

## About This Resource

EPA Tasmania has developed this teaching manual as part of a sequence of hands-on teaching resources for Kinder to Grade 1 teachers on the topic of waste. These manuals can be used to develop awareness in students about waste in Tasmania while meeting requirements of the Early Years Learning Framework (<https://www.education.gov.au/early-years-learning-framework>) and the Australian Curriculum in various subject areas, including the cross-curriculum priority of Sustainability, and using the 5Es Teaching and Learning Model from Primary Connections (Australian Academy of Science).

In this manual, there is a strong focus on nature-based activities and activities with hands-on activities such as paper-making, recycling, worm farming and 'recycled craft'. Ideally, the infrastructure of the Early Learning Centre/classroom is set up to encourage such activities.

This is a great springboard into managing litter and paper waste in Years 2 and 3 respectively, and in Year 4, 5 and 6 students investigate plastic, food and general waste issues respectively, using this series of EPA Tasmania manuals. Students make connections between their own practical actions, such as reducing, re-using and recycling, and the impacts this has on the social and broader environment within the context of sustainability.

To complement this learning, schools can develop a school waste action plan, using <http://rethinkwaste.com.au/at-school/schools-program> as a guide. This is to ensure that by its very infrastructure and procedures, the school reinforces the students' learning. Students should have the opportunity to suggest modifications or improvements to the action plan, to improve waste management throughout the whole school. The action plan can be used to address the Waste theme in the Eco-Schools program.

Most activities in this Kinder-Grade 1 resource are ongoing – they can stretch over many months. This is in contrast with other resources in this series, where activities are usually 45 minutes in duration.

## Expected Learning Outcomes

Students will cultivate or continue an appreciation of the natural world, with the hope that they will instinctively want to look after it. Cultivating earthworms and observing decomposition will lead to a later investigation of natural cycles. Students will learn about the waste hierarchy – Reduce, Re-Use, Recycle (the 3Rs) and participate in hands-on ways to undertake the 3Rs, such as via toy swaps, re-using materials for craft activities and making hand-made recycled paper. They will learn the connections between their actions, such as recycling paper, and the effect this can have on habitat, on landfill and the environment in general.

## Curricular Links at a Glance

Learning about and participating in the environment is in line with the principles laid out in the UN Convention on the Rights of the Child. Fundamental to the Early Years Learning Framework (EYLF) (<https://www.education.gov.au/early-years-learning-framework>) for Australia is the view that children’s lives should be characterised by Belonging, Being and Becoming.

Outcome 2 of the EYLF (<https://www.education.gov.au/early-years-learning-framework>) is “Children are connected with and contribute to their world”. One part of this is that children become socially responsible and show respect for the environment. This manual outlines some activities to promote this learning by, for example, providing information about the impact of human activities on the environment and embedding sustainability into daily routines and practices.

Using this manual, teachers will address various areas of the EYLF <https://www.education.gov.au/early-years-learning-framework> (for Kinder) and also the Australian Curriculum, including English, Maths, Science and the Arts, along with the cross curriculum priority of Sustainability for Foundation and Grade 1. The table below summarises how each activity in this resource addresses particular aspects of the Australian Curriculum.

Foundation curricular links are in plain text. Where the link applies to Grade 1, curricular links are underlined. The cross-curriculum priority of Sustainability applies to both Foundation and Grade 1.

An added overlay to assist the learning process where the activity relates to the **science** curriculum is by following the 5E model: Engage, Explore, Explain, Elaborate and Evaluate. Students experience common activities, build on prior knowledge and experience to construct meaning and continually assess their understanding of a concept. This helps teachers evaluate students’ understanding.

Extension activities are proposed where teachers wish to extend students beyond the I I activities in this module.

## Waste – A Teaching Manual – Foundation and Grade 1 – Curricular Links Summary

Learning Area in the Australian Curriculum			Covered in Activity #
<b>English</b>			
Literacy	<i>Create Texts</i>	Foundation: Create short texts to explore, record and report ideas and events using familiar words and beginning writing knowledge (ACELY1651) <u>Grade 1 - Create short imaginative and informative texts that show emerging use of appropriate text structure, sentence-level grammar, word choice, spelling, punctuation and appropriate multimodal elements, for example illustrations and diagrams (ACELY1661)</u>	Activities 2,3,6
Language	<i>Expressing and developing ideas</i>	Foundation: Understand the use of vocabulary in familiar contexts related to everyday experiences, personal interests and topics taught at school (ACELA1437) <u>Grade 1: Understand the use of vocabulary in everyday contexts as well as a growing number of school contexts, including appropriate use of formal and informal terms of address in different contexts (ACELA1454)</u>	Activities 2,4,6
<b>Maths</b>			
Number and Algebra	<i>Number and place value</i>	Foundation: Establish understanding of the language and processes of counting by naming numbers in sequences, initially to and from 20, moving from any starting point (ACMNA001) <u>Grade 1: Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by twos, fives and tens starting from zero (ACMNA012)</u>	Activities 3,5,9 Activity 7 Ext 1
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Learning Area in the Australian Curriculum			Covered in Activity #
		Foundation: Connect <u>number</u> names, numerals and quantities, including zero, initially up to 10 and then beyond (ACMNA002)	Activity 9
		<u>Grade 1: Count collections to 100 by partitioning numbers using place value (ACMNA014)</u>	Activity 9
		Foundation: Subitise small collections of objects (ACMNA003)	Activity 9
		Foundation: Compare, order and make correspondences between collections, initially to 20, and explain reasoning (ACMNA289)	Activity 9
	<i>Fractions and decimals</i>	<u>Grade 1: Recognise and describe one-half as one of two equal parts of a whole (ACMNA016)</u>	Activity 9
	<i>Patterns and Algebra</i>	Foundation: Sort and classify familiar objects and explain the basis for classifications. Copy, continue and create patterns with objects and drawings (ACMNA005)	Activity 9
		<u>Grade 1: Investigate and describe number patterns formed by skip-counting and patterns with objects (ACMNA018)</u>	Activity 9
Measurement and Geometry	<i>Using units of measurement</i>	Foundation: Compare and order the duration of events using the everyday language of time (ACMMG007)	Activity 6
		<u>Grade 1: Describe duration using months, weeks, days and hours (ACMMG021)</u>	Activity 6

**Science**

Science understanding	Foundation: That living things have basic needs, including food and water (ACSSU002)	Activities 2,3,4,5,6,7,11 Activity 6 Ext 1 Activity 6 Ext 2
	<u>Grade 1: Living things have a variety of external features (ACSSU017)</u>	Activities 3,4,5,6,7 Activity 6, Ext 2
	<u>Grade 1: Living things live in different places where their needs are met (ACSSU211)</u>	Activities 2,3,4,5,6,7,11 Activity 6 Ext 1 Activity 6, Ext 2
	Foundation: Objects are made of materials that have observable properties (ACSSU003)	Activity 11
Science as a Human Endeavour	Foundation: Science involves observing, asking questions about, and describing changes in objects and events. (ACSHE013)	Activities 2,3,4,5,6
	<u>Grade 1: Science involves observing, asking questions about, and describing changes in, objects and events (ACSHE021)</u>	Activities 3,4,5,6 Activity 6 Ext 1
Science Inquiry Skills	Foundation: That we can make observations using the senses (AC SIS011)	Activities 1,2,3,4,5,6
	Foundation: That we can engage in discussions about observations and use methods such as drawing to represent ideas (AC SIS233)	Activities 1,2,3,4,5,6
	<u>Grade 1: Use a range of methods to sort information, including drawings and provided tables through discussion, compare observations with predictions (AC SIS027)</u>	Activities 3,4,5,6

**The Arts**

Visual Arts	Foundation: Use and experiment with different materials, techniques, technologies and processes to make artworks (ACAVAM107) <u>Grade 1: Use and experiment with different materials, techniques, technologies and processes to make artworks (ACAVAM107)</u>	Activities 2,3,7,9,11 Activity 6 Ext 2 Activity 7 Ext 2 Activity 7 Ext 3
Music	Respond to music and consider where and why people make music, starting with Australian music, including music of Aboriginal and Torres Strait Islander Peoples (ACAMUR083)	Activity 7 Ext 1

Learning Area in the Australian Curriculum		Covered in Activity #
<b>Sustainability</b>		
Systems	The biosphere is a dynamic system providing conditions that sustain life on Earth (OI.1)	1,2,3,4,5,6,7,11 Activity 6, Ext 1 Activity 6, Ext 2
	All life forms, including human life, are connected through ecosystems on which they depend for their wellbeing and survival (OI.2)	1,2,3,4,5,6,7,11 Activity 6, Ext 1 Activity 6, Ext 2
	Sustainable patterns of living rely on the interdependence of healthy social, economic and ecological systems (OI.3)	1,2,3,4,5,6,7,11 Activity 6, Ext 1
World Views	World views that recognise the dependence of living things on healthy ecosystems, and value diversity and social justice, are essential for achieving sustainability (OI.4)	3,5,6,7,11 Activity 6, Ext 2
	World views are formed by experiences at personal, local, national and global levels, and are linked to individual and community actions for sustainability (OI.5)	3,5, 7,8, 9,10,11 Activity 7 Ext 1 Activity 7 Ext 2 Activity 7 Ext 3
Futures	The sustainability of ecological, social and economic systems is achieved through informed individual and community action that values local and global equity and fairness across generations into the future (OI.6)	3,6,7,8, 9,10,11 Activity 6 Ext 2 Activity 7 Ext 1 Activity 7 Ext 2 Activity 7 Ext 3
	Actions for a more sustainable future reflect values of care, respect and responsibility, and require us to explore and understand environments (OI.7)	1,2,3,5,8,10,11 Activity 7 Ext 2 Activity 7 Ext 3
	Designing action for sustainability requires an evaluation of past practices, the assessment of scientific and technological developments, and balanced judgements based on projected future economic, social and environmental impacts (OI.8).	3,6,8,10,11 Activity 7 Ext 1 Activity 7 Ext 2 Activity 7 Ext 3
	Sustainable futures result from actions designed to preserve and/or restore the quality and uniqueness of environments (OI.9)	3,11 Activity 7 Ext 1

## Background – Research

Research indicates that encouraging environmental educational outcomes in early childhood comes from a combination of providing positive experiences in nature, role modelling, providing intentional interventions and having physical facilities to support hands-on learning.

There is a large body of research highlighting a convincing relationship between childhood experiences in nature and the formation of pro-environment beliefs and lifestyles later in life. Some early learning centres dedicate at least one day per week as an outdoors day, or they have a regular trip to an area of bushland nearby — this is often called 'Bush Kinder' or in the UK, Canada, Japan and New Zealand, 'Forest School'.

Grey and Lloyd (2014) in the *Journal of Sustainability Education* also indicated that, along with a developing ecological consciousness, there is growing evidence that nature play in the early years can promote excellent educational, social and health outcomes.

Many researchers also contend that providing a natural play area/opportunity alone will not necessarily bring about environmental sentiment, leading to action in later life. The national Early Years Learning Framework strongly recommends that sustainability be 'embedded in all daily routines and practices' within early childhood settings. Similarly, in the Australian curriculum, one of the cross-curriculum priorities is sustainability. Sustainability can be a part of everyday practice — not merely a separate subject or theme to be considered for a given time, but an integral part of curriculum. This requires leadership, planning and a shift in thinking and values. Educators promote children's learning by creating social and physical learning environments. Then, the teaching of sustainability will not be an 'add-on' in an arguably full curriculum.

Many early childhood services around Australia not only provide natural play spaces but also incorporate sustainable practices into their programs — including composting, worm farms, recycling and gardening — and evidence exists that these experiences successfully engage young children.

Little Green Steps outlines how to develop a management plan in the early childhood setting and how to embrace sustainable practices and education. An early childhood sustainability management plan can be a part of a broader School Environmental Management Plan. Rethink Waste in Tasmania have a free schools program, which may give teachers a great starting point. [www.rethinkwaste.com.au/at-school/schools-program/](http://www.rethinkwaste.com.au/at-school/schools-program/)

Another useful resource is the Australian Association for Environmental Education resource portal Getting Started with Sustainability in Schools, which can be found at <https://sustainabilityinschools.edu.au/resources>

With the combination of teaching resources such as these, facilities to promote hands-on learning, aligned curriculum and professional development, teachers should be well equipped to teach about waste and sustainability in the Early Years and Primary School.

**In Tasmania, the Department of Education (DoE) and other partners have established the Sustainability Learning Centre (SLC) at Mt Nelson, near Hobart. The Centre offers bush kinder and nature play programs for children from birth to age 8 to participate in. The Centre also offers targeted professional learning for educators to develop their own bush kinder program, supporting educators to review risk management practices which could otherwise be an obstacle. The SLC also encourages and supports whole school environmental management planning. There is also an early years webinar available on outdoor play: **Playing, Exploring and Learning in the Outdoors.****

**Contact the Sustainability Learning Centre on 62263442 or email [sustainability.learningcentre@education.tas.gov.au](mailto:sustainability.learningcentre@education.tas.gov.au) for any enquiries.**

**The Molesworth Environment Centre is a Department of Education facility and caters to all Tasmanian schools from K-6, with team-building exercises for classes 7-12. They conduct many environmental activities, including sustainability, biodiversity, bushwalks and arts in the environment.**

**<https://molesworthprimary.education.tas.edu.au/mec/SitePages/Activities.aspx>**

## References

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