

Eco-Snapshot

SCHOOL ENVIRONMENTAL AUDIT DATA COLLECTION
TEMPLATES



NSW DEPARTMENT OF EDUCATION



Energy Data Collection Sheet

Area of the school being surveyed (Block): _____

Item	Number of appliances in your block?	TOTAL	Estimated hours per day (change if necessary)	Days per year (Weeks per year x days per week)
inside lights (include corridors) fluorescent			6	40x5=200
outside lights (include corridors) Fluorescent			12	52x7=365
Floodlights			12	52x7=365
ceiling fans			5	12x5=60
air conditioners			6	20x5=100
heaters (electric)			4	20x5=100
computers			3	40x5=200
printers			3	40x5=200
photocopiers			6	40x5=200
overhead projector			1	25x5=125
refrigerators			24	52x7=365
freezers			24	52x7=365
hot water units			24	52x7=365
boiling water unit-zip			24	52x7=365
TV			1.5	10x5=50
video			1.5	10x5=50
microwave oven			0.5	40x5=200
stove top			1	40x5=200
oven			1	40x5=200
radios			0.5	10x5=50
jug/kettle			2	40x5=200
pottery kiln			5	10x1=10
IWB				



Solid Waste snapshot

The purpose of this audit is to determine the volume of solid waste produced by a school in one day and to then sort the waste into its component parts.

From this information recommendations can be made for ways in which the school could reduce its solid waste stream to achieve environmental benefits and cost savings.

Process:

For the purposes of this audit the waste will be divided into the following categories:

- * Recyclable
- * Compostable
- * Reusable
- * Avoid (material that doesn't fit into any of the other categories)

The process requires a team of students who work under the supervision of a team leader. It requires the school to bag and retain the schools solid waste for one day.

This waste in bags should be marked according to its source and the number of bags from Playground, Classroom etc recorded on the sheet.

Four standard (48 liter) garbage bins (labeled COMPOST, RECYCLE, REUSE, AVOID) are used to take the sorted material and results are recorded in terms of the number of bins.

Student Instructions

A brief description of the environmental costs of solid waste and the large reductions in the quantity of waste going to land fill from schools (greater than 50%) that can be achieved through better recycling, composting and purchasing practices should be given.

- * Students require **GLOVES** and **TONGS**.
- * Instruct students regarding the categories for the waste.
- * Team leader will demonstrate which materials are to go in which bins!

Some things to be aware of

- * Contaminated paper products cannot be recycled
- * Chip packets and similar thin foil like plastics cannot be recycled
- * "Poppa" and similar liquid carton containers can be accepted through SCRAPS co-mingled recycling system but may not be accepted by some local Councils for recycling. You may choose to place these containers in the Avoid bin as for both environmental and health reasons use of alternate drinks and drink containers should be promoted by schools.
- * As each bin is filled it will be recorded on the recording sheet under the Recycle, Reuse, Compost, Avoid listing

Students should be instructed to wash their hands after this activity.

Obtain and record information on current composting, recycling programs and costs of waste removal. Use this information in the audit report.



Solid Waste Data Sheet

1. Sort the school's solid waste into four categories:

Recycle

Reuse

Compost

Avoid

2. Record the number of bags filled by each component of the school's solid waste.

	Recycle	Reuse	Compost	Avoid
No of bags				

3. List the quantity of waste produced in different areas of the school?

	Classrooms	Toilets	Offices	Staff rooms	Library/ computer room	Canteen (operational waste)	Playground waste	Other locations
Quantity (bags)								
What is it?								

4. What programs already exist in the school to reduce the quantity of waste that goes to land fill?

5. What is the current annual cost to the school for removal of solid waste? \$ _____

6. What strategies could be used to reduce the quantity of solid waste that the school produces?



Water/Stormwater/Litter snapshot

The audit focus is to survey water consumption, water wastage and compliance to stormwater legislation (Protection of the Environment Operations Act).

A litter survey will also be conducted.

Introduction to the audit - Why is auditing water important? It will help your school:

- **save water** - Australia is the driest continent on earth!
- **save money** - savings made from water conservation strategies can be used in funding action plans for environmental improvement.
- **prevent stormwater pollution** - stormwater leaves the school in drains that flow untreated into your local waterways. If the water is polluted then this will impact adversely on biodiversity, habitat and recreational use.
- **avoid possible liability under the *Protection of the Environment Operations Act, 1997*** - it is an offence to allow anything (except water) to enter a drain, gutter or local waterway.

A. Stormwater, Drain and Litter Investigation

Students will work in 2 teams where possible, to cover the entire school grounds. All stormwater drains will be marked out on a base map, in addition, those with debris observed inside the drain should also be marked with an X. If weather permits a number of drains will be stenciled with “*the drain is just for rain*”.

A selected number of stormwater drains (approx 6) will be targeted for further investigation which will include:

1. removal of the cover
2. removal, sorting and disposal of debris from inside the drain (decomposed matter to go on a nearby garden, litter to solid waste audit area). The debris removed will be measured by the bucket. This information is to be recorded in **Table 1 - Contents of Stormwater Drains**.
3. **Litter Survey** - students will be selected during the survey of drains to conduct a litter survey. Results to be recorded in **Table 2 - Litter Survey Results**.
4. If working in two teams (water and stormwater), met up with the water consumption group to share results and prepare for presentations.

B. Water Consumption and Water Wastage

1. All water devices (taps, toilets, bubblers, showers, zips) inside buildings, attached to outside of buildings and in the school playground to be recorded on a base map including marking with an **X** those that are leaking (unable to be turned off) and **D** those that are dripping. At the same time the group will record any water saving devices (such as spring loaded taps, tap heads removed, timer buttons on urinals etc) with an **S** on the base map.
2. The group will also monitor, say over a ten minute period (using the plastic jugs supplied), leaking taps/bubblers in locations away from where they can be tampered with by other students. This will then be calculated to work out water loss over a 24 hour period, then for the entire year.
3. Results need to be recorded into **Table 3. Water Devices within the School** and **Table 4 - Approximate amount of water wasted.**
4. If working in two teams (water and stormwater), meet up with stormwater group to share results and prepare for presentations.



Water/Stormwater and Litter Data Sheet

Table 1 - Survey of Contents of Selected Stormwater Drains

Total No. drains _____ No. drains with debris problem _____, as % of the total _____

	Drain ID (as noted on map)	No. of buckets of debris	Contents breakdown by % (organic/litter)	Factors contributing to debris problem
1				
2				
3				
4				
5				
6				

Table 2 - Litter Survey Results

Survey Area No.	Most common litter found	Source of most litter	Comments

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Table 3 - Survey of Water Devices within the School.

Appliance	Number (tally as you go)	No.of water saving devices	Leaking (l/min)	Dripping (l/min)
taps				
bubblers				
zips (instant hot water devices)				
toilets/urinals				
showers				
other, please specify				
TOTAL				

Complete the table below whilst conducting an experiment on water wastage (using jugs) to determine how much water is lost in 1 minute (measure for a longer time if it is a slow leak) then calculate the amount in 1 hour, then 24 hours. (NB: 1000 litres equals 1 kilolitre)

Table 4 - Approximate amount of water wasted

a	b	c	d	e
Water loss in 1 minute	Water loss in 1 hour	Water loss in 24 hours	Converted to kilolitres	Kilolitres lost in 1 year (x 365)

Meter reading - 3PM Yesterday _____

Meter Reading - 8AM Today _____

Difference - _____

Current cost of water lost @ \$2.50/KL _____

Summary of findings and recommendations

A. Stormwater Management

List the problems with stormwater management in the school.

Suggest ways to overcome the problem

Other comments / findings

B. Litter Survey Results

The most common forms of litter found were

Litter 'hot spots' identified include

Suggest ways to reduce the litter problem

C. Water Consumption and Water Wastage. (Annual water consumption _____ kl)

List the sources of water wastage identified from the audit.

Suggest ways of reducing water consumption / wastage



Biodiversity Snapshot

Biodiversity audit

A biodiversity audit includes school grounds surveys to identify the features of the grounds, their use and habitat assessments. Information gathered during this process can inform the school community on future planning.

School grounds features and usage

Go outside to observe how each area of the grounds is used. On a site map of the school use symbols, photographs and annotations to record observations. A site map can be downloaded from the department's Asset Management Directorate, or draw map in the space in **Table 1**.

Transect

A transect is a useful tool to record what is living in the school grounds. It records the plants growing along a cross section of an area. Four transects will be conducted (one per group at a different site) for comparison. Record on **Table 2**.

Procedure

1. Run a 30m measuring tape along the outer edge of an area, marked into 5m sections. Everything along this 30m line will be recorded.
2. On the blank page provided, mark the distances on the line that represent the length of the string line. Mark in height.
3. In groups, each working in an allocated section, plot the largest plants first. Sketch the plants growing along the line and their approximate heights. Name the plants or give them descriptions. Note any animals or other signs of life, for example, nests and termite trails.
4. Combine each section plotted to provide an overall representation of the transect line.
5. Analyse the results and discuss observations of the number and type of living things in different kinds of vegetation.

Macroinvertebrate survey

A macroinvertebrate survey records the invertebrates living in the school grounds. The methods of conducting a macroinvertebrate survey include observation, tree shakes and leaf litter hunts. Use identification charts to name invertebrates found. Record data on **Table 3**.

Vertebrate sightings

Use identification charts, ID apps and bird call recognition, plus scats and tracks reference book to record sightings and evidence of vertebrates in the four allocated sections of the school. Record on the checklist, **Table 4**.

Biodiversity Health Checklist

Use the checklist on **Table 5** to rate the whole school grounds in areas such as weeds, habitat for animals, litter and trees. The assessment also includes a section where you are asked to rate the school grounds based on presence of fauna in the school. Use your collated data on invertebrate and vertebrate surveys to determine your rating.



Biodiversity Data sheets

Table 1: Map the features of the school and mark how the grounds are used by people, plants and animals. Include significant trees that would make important habitat for animals.

Title: _____

	Legend
Scale:	

a) Locate 4 areas on your map (30m x 30m) of the school grounds where you will conduct

a fauna survey and a habitat assessment. Label Site 1,2,3,4.

Table 2: Transect 30m) of Site. _____

Table 3: Macroinvertebrate data sheet

Macroinvertebrate	Count at Site A	Count at Site B	Count at Site C	Count at Site D
Beetle larvae and beetles				
Ants and termites				
Bees/wasps				
Bugs				
Cockroaches				
Earwigs				
Grasshoppers				
Crickets				
Butterflies, moths and caterpillars				
Flies, mosquitoes and craneflies				
Preying Mantids				
Stick Insects				
Thrips				
Millipedes				
Centipedes				
Mites				
Pseudo scorpions				
Earthworms				
Flatworms and leeches				
Slugs and snails				
Spiders				
Amphipods				
Slaters				
Others				
TOTAL				

a) Which site had the highest number of macroinvertebrates? _____

b) Which site had the highest diversity of macroinvertebrates? _____

Table 4: Vertebrate sightings data sheet

Animal (or evidence of)	Site (A,B C or D)	Where located, eg in gum tree	What was it doing?

a) Which site had the highest number of vertebrates? _____

b) Which site had the highest diversity of vertebrates? _____

Table 5: School Biodiversity Health Checklist

How does your school environment’s biodiversity rate?

Biodiversity Category	Description	Points	Your Score
Number and quality of trees	No trees over 10 m	0	
	Less than 10 trees over 10 m	1	
	10 – 20 large trees	2	
	10 – 20 large native habitat trees	3	
	>20 large trees with mixed native and exotic	4	
	>20 large habitat trees, majority native	5	
Understorey & Vegetation Structure (excluding lawn areas)	Very few shrubs or ground covers	0	
	Small amount of cover with shrubs and groundcovers	1	
	moderate coverage with understorey plants	2	
	Extensive areas of school grounds covered by shrubs and groundcovers	3	
	Extensive areas of school grounds covered by native shrubs and groundcovers	5	
Environmental Weeds	Invasive weeds throughout school grounds	0	
	Some weeds present throughout school grounds, with no action taken	1	
	Weeds present, but with action taken to control	2	
	No problem weeds present.	4	
Organic Litter	No leaf or organic litter	0	
	Small amounts of organic litter present	1	
	At least 10% of school grounds covered with organic litter	2	
	Moderate amount of organic litter present.	3	
	>25% of school grounds covered with organic litter	5	
Logs & Rocks	No logs or rocks present	0	
	A few logs or rocks present	1	
	2-5 logs or rocks/ha	2	
	>5 logs or rocks/ha	4	
Additional Habitat Features	Ponds present	2	
	Wetland area	2	
	Birdbath	1	
	Greenwaste system	2	
	Worm farm/compost	2	
	Limited pesticide & herbicide use	2	
	Others	1	
Total Score			



Summary report - Prepare for action

Summary report - prepare for action

Use the data collected from the 4 sites in the school to consider the following:

Potential Issues

- Where did biodiversity score very low?
 - Are there physical factors that are known to be affecting biodiversity
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Potential solutions

- What areas need to be protected?
 - What areas can be improved?
 - What plants and habitat features can be planted and installed?
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