?

Material type	Weight
Office paper	
Mixed paper	
Cardboard	
Cans	
Plastic bottles	
Glass	
Foil	
Food waste/garden waste	
Other	
TOTAL	

Worksheet 3

Partial School Audit Calculations

Where in the school did the bag come from?

Percentage of waste collected from area

% of bins sampled	100%	50%	33%	25%
Multiplication factor	1	2	3	4

Material type	Weight of collected waste	Total weight of ALL waste in area
Office paper		
Mixed paper		
Cardboard		
Cans		
Plastic bottles		
Glass		
Foil		
Food waste/garden waste		
Other		
TOTAL		

Worksheet 4

Calculating a total day's waste

Area of school	Office paper	Mixed paper	Card-board	Cans	Plastic bottles	Glass	Foil	Food waste/ garden waste	Other	Area total
Material totals										

Worksheet 5

Calculating a year's total

Material type	Material totals	Weight for 1 week	Weight for 1 year	Percentage of total
Office paper				
Mixed paper				
Cardboard				
Cans				
Plastic				
Glass				
Foil				
Food waste/ garden waste				
Other				
Total				

Worksheet 6

Action Plan

Action	Target	How	Who	When
Recycle paper	100% of white paper	Recycling bins	P7's	By August

- ▶ What equipment is needed?
- ▶ Who you need to talk to?
- ▶ Who else would need to be involved outside school?
- ▶ How will you get everyone to participate?

Dear Parent/Guardian,

Our school is working in partnership with West Lothian Council's Waste Service to complete a Waste Audit and Action Plan and we would like your child/children to participate.

The Waste Audit and Action Plan promotes environmental awareness and works towards Eco-Schools accreditation combined with multi-disciplinary learning for the Curriculum for Excellence.

Pupil participation includes the collecting, sorting and weighing of one day's waste from around the school to identify what waste can be reduced, reused and recycled.

Once the data has been collected, pupils will work with the teachers and West Lothian Council's Waste Service to develop an Action Plan to reduce the amount of waste going to landfill and to encourage waste minimisation.

We are writing to you to reassure you that while your child will be handling school waste during the collecting, sorting and weighing activities, every precaution will be taken to ensure the activities are as safe as possible.

The majority of the waste will be paper, cardboard and plastic bottles, however the following safety measures will be adhered to:

- ▶ Children will be supplied with hi-visibility vests, safety gloves and litter pickers
- ▶ Pupils will be strictly supervised at all times
- ▶ Hygiene will be a priority during and after the event
- ▶ Teachers and pupils will adhere to strict Health and Safety procedures and will be given a safety talk before the activities begin
- ▶ Where there is likely to be hazardous or harmful waste no bins will be audited

If you have any concerns about this activity or wish to discuss the matter further, please contact the class teacher in the first instance.

Yours faithfully
Head Teacher



**For more information
please contact:**

Waste Strategy Team by emailing:
wasteaware.council@westlothian.gov.uk

*For regular updated waste minimisation and recycling
education resources, lending kits, case studies, links and
advice please visit the Recycling and Waste webpages:*

[www.westlothian.gov.uk/
article/4890/Waste-Education](http://www.westlothian.gov.uk/article/4890/Waste-Education)