

# The Coal Loader Centre for Sustainability Learning Guide

**Learning from the past and embracing the future**

A teaching and learning resource for Stages 1, 2, 3, 4 and 5.





see learn  
be inspired  
connect



the Coal Loader  
CENTRE FOR SUSTAINABILITY

*Learn from the Past : Embrace the Future*

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# About the Coal Loader

The Coal Loader Centre for Sustainability (the Coal Loader) is an exciting place to learn about all aspects of sustainability. Located in Waverton, just 2km from the Sydney Harbour Bridge, it is an ex-industrial coal-loading facility, which has been transformed into a centre of excellence for sustainability by North Sydney Council.

Officially opened in July 2011, the Coal Loader features a cottage for sustainable meeting and learning, wetlands, a community garden, a native bushland nursery, historical tunnels, First Nations' engraving, a renewable energy Platform, a Colonnade, workshop space, parklands and a beautiful bushland reserve right next door.

The historic 2.8ha waterfront site has been retrofitted with state-of-the-art sustainable technologies.

The name 'the Coal Loader' comes from the industrial use of the site, which began in 1917 when the Sydney Coal Bunkering Company began developing the site for coal loading operations, which ran until 1992.

The Coal Loader showcases innovation, enables hands-on learning about sustainability in everyday life, and serves as a community meeting point and hub for Council's extensive range of environmental and sustainability programs.

## What will you see?

A visit to the Coal Loader will enable your students to:

- Information and real-life examples of sustainable living
- Heritage buildings that have been retrofitted to showcase energy and water efficiency
- First Nations' engraving and a Bush Food Garden
- A thriving human made wetland
- A reserve, including rare and endangered flora and fauna
- Community gardens with chickens
- Historic coal-loading equipment from the last century, including the original coal-loading tunnels and wharf
- A newly adapted platform\* containing solar photovoltaic cells and community garden plots
- A state of the art local government facility.



## How you can use the Coal Loader for learning:

- Bring a class for a self guided excursion – the activities provided in the Learning Guide fulfil some NESA syllabus outcomes for the Key Learning Areas of geography, history and science/technology and science.
- Bring a class for a full day facilitated excursion with Department of Education teachers from Observatory Hill Environmental Education Centre. These excursions fulfil NESA syllabus outcomes for geography, history and science/science/technology.
- Have an environment group excursion to the Coal Loader
- Have a staff development day at the Coal Loader
- Use Coal Loader Green Events to help plan green calendar events at your school
- Suggest senior geography investigation and history inquiry projects using the built environment and natural resources at the Coal Loader
- Have a School Environment Management Plan (SEMP) planning workshop with your school's green team at the site
- Use the Coal Loader to do a Department of Education and Communities (DEC) Sustainability Action Process challenge e.g. biodiversity
- Bring students to the site for inspiration for art, design, poetry, and reflection opportunities
- While on site, get some tips that will help you in creating a green canteen or school kitchen garden, keeping chooks, doing audits, Nude Food Days or composting.

## Opening hours

The Coal Loader is open for excursions Monday to Friday – 9am to 4pm. Staff may be available during these times to assist with excursions. Alternatively, Balls Head Reserve, the surrounding parklands and historic tunnel are open any time!

## Location

The Coal Loader is located at 2 Balls Head Road, Waverton. It is an easy 7 minute walk from Waverton train station. Bike parking, bus parking and bus drop-off points are available, however parking for cars is very limited.

**7 minute walk from Waverton train station along Balls Head road.**

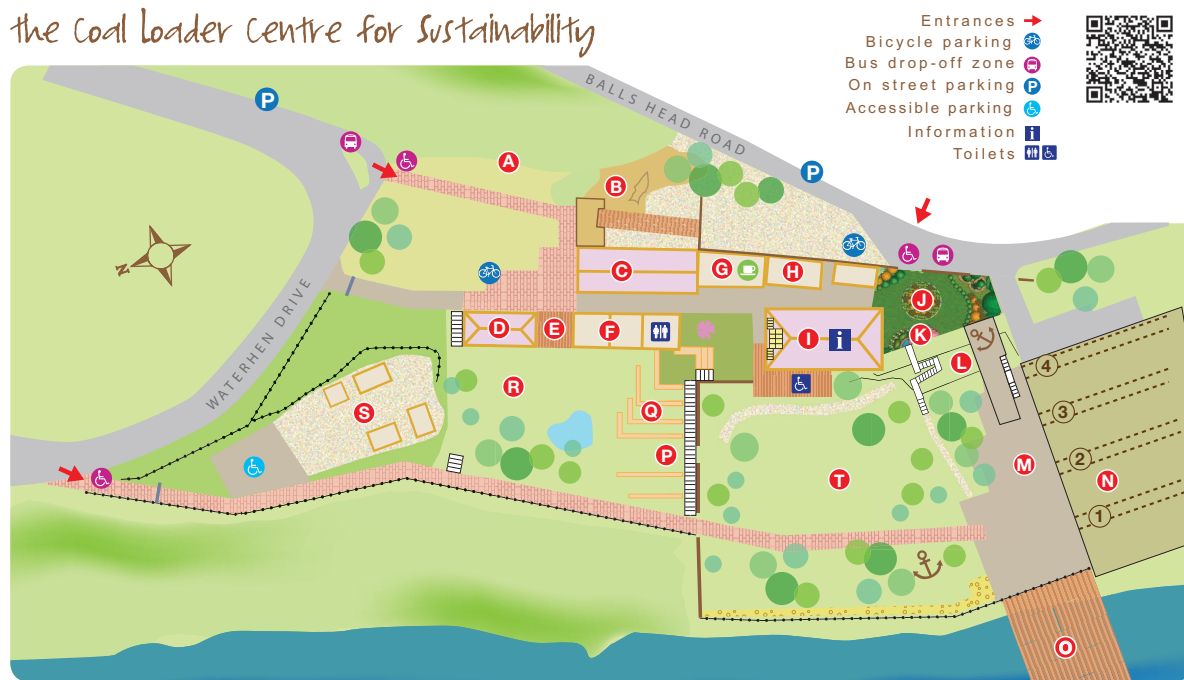
**Coal Loader Location Map**



## Coal Loader Site Map

[www.northsydney.nsw.gov.au/CoalLoader](http://www.northsydney.nsw.gov.au/CoalLoader)

### the Coal Loader Centre for Sustainability



[www.northsydney.nsw.gov.au](http://www.northsydney.nsw.gov.au)  
9936 8227



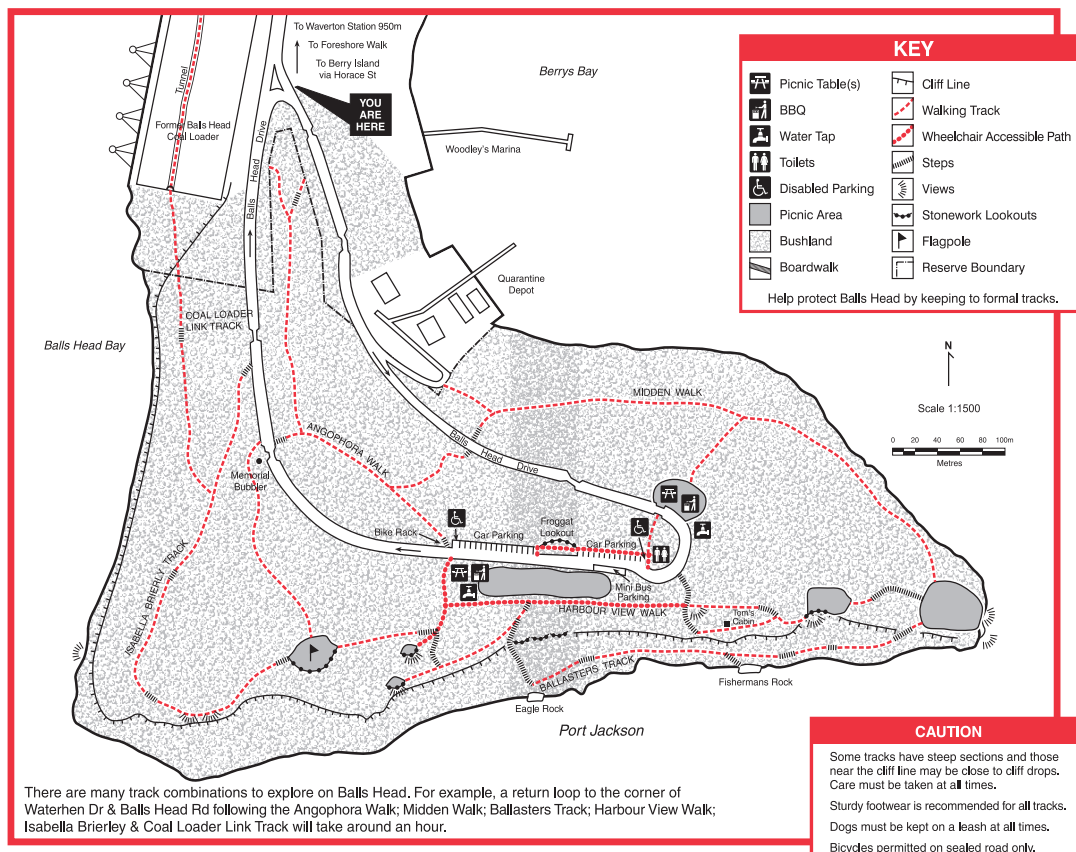
**A** Bush Foods Garden  
**B** Aboriginal Whale Carving  
**C** Powerhouse  
**D** Mess Hall  
**E** Visitor Orientation Deck  
**F** Workshops

**G** Cafe  
**H** Early Site Office  
**I** Caretakers Cottage  
**J** Community Garden  
**K** Coal-loading Skip  
**L** Chicken Coop

**M** Industrial Heritage Remnants  
**N** Coal-Loading Tunnels & Platform  
**O** Wharf  
**P** Sandstone Bund Wall

**Q** Water Tank  
**R** Wetland  
**S** Community Bushland Nursery  
**T** Parkland/Picnic Area

## Balls Head Reserve Walking Map





# About the Guide

## Purpose

This Sustainability Learning Guide, based on the Coal Loader Centre for Sustainability, has been developed to engage and inspire students, teachers and the wider community to visit the Centre and take further action on sustainability. The Guide is a dynamic and interactive resource that can be used to enrich a visit to the Coal Loader and to extend learning beyond the classroom walls. It is designed to become a living resource that can be adapted to suit your needs and can be added to over time.

The updated Guide directly relates to the NSW NESA syllabuses for geography, history and science/technology and science. The updated Guide has been developed in collaboration with Department of Education teachers at Observatory Hill Environmental Education Centre. The updated Guide embeds expertise from the previous learning guides and from its previous stakeholders including staff from NSW Councils and State Government agencies as well as from students and teachers in the North Sydney area.

The Guide provides teachers with all the background information needed to be able to confidently run an activity at the Coal Loader.

## How to use the Guide

The Guide has been designed so that there is both background information and activities so that teachers can do a DIY excursion, and/or book a short introduction from Council staff. Teachers can choose topics and learning outcomes relevant to their students' needs. Short video clips (less than three minutes) for each of the following topics have been provided to help you plan your visit and should be watched in the classroom before you visit.

The Guide has the following topics:

[History of the Coal Loader](#)

[Aboriginal Heritage](#)

[Sustainable Retrofit](#)

[Renewable Energy](#)

[Water Conservation, Recycling and Reuse](#)

[Waste Minimisation](#)

[Sustainable Food](#)

[Balls Head Biodiversity](#)

[Overview of the Coal Loader](#)

Each topic has at least two activities that students can complete onsite and one or two that can be completed pre or post excursion. The activities on site usually use A4 size maps and posters. Please bring copies of relevant posters and maps from within this guide.

The Guide has been designed so teachers can jump in at any point and start using it. It is recommended that you read through the background information with your students before visiting the Coal Loader.

## Activities and Lesson Plans

The Coal Loader Centre for Sustainability showcases the many different aspects of sustainability, as well as history, Aboriginal heritage and biodiversity. The topics in the Guide have been designed to give a broad overview of the features of the Coal Loader. A visit to the site will also allow students to gain an understanding of the role of local government in the local community.

A number of learning activities have been developed which take into account students with different learning styles. Lessons use activities which develop simple fieldwork skills and use a mixture of teacher guided and experiential, hands-on strategies.

- Learn about the adaptive re-use of the site
- Investigate a building that has been sustainably retrofitted with energy and water-saving technologies
- Play the role of the cottage caretaker and make important decisions about how the centre operates
- Follow in Henry Lawson's footsteps by writing poetry about the area
- Create your own bush food cookbook
- Learn how the chickens are managed
- Do a tree shake to look at biodiversity in Balls Head reserve
- Dip your net in the wetland to discover slimy flat worms and other micro-beasts
- Explore one of the 4 tunnels from the historic coal loading system
- And a whole lot more!

## Activity and worksheet format

Each of the eight topic areas has two – three activities structured\* as worksheets that can be completed at the Coal Loader as a DIY visit/excursion and one – two activities/worksheets that can be used as pre or post excursion activities.

Activities are written in the following format:

- Background information
- Activity Summary
- Inquiry Questions
- Syllabus Outcomes
- Materials and Preparation
- Student Worksheet
- Pre and post excursion activity

## Curriculum Overview

The Coal Loader Sustainability Learning Guide has been developed to assist teachers in developing excursions, visits and learning experiences for their students at the Coal Loader, Centre for Sustainability, Waverton. The Learning Guide has been developed so that teachers can clearly interpret the different spaces and operations of the Coal Loader Sustainability Centre.

Teachers can use these spaces and operations as opportunities for learning experiences for their students by posing questions on the background material, interpreting maps and posters and by completing the activities in the site specific worksheets.

The Coal Loader Sustainability Learning Guide has been developed to support the current (2024) NSW Education Standards Authority (NESA) syllabus learning outcomes in the Key Learning Areas (KLA's) of:

1. In primary school – Human Society and its Environment (Geography and History) and Science and Technology.
2. In secondary school – Geography, History and Science.

The background information and site specific worksheet activities are of a general nature and can be adapted to meet the outcomes of Stages 1, 2, 3, 4 and 5 in the above Key Learning Areas.

The previous Coal Loader Learning Guide was an invaluable resource for teachers to understand how a visit to the Coal Loader Centre for Sustainability was an opportunity to learn about both 'Sustainability' and 'Aboriginal and Torres Strait Islander Histories and Cultures' across all Key Learning Areas.

However, at the time of writing, the requirement by NESA for teachers at schools to explicitly program the cross curriculum priorities of 'Sustainability' and 'Aboriginal and Torres Strait Islander Histories and Cultures' has been removed.

Nevertheless, reference to both cross curriculum priorities has been maintained in the Guide and in the Matrix, Appendix 1. This is because the Australian Curriculum, Assessment and Reporting Authority (ACARA) still references these priorities and, because both the Coal Loader Sustainability Centre and the Learning Guide provide wonderful opportunities for teachers and students to learn about sustainability and about First Nations' history and culture.

This Guide is an invaluable resource for teachers and students seeking what the cross curriculum priority of sustainability means.

***Sustainability*** will allow all young Australians to develop an appreciation of the need for more sustainable patterns of living, and to build the capacities for thinking and acting that are necessary to create a more sustainable future. <https://www.acara.edu.au/curriculum/foundation-year-10/cross-curriculum-priorities/sustainability-ccp>





# Your excursion to the Coal Loader

## How to book an excursion?

New arrangements from 2024 are required to book an excursion.

There are two types of excursions that can be booked:

1. **Self guided** – All schools and learning institutions are welcome to visit the Coal Loader to undertake self guided education. The Coal Loader Sustainability Learning Guide for Stages 2, 3, 4 and 5 has some helpful resources, activities, maps and worksheets. The worksheets contained in the Guide are of a general nature and need to be printed by the classroom teacher. The maps and reference posters contained in the Guide in the Appendices.

You can request a site introduction and orientation at the start of your self-led tour, and if available, you can also have the use of one of our learning spaces for the duration of your visit, free of charge.

For more information, please contact our team: [coalloader@northsydney.nsw.gov.au](mailto:coalloader@northsydney.nsw.gov.au)

OR,

2. **Facilitated** – The Coal Loader offers a range of full-day, teacher-led, Stage 2 and Stage 3 Science and Geography Excursions that are fully curriculum linked.

Schools within the North Sydney LGA can partake in these excursions for free. Out-of-area schools cost \$15 per student.

Students will engage in unique, fun, hands-on activities across the iconic site, focusing on the sustainability features of the centre and linked to the following topics:

## Stage 2 Geography: The Earth's Environment

Excursion activities include: Map and compass use to locate human and natural features, weather data collection using scientific equipment, an introduction to sustainability definitions and examples, musical peer interviews about sustainability, "I Spy" around the Coal Loader Centre for Sustainability and parachute games.

### Key Inquiry Questions

How does the environment support the lives of people and other living things?

How do different views about the environment influence approaches to sustainability?

How can people use places and environments more sustainably?

## Stage 2 Science and Technology: Living World

Excursion activities include: Exploration walk searching for living things, introduction to frogs and frogs life cycle, structural and behavioural adaptation, food web wide game, investigation of the wetland and an assessment if the Striped Marsh Frog would live there, data collection including dip netting and invertebrate tree shakes.

### Key inquiry questions

How do physical conditions affect the survival of living things?  
How do the structural and behavioural features of living things support survival?

## Stage 3 Science and Technology: Physical World

Excursion activities include: An introduction to solar energy through building and racing solar powered cars, investigative artwork to demonstrate how plants use the sun's energy, experimenting with sunlight to create heat to cook a marshmallow in a pizza box and a scavenger hunt to collect data of sustainable energy features available for houses.

### Key Inquiry Questions

How do light, heat and electrical energy make things happen?  
How can we use forces and energy in a product or system?

## Stage 3 Geography: Factors that Shape Places

Excursion activities include: investigating a wetland area, its function and the biodiversity through observations; analysing what waste is, how it impacts our environment and solutions like a circular economy for products; using ID charts to observe pollinators and support biodiversity by creating pollinator seed bombs and water stands; and redesigning a home to incorporate environmentally sustainable features.

### Key Inquiry Questions

How do people and environments influence one another?  
How do people influence places and the management of spaces within them?

### Schedule will follow this outline ( approximately):

10.00 am	Arrive, toilets, introduction	12.00 – 12.45 pm	Session 3
10.15 – 11.00 am	Session 1	12.45 – 1.15 pm	Lunch
11.00 – 11.15 am	Morning tea	1.15 – 2.00 pm	Session 4
11.15 – 12.00 pm	Session 2	2.00 pm	Walk to buses.

A Risk Assessment and a permission form can be provided.

Excursions for Stages 4-5 are currently being developed and are earmarked for rollout at the end of 2025.

If you'd like to find out more information, please contact our team: [coalloader@northsydney.nsw.gov.au](mailto:coalloader@northsydney.nsw.gov.au)

Whichever option you choose, please contact the staff at the Coal Loader **first** on

Telephone: 9936 8100

Email: [coalloader@northsydney.nsw.gov.au](mailto:coalloader@northsydney.nsw.gov.au)

# Before you visit the Coal Loader

## Background information

Each topic unit includes background information. It is suggested that this forms the basis of pre-reading and class discussion before an excursion to the Coal Loader.

Each topic has a 'Concepts and terms' vocabulary box. Teachers may want to discuss this vocabulary with their students before visiting the Coal Loader.

Teachers may want to adapt the worksheets to their class's Stage and interests. A visit to the Aboriginal Heritage Office or the Stanton Library's local studies section will also help you to prepare.

Teachers and students may want to use their visit to the Coal Loader as part of the school's sustainability journey. If so, the following websites are helpful.

The NSW Sustainable Schools program, part of the national Australian Sustainable Schools Initiative (AuSSI), has information to assist schools on their sustainability journey. Visit the website at [sustainableschoolsnsw.org.au](https://sustainableschoolsnsw.org.au). Find the NSW Department of Education sustainability education support at <https://education.nsw.gov.au/teaching-and-learning/curriculum/sustainability>. The Department of Education's Environmental and Zoo Education Centres (EZEC) can also assist. Locally, both the Observatory Hill EEC and Field of Mars EEC can offer teachers support, incursions, excursions and fieldwork focused on sustainability.

## Watch the Coal Loader videos

We suggest that you view the short video guides (see 'How to use this guide'), which have been developed for those planning to visit the Coal Loader. The videos are short (less than three minutes each) and can be used to help you decide which topics and activities would best suit your school group.

# After you visit the Coal Loader

One visit to the Coal Loader may not be enough; we encourage local classes to get to know the Coal Loader and keep visiting to continue learning about living sustainably.

After your excursion to the Coal Loader, some inspired students may wish to pursue further actions around sustainability back at school. This could happen through three main ways:

## 1. Communicating and spreading the message of sustainability at school.

This could include:

- Use some of the key messages learnt at the Coal Loader in your school newsletter.
- Develop a sign for your classroom '10 Tips for an environmentally friendly classroom' using the information about living sustainably found at the Coal Loader.
- Ask students to look at their classroom and devise a retrofit using sustainable technologies. What aspects would they keep; what would they add? Do a cost analysis. Could they become an air-conditioning-free classroom?
- Document your success by taking photos and/or recording short videos.



## 2. Set up a green school calendar of events

As a Green Team within the school, set up a green calendar and use tips from the Coal Loader to help celebrate at school. Councils assist local schools with events such as National Tree Day, and have advice for running green events at your school. For example:

- January – World Clean Energy Day
- February – World Wetland Day and Schools Clean Up Australia Day
- March – Earth Hour
- April – Earth Day
- May – Walk to School day
- June – World Environment Day
- July – Tree Day and NAIDOC Week
- August – Science Week
- September – Biodiversity Month and Threatened Species Day
- October – Water Week
- November – Recycling Week
- December – Green Christmas

## 3. Keep connected with the Coal Loader

- We like posting updates about our amazing students visitors on our Facebook page at [www.facebook.com/CoalLoader](https://www.facebook.com/CoalLoader) or instagram at [instagram.com/thecoalloader](https://www.instagram.com/thecoalloader)
- Check out the Coal Loader website for more information: [www.northsydney.nsw.gov.au/coalloader](https://www.northsydney.nsw.gov.au/coalloader)
- Contact the Aboriginal Heritage Office for more information, or to book an excursion based exclusively on local Indigenous heritage
- Contact the North Sydney Council's Stanton Library Heritage Centre for information on Local Studies
- Join your local Sustainable Schools Network
- Join SENS – school teachers and students in the North Sydney area can join the Sustainability Educators North Sydney (SENS) network. SENS is an initiative of North Sydney Council and it brings together teachers, students, environmental educators and others, to share knowledge and ideas, provide support, share resources, provide professional development and get information on grants, rebates and programs.
- Book another visit to the Coal Loader. Consider booking a facilitated whole day excursion with Department of Education teachers for an in depth investigation into an aspect of Geography, Science or Sustainability.



See over for **LEARNING GUIDE** chapters