

Auditing Tools

What we mean by Auditing:

Auditing = assess + map + collect data

Auditing systematically collects and examines information to inform planning for improvement. An auditing process includes learning and a range of information collecting measures (e.g. attitudinal survey, assessing, data collection). The auditing process collects information about the use of resources and behavioural practices to enable effective planning. NRM Education Officers can support the discussion of which auditing tools to use. The NRM Education Library can provide specific resources to support the learning and auditing of each theme. For example in Biodiversity there are charts of native plant photos for particular vegetation associations (e.g. stringybark forests); bird charts; native plants of Adelaide books; and wetland plant identification books and charts. All available at <http://www.naturalresources.sa.gov.au/adelaidemtloftyranges/get-involved/education/for-educators/loan-library>

Before an audit

- Learn 'why' we need to continually improve our environmental impact (activities, products, services) in order to live more sustainable lives.
- Learn 'how' we can understand our impact through collecting a range of information e.g. mapping, collecting data, and surveys.
- Learn what the possibilities are for future improvements.

How Auditing fits with your School/Site Environment Management Plan (SEMP)

In order to work out what you want to do, you need to have a baseline of what's already happening. These Auditing tools fit into your site's School Environment Management Plans on the "Action Pages". Once you know what you want to investigate, use one of the Auditing Tools to work out what is happening. But don't stop there! Share the results with the rest of your community, and identify which actions need to be taken, the priority of those actions, and who is responsible for taking them. As part of the whole process, revisit the audit within a specified amount of time to see what impact the actions taken have had. It's all part of the cycle of continuous improvement.

NRM Education Officers are able to facilitate some of these audits. Please discuss with them their role in the auditing process.



	Tool:	Suggested audience or year level	Notes
All themes / Footprinting	For home use: <i>Global Footprint Network, Footprint Calculator</i> https://www.footprintnetwork.org/resources/footprint-calculator/	Grade 3 and up. Younger students with assistance and being asked questions in simplified terms (using the ‘fast’ answers). Some pre-work required if choosing the detailed answers (e.g. monthly amount for electricity/gas bills; fuel use of car per 100km).	More personal journey and at home. Can help students consider sustainability issues at school through considering what they could do at home. Options save your results, or to go back and adjust answers to see what your result will be. Some hints on how you could reduce your footprint further. Has engaging graphics that build a picture as you answer the questions. Choosing ‘detailed answers’ allows you to slide a scale bar to change frequency or quantity. These cover food, consumption habits, recycling, home size, electricity source, house construction materials, monthly bills for electricity/gas, cooling and heating methods, distance travelled/transport type per week. Footprint is divided into a visual breakdown; number of planet Earths & global hectares of productive land required; tonnes of carbon produced for your lifestyle.
	<i>Our Carbon Footprint</i> https://www.carbonfootprint.com/calculator.aspx	Middle years+ due to calculations required before data is input	Need to have all of your figures before you start. Need to do calculations such as how far you’ve travelled by bus in a year, energy consumption per month etc. All do-able but need to know before you start so that you can prepare. At the end of the audit it only offers schemes to pay to offset emissions. You have to click to another menu item to find tips on how to reduce emissions and for businesses they only offer their services for fee.
	<i>A guide to reducing your ecological footprint and building resilient communities - Sustainable Communities South Australia Inc.</i> https://sustainablecommunitiessa.files.wordpress.com/2009/04/ecofootprint_action.pdf	A great one for families to use.	This eco-footprint action booklet is designed totally for home/individual/family use. Does not come up with a figure for comparison. It is more of a checklist of things you haven’t done yet and then helps you to identify what you might be able to do in the future. A very practical way for people to assess what actions they have already taken that will make their lives more sustainable and to identify further actions they would like to take.
	<i>Home Energy Audit – SA Govt.</i> http://www.sa.gov.au/topics/water-energy-and-environment/energy/saving-energy-at-home/check-and-reduce-your-energy-use/home-energy-audit/do-your-own-home-energy-audit	Questions could be used with a range of ages to promote discussion as they are framed by behaviours.	Designed for home, but easily transferable to a site. Separate audit tools for heating and cooling; fridges, freezers and cooking; lighting; water heating; other appliances and standby power. Does not come up with a figure for comparison - it uses yes/no questions, and provides lots of tips about changes you can make to save energy.

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Water	<i>NRM Education investigating water</i> http://www.naturalresources.sa.gov.au/a/delaidentloftyranges/education/for-educators/water	Educators could work with learners to map the site and develop actions.	An example of a site map and the corresponding action plan for saving water using an eco-mapping technique.
	<i>Schools Water Audit - Sydney Water</i> https://www.sydneywater.com.au/web/groups/publicwebcontent/documents/document/zgrf/mdq2/~edisp/dd_046576.pdf	Primary students and up. Junior Primary students with support from a buddy class or educator.	A simple school specific audit, including an explanation of what an audit is for, how to do one, calculations and the audit worksheet.
	<i>School Water Audit – Cool Australia</i>	Primary students and up. Junior Primary students with support from a buddy class or educator.	A simple school specific audit, including an explanation of what an audit is for, how to do one, calculations and the audit worksheet.
	<i>Water Management in Schools – Australian Sustainable Schools Initiative ACT</i> Available from NRM Education loan library http://www.naturalresources.sa.gov.au/a/delaidentloftyranges/get-involved/education/for-educators/loan-library	Primary students and up. Junior Primary students with support from a buddy class or educator.	A comprehensive school, preschool and childcare centre audit. Includes information about what, why and how you do an audit in a school; how to read your water meter and check for leaks in toilet cisterns; measuring flow rates; meter reading template; worksheets for toilets/change rooms, disabled toilets, staff toilets, staffroom, classrooms, canteen, bubblers and outdoor taps, outdoors and irrigation; worksheets specific to preschools and childcare centres - laundry, kitchen, carer's room, children's toilets; action plan tips, and templates for embedding change. As this resource was written for ACT schools, you will need to work with your facilities manager to obtain records of your site's water consumption.
	<i>Waterwise Childcare Centres: Water Audit and Action Plan – Little Green Steps Gosford City Central Coast and Wyong Shire Councils</i> https://www.wyong.nsw.gov.au/getmedia/1ea48a26-91ce-48b8-bca4-306d2cb239dd/Childcare-Centre-Water-Audit-Form.aspx	Educators, with support from young children.	Comprehensive audit template for childcare centres which includes lists of water fixtures to check in the kitchen, laundry, nappy change area, staff room and toilets, children's bathrooms, external, rainwater tanks, and capacity to capture rainwater. Also has an action plan template, and a water meter recording sheet.

Calculations to consider for your site:

- Total water usage
- Total water usage per student
- Cost of water usage per day/month/year
- Rainwater storage not plumbed in
- Rainwater storage plumbed into buildings
- Stormwater collection
- Wetland - Yes/No & total capacity in litres or kilolitres
- Retention pond -Yes/No
- Percentage of site that is irrigated
- Above ground irrigation in m²
- Subsurface irrigation in m²
- Return on investment calculations for new infrastructure

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Resources (Waste)	<i>NRM Education Investigating waste</i> http://www.naturalresources.sa.gov.au/adelaidemtloftyranges/education/for-educators/waste	Educators could work with learners to map the site and develop actions.	A template for you to attach a site map and develop an action plan for reducing waste and improving management of resources at your site using an eco-mapping technique.
	<i>Litter & stormwater pollution surveys (Gutter Guardians)</i> http://www.naturalresources.sa.gov.au/adelaidemtloftyranges/about-us/our-regions-progress/monitoring-and-evaluation/schools#gutterguardians	Can be done by all year levels, with support from the educator for sorting into categories. Age range will depend on dexterity with brooms or brushes. Calculations for volumes and weights can be done independently by older students.	A brief teacher information kit, results data sheet, and portal to upload your results – these will then be included on the Google map so that other sites can view the findings. A teacher information kit with learning ideas, sweep activity instructions, community survey, results sheet, permission forms, and results sheet for findings. Portal on this site allows you to upload your results, which will be included on the Google map for other sites to view.
	<i>Wipe Out Waste audit</i> http://www.wow.sa.gov.au/diy-audit-kit.html	Student monitors for the audit process – e.g. guiding other students in the sorting process - are recommended to be Year 4 or older.	A great DIY bin materials audit kit for schools with less than 100 students, or individual classes. Resources include full procedure and roles for preparing for, and conducting, the audit, labels and photographs for the different categories you will sort materials into, and support materials for the end of the audit on the waste hierarchy, reducing, reusing, compost, recycling and landfill. Please email jo@kesab.asn.au or cally@kesab.asn.au for a results sheet.
	<p><i>Calculations to consider for your site:</i></p> <ul style="list-style-type: none"> • Total materials to landfill - m³ • Total materials to landfill per student • Paper and cardboard recycling - m³ • Paper and cardboard recycling per student • 10c containers returned • Whole school composting Yes/No • Whole school resource recovery system Yes/No • Cost of material removal from site by contractors • Return on investment calculations for new infrastructure 		

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Energy	<i>NRM Education Investigating Energy</i> http://www.naturalresources.sa.gov.au/adelaidentloftyranges/education/for-educators/energy	Educators could work with learners of a range of ages to map the site and develop actions.	A template for you to attach a site map and develop an action plan for reducing energy use at your site using an eco-mapping technique.
	<i>Energy Auditing Kit (Energy SA)</i> Available for loan from NRM Education or your local library. http://www.sa.gov.au/topics/water-energy-and-environment/energy/saving-energy-at-home/check-and-reduce-your-energy-use/home-energy-audit/borrow-a-home-energy-toolkit	Year R – 12. Great for families to do together.	A comprehensive audit for identifying where energy savings can be made around the home. Includes an appliance meter, infrared and spirit thermometers, compass, stopwatch and full instructions. Designed for home use, however some resources useful for auditing at school e.g. stop watch and thermometer for measuring flow of taps and amount of hot water used. Needs to be used by adults or with adult supervision.
	<i>Calculations to consider for your site:</i> <ul style="list-style-type: none"> • Total Energy usage • KW per student • Carbon emissions per student • Solar power capacity – KW hours • Solar power produced – KW hours • Number of low-energy light bulbs vs regular light bulbs • Return on investment calculations for new infrastructure 		

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Biodiversity	<p><i>NRM Education – Investigating biodiversity</i> http://www.naturalresources.sa.gov.au/adelaidemtloftyranges/education/for-educators/plants-and-animals/land-based-environments</p>	<p>Educators could work with learners of a range of ages to map the site and develop actions.</p>	<p>A template for you to attach a site map and develop an action plan for increasing biodiversity at your site using an eco-mapping technique.</p>
	<p><i>NRM Education biodiversity auditing tools</i> http://www.naturalresources.sa.gov.au/adelaidemtloftyranges/education/for-educators/plants-and-animals/land-based-environments</p>	<p>Suitable for a range of ages – can be scaffolded for younger students, or done independently with supervision by older groups.</p>	<p>Available for terrestrial, riparian and hollow habitat assessment, terrestrial birds, wetland birds, aquatic macro-invertebrates, and fish. Teacher information packs, monitoring data sheets, identification charts, and portals for uploading data are available here. Download monitoring results from other sites as raw data (Excel) or view on Google maps. Monitoring equipment is available for loan from NRM Education.</p>
	<p><i>A Simple Guide to Conducting a School Biodiversity Audit - Rumbalara Environmental Education Centre (NSW)</i> http://www.rumbalara-e.schools.nsw.edu.au/documents/230888/231169/biodiv_final_nov_08_1323141671567.pdf</p>	<p>Suitable for a range of ages – can be scaffolded for younger students, or done independently with supervision by older groups.</p>	<p>Recommended. Most of it is directly applicable. Simple methodology. Templates for recording provided. Good variety of methods for mini-beast audit.</p> <p>Please note: mentions bird and weed species we don't have in SA.</p>
	<p>Biodiversity Up Close (Vic) http://sustainability.ceres.org.au/wp-content/uploads/2017/08/Landlearn-Biodiversity-Up-Close-Students-Worksheets-Short-Version-CERES.pdf</p>	<p>Yr 3-10 (VELS Level 3-6)</p>	<p>Includes 'An Audit of Biodiversity in the School Grounds' (original https://www.rbg.vic.gov.au/documents/Biodiversity_Up_Close_School_Grounds.pdf and condensed versions) and 'An Audit of Biodiversity in Bushland Areas.' Designed to be repeated. Comprehensive range of assessments in the yard with curriculum links. Fauna assessments are divided into teams which would suit whole classes or larger groups. Resource also available for bushland. See the Backyards4Wildlife web site for a local plant species database http://plantselector.naturalresources.sa.gov.au/</p>

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Air quality	<i>NRM education investigating Air</i> http://www.naturalresources.sa.gov.au/adelaidemtoftyranges/education/for-educators/air-quality-and-transport	Educators could work with learners of a range of ages to map the site and develop actions.	An example of a site map and the corresponding action plan for improving air quality using an eco-mapping technique, as well as a blank template.
	<i>Clean Air for Better Breathing:air quality and asthma school audit (EPA & Asthma Foundation of SA)</i> <i>Airwatch Primary School Workbook (EPA)</i> http://www.epa.sa.gov.au/environmental_info/air_quality/learning_and_resources (scroll down and click on 'resources for schools')	Middle primary+ Younger students guided by educators.	An audit tool to identify potential asthma triggers caused by poor air quality in and around the school. Includes instructions, recording sheets and reference guides
	<i>Airwatch - Who cares about our air? A workbook on air pollution for primary schools (EPA)</i> <i>Airwatch Primary School Workbook (EPA)</i> http://www.epa.sa.gov.au/environmental_info/air_quality/learning_and_resources (scroll down and click on 'resources for schools')	Primary students	Includes an activity to create a particle collector, as well as audit templates around car usage, vehicle counts, travel patterns, pollen, and heater types. Includes a school asthma audit.
	<i>Air Watch: Clean Air – what's in it for us? An air pollution program for secondary schools.</i> Available to borrow from NRM Education	Secondary students	Includes visual air quality recording instructions and field record sheet, car usage survey, car log, vehicle count survey sheet, travel pattern questionnaire, smoky vehicle survey, home air quality survey, and a community awareness survey. Links to other areas of sustainability well e.g. greenhouse emissions, wellbeing, health, communities.

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Transport	<i>NRM Education investigate transport</i> http://www.naturalresources.sa.gov.au/adelaidemtloftyranges/education/for-educators/air-quality-and-transport	Educators could work with learners of a range of ages to map the site and develop actions.	An example of a site map and the corresponding action plan for auditing transport based on eco-mapping, as well as a blank template
	<i>Airwatch – Air Quality Audit Transport (EPA)</i> <i>Airwatch Primary School Workbook (EPA)</i> http://www.epa.sa.gov.au/environmental_info/air_quality/learning_and_resources (scroll down and click on 'resources for schools')	Primary students +	Teacher pack with background information and the following templates: transport infrastructure audit sheet, travel pattern survey and results sheet, vehicle count audit sheet, and school policies and activities audit sheet.
	<i>Air Watch: Clean Air – what's in it for us? An air pollution program for secondary schools.</i> Available to borrow from NRM Education	Secondary students	Includes visual air quality recording instructions and field record sheet, car usage survey, car log, vehicle count survey sheet, travel pattern questionnaire, smoky vehicle survey, home air quality survey, and a community awareness survey. Links to other areas of sustainability well e.g. greenhouse emissions, wellbeing, health, communities.
	<i>Airwatch Primary School Workbook (EPA)</i> http://www.epa.sa.gov.au/environmental_info/air_quality/learning_and_resources (scroll down and click on 'resources for schools')	Primary students	Includes an activity to create a particle collector, as well as audit templates around car usage, vehicle counts, travel patterns, pollen, and heater types.

After an audit

- Gather all the information together into a 'picture' of what is currently happening in the school.
- Consult with staff, students and parents for suggestions for improvements (include short, medium and long-term suggestions).

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- Prioritise and document the suggested improvements in the SEMP.
- Monitor the changes to ensure improvements are being made and recorded.
- Set up a system of continuous improvement by implementing a regular cycle (e.g. annual) of auditing, planning and recording as started.
- Celebrate and share achievements!

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