Lessons in the Gardens – Brisbane Botanic Gardens Mt Coot-tha

Dedicated to a better Brisbane

Overview

The Brisbane Botanic Gardens Mt Coot-tha offers 23 hands-on outdoor learning opportunities for early childhood, primary and senior school groups. Our lessons are aligned with the National Curriculum and have been designed to suit specific prep, primary and secondary levels. Help your students see science theory in action and explore geographical concepts with our trained and knowledgeable education staff.

We are currently in the process of re-writing the lessons to suit the v9 Australian Curriculum and will add these as they are completed.

Geography (Years 1 – 4)

Make geography one big adventure. With plants and plant habitats from all corners of the globe, the botanic gardens is the perfect setting for your students to travel locally and 'overseas' exploring the concept of place. Students can gather data to create a map, investigate the impact of climate on plants and animals (including humans) or identify the natural, managed, and constructed features of a place.

Year level and topic	Overview	Details
Year 1 **Exploring a local place**	Students investigate the Waterlily Lakes and surrounds. Engaging in activities that assist them to identify and explore the natural, managed, and constructed features of this place, students conclude by collectively creating a map highlighting these features. **Curriculum links:** ACARA v8.4 HASS: Geography • The natural, managed, and constructed features of places, their location, how they change and how they can be cared for (ACHASSK031) • Activities in the local place and reasons for their location (ACHASSK033)	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 1.5 hours

Year level and topic	Overview	Details
Year 2 **Exploring special places in the gardens**	Students visit three special places within the botanic gardens. At each location they explore the place and gather data, including the key features of each one. This data is then used by the students to create a mud map about one of the places visited. **Curriculum links:** ACARA v8.4 HASS: Geography • Collect data and information from observations and identify information and data from sources provided (ACHASSI035) • Sort and record information and data, including location, in tables and on plans and labelled maps (ACHASSI036)	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 1.5 hours
Year 3 **Places are both similar and different**	Using directions and map reading skills students locate and investigate three climate types (arid, temperate, and tropical) within the botanic gardens. The features of these climate types, adaptations of endemic plant species and the needs of people who live there are explored. **Curriculum links:** ACARA v8.4 HASS: Geography • The main climate types of the world and the similarities and differences between the climates of different places (ACHASSK068) • The similarities and differences between places in terms of their type of settlement, demographic characteristics and the lives of the people who live there (ACHASSK069)	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 1.5 hours

Year level and topic	Overview	Details
Year 4 **Plants are important everywhere**	Students explore the botanic gardens to locate three different plant species native to South America, Africa, and Australia. After learning where these plants grow and how they are important to the people in these countries, students explore a plant of unknown origin, considering possible uses and how it might be sustainably grown and used. **Curriculum links:** ACARA v8.4 HASS: Geography • The main characteristics of the continents of Africa and South America and the location of their major countries in relation to Australia (ACHASSK087) • The importance of environments, including natural vegetation, to animals and people (ACHASSK088)	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 1.5 hours

Biological sciences (Years Prep – 6)

Take your students out of the classroom and into the real world in our unique, botanical laboratory. Put science concepts into practice as your students investigate plant adaptations first-hand, dig in the leaf litter for invertebrates, or gather biotic and abiotic data to explore the environmental relationships between a habitat and the organisms that live within it.

Year level and topic	Overview	Details
Prep **Our senses and the living world**	Students use their senses to explore and observe the world of living things (plants and animals) in the botanic gardens. Through hands-on activities students investigate the needs of these living things and come to understand how their needs are met. **Curriculum links:** ACARA v8.4 Biological sciences • Living things have basic needs, including food and water (ACSSU002)	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 1.5 hours
Year 1 **Living things and their habitats**	Students explore a variety of habitats within the botanic gardens. Through exploration and observation links are made between the needs and external features of living things and their habitats. Students consider what makes a healthy habitat and the possible effects of habitat change. **Curriculum links:** ACARA v8.4 Biological sciences • Living things have a variety of external features (ACSSU017) • Living things live in different places where their needs are met (ACSSU211)	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 1.5 hours

Year level and topic	Overview	Details
Year 2 **Life Stages**	Using habitats found in the botanic gardens, students investigate living things found here. Students consider how living things have a series of life stages and that their needs may change as they grow. **Curriculum links:** ACARA v8.4 Biological sciences • Living things grow, change, and have offspring similar to themselves (ACSSU030)	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 1.5 hours
Year 3 **What's living in the gardens?**	In a hands-on approach, students investigate and observe both living (plants and animals), and non-living things in various botanic gardens' habitats. Observation and investigation opportunities are available for students to collect data and then identify and group things according to characteristics of living, non-living or once-living things. **Curriculum links:** ACARA v8.4 Biological sciences • Living things can be grouped based on observable features and can be distinguished from non-living things (ACSSU044)	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha ***and*** City Botanic Gardens **Duration:** 1.5 hours
Year 4 **Habitat relationships**	Students investigate various plant and animal interactions and relationships that are present in habitats found in the botanic gardens. Particular roles of living things (producers, consumers, decomposers) are examined. The positive and negative impacts that humans have on living things are also considered. **Curriculum links:** ACARA v8.4 Biological sciences • Living things have life cycles (ACSSU072) • Living things depend on each other and the environment to survive (ACSSU073)	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 1.5 hours

Year level and topic	Overview	Details
Year 5 **Adaptations in the gardens**	Using various plant and animal habitats found within the botanic gardens, students develop an understanding of the functions of various adaptations found on the plants and animals living there. Students investigate how features of these habitats influenced the development of these adaptations. **Curriculum links:** ACARA v8.4 Biological sciences • Living things have structural features and adaptations that help them to survive in their environment (ACSSU043)	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 1.5 hours
Year 6 **Investigating the gardens**	Students participate in a field study using a botanic gardens' habitat. They identify the features of and investigate and collect data for that habitat, and then relate this information to the types of living things found there. Students are encouraged to use the data collected to create a habitat profile. **Curriculum links:** ACARA v8.4 Biological sciences • The growth and survival of living things are affected by the physical conditions of their environment (ACSSU094)	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 1.5 hours

Biological sciences and Biology (Year 7 and Years 10 – 12)

Where else would you explore the diversity of plant life, but at the botanic gardens? Your students will create and use dichotomous keys to classify the plants and animals living in the botanic gardens, travel back through the millennia to investigate botanical evolution through examining plant morphology using living specimens or investigate how plant DNA can be used to classify plants based on their evolutionary history (cladistics).

Year level and topic	Overview	Details
Year 7 **Classifying plants and animals**	Students investigate botanic gardens' habitats and participate in activities designed to develop an understanding of scientific classification (plant and animal) and how the use of dichotomous keys assist with this classification process. **Curriculum links:** ACARA v8.4 Biological sciences • Classification helps organise the diverse group of organisms (ACSSU111)	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 2 hours
Year 7 **Aquatic Ecosystem Health**	The waterways of the botanic gardens are a critical resource in watering and maintaining its plant collections, enhancing the gardens' aesthetic features, and providing important habitat for local wildlife. In this lesson, students investigate the aquatic macroinvertebrate life and riparian zones of the botanic gardens' lakes and lagoons, to determine their environmental health. This lesson provides a fieldwork experience for students to collect and record data for one-off and longitudinal analyses that address the science inquiry content of the biological sciences unit.	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 2 hours

Year level and topic	Overview	Details
	Curriculum links: ACARA v9.0 Biological sciences • Investigate the role of classification in ordering and organising the diversity of life on Earth and use and develop classification tools including dichotomous keys (AC9S7U01) • Use models, including food webs, to represent matter and energy flow in ecosystems and predict the impact of changing abiotic and biotic factors on populations (AC9S7U02) HASS: Geography • Classification of environmental resources and the way that water connects and changes places as it moves through environments (AC9HG7K01) • The location and distribution of water resources in Australia, their implications, and strategies to manage the sustainability of water (AC9HG7K02) • Collect, organise, and represent data and information from primary research methods, including fieldwork and secondary research materials, using geospatial technologies and digital tools as appropriate (AC9HG7S02) Cross-curriculum priorities: sustainability • All life forms, including human life, are connected through Earth's systems (geosphere, biosphere, hydrosphere, and atmosphere) on which they depend for their wellbeing and survival (SS1) • Sustainable patterns of living require the responsible use of resources, maintenance of clean air, water and soils, and preservation or restoration of healthy environments (SS2)	

Year level and topic	Overview	Details

Year 7 <u>and</u> Years 10 – 12
 	
From algae to angiosperms
	Investigate the principles of classification as students walk through our living plant collection, using scientific sketching to explore and record the causal relationship between abiotic factors and plant evolution from algae through to angiosperms.
	
	Optional subcomponent:
	Discover how phylogenetic analysis (cladistics) of morphological and anatomical data allows students to understand how our traditional views of plant classification have changed.
	
	Curriculum links:
	ACARA v9.0
	
	Biological sciences, Year 7
	• Investigate the role of classification in ordering and organising the diversity of life on Earth and use and develop classification tools including dichotomous keys (AC9S7U01)
	
	Biological sciences, Year 10
	• Use the theory of evolution by natural selection to explain past and present diversity and analyse the scientific evidence supporting the theory (AC9S10U02)
	
	QCAA Biology 2019 v1.3 (Unit 3)
	• Students will recognise that biological classification can be hierarchical and based on different levels of similarity of physical features, methods of reproduction and molecular sequences
	• Students describe the classification systems for:
	  ○ similarity of physical features (the Linnaean system)
	  ○ methods of reproduction (asexual, sexual - K and r selection)
	  ○ molecular sequences (molecular phylogeny - also called cladistics)
	• Students should understand that the concept of classification is directly related to the purpose for which the data will be used
		Delivery location: Brisbane Botanic Gardens Mt Coot-tha
		
		Duration: 2 hours

Year level and topic	Overview	Details
	• Students should recognise that the Linnean system does not rely solely on physical features for classification • Classification should be supported by the analysis of field data QCAA Biology 2025 v1.1 (Unit 3) • Identify the major taxa in the Linnaean system of biological classification and explain how it is used to classify and name species • Appreciate that ○ methods of classification are directly related to the purpose for which the data will be used. Hierarchical systems, such as the Linnaean system, can be used to organise, analyse, and communicate data about biodiversity. For example, the hierarchical nature of the Linnaean system allows scientists to infer similarities between species; however, as the system was originally based primarily on physical features, the categorisation of species does not always reflect evolutionary relatedness. Species may be re-classified as new information becomes available	

Years 11 – 12
 	
Investigating Cladistics - real world applications
	Building on 'From algae to angiosperms' students firstly examine the morphology and then the DNA sequences of a selection of plant species to construct cladograms representing the evolutionary relationships between them.
	
	Curriculum links:
	QCAA Biology 2019 v1.3 (Unit 3)
	• Students will recognise that biological classification can be hierarchical and based on different levels of similarity of physical features, methods of reproduction and molecular sequences
	• Students describe the classification systems for:
	  ○ similarity of physical features (the Linnaean system)
	  ○ methods of reproduction (asexual, sexual - K and r selection)
		Delivery location: Brisbane Botanic Gardens Mt Coot-tha
		
		Duration: 2 hours

Year level and topic	Overview	Details
	○ molecular sequences (molecular phylogeny - also called cladistics) • Students should understand that the concept of classification is directly related to the purpose for which the data will be used • Students should recognise that the Linnean system does not rely solely on physical features for classification • Classification should be supported by the analysis of field data QCAA Biology 2025 v1.1 (Unit 3) • Identify the major taxa in the Linnaean system of biological classification and explain how it is used to classify and name species • Appreciate that ○ methods of classification are directly related to the purpose for which the data will be used. Hierarchical systems, such as the Linnaean system, can be used to organise, analyse, and communicate data about biodiversity. For example, the hierarchical nature of the Linnaean system allows scientists to infer similarities between species; however, as the system was originally based primarily on physical features, the categorisation of species does not always reflect evolutionary relatedness. Species may be re-classified as new information becomes available	

Year level and topic	Overview	Details

Years 11 – 12
 	
Investigating abiotic factors and soil/leaf litter invertebrate biodiversity
	Soil is one of the most complex ecosystems in nature yet remains poorly researched and understood. The diverse range of organisms residing in our soils are crucial in supporting terrestrial ecosystem functions, and an understanding of the impact abiotic factors have on soil biodiversity is required, if we are to maintain biodiversity under Australia's predicted hotter and drier climate.
	
	During this hands-on, fieldwork-based excursion, students will explore the causal relationship between abiotic factors and soil/leaf litter invertebrate biodiversity across two different garden areas (representing two different 'forest' types).
	
	This lesson can be used as part of the Senior Biology fieldwork component or as a data collection point for an extended experimental investigation.
	
	Curriculum links:
	
	QCAA Biology 2025 v1.1 (Unit 3)
	• Describe how sampling can be used to investigate the species diversity of a given area, considering the most appropriate:
	  ○ sampling method: random, systematic, stratified
	  ○ sampling technique: quadrats, line transect, belt-transect, capture-recapture
	  ○ strategies to minimise bias: size and number of samples, random-number generators,
	  ○ counting criteria, calibrating equipment, and noting associated precision
	  ○ measure/s of diversity
	• Describe how the distribution and abundance of species in an ecosystem are influenced by:
	  ○ biotic factors - food availability, competition for resources, predation, disease
		Delivery location: Brisbane Botanic Gardens Mt Coot-tha
		
		Duration: 2 hours

Year level and topic	Overview	Details
	○ abiotic factors - space, shelter, availability of water, nutrients, environmental conditions • Investigate: ○ how abiotic factors affect the distribution and/or abundance of species in an ecosystem ○ changes in species composition along an environmental gradient • Compare species diversity in two spatially variant ecosystems of the same classification	

Other Australian curriculum areas and Cross-curriculum priorities (Early Childhood and Years Prep – 12)

Jump start your students' imaginations and their creativity with a field trip to the botanic gardens. Take inspiration from the shape, colour, form and texture of leaves and flowers, or create botanical masterpieces from found materials. Explore Aboriginal or Japanese culture through their use of plants for aesthetic and practical purposes; get active and healthy by making your own garden for school or explore the historical role and importance of the botanical gardens to the development of Brisbane.

Year level and topic	Overview	Details
Years Prep – 6 **Hands on art**	*Years Prep – 3:* Students explore shape, line, colour, and texture in hands-on art activities that focus on nature as a source of artistic inspiration. *Years 4 – 6:* Students examine the artistic possibilities of using natural images and vegetation. They experiment with patterns, balance, structure, and contrast through sketch and making their own creations from natural materials. **Curriculum links:** ACARA v8.4 The Arts Visual Arts • Years Prep-2: ○ Use and experiment with different materials, techniques, technologies, and processes to make artworks (ACAVAM107)	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 1.5 hours

Year level and topic	Overview	Details

	• Years 3-4:
	  ○ Use materials, techniques, and processes to explore visual conventions when making artworks (ACAVAM111)
	• Years 5-6:
	  ○ Develop and apply techniques and processes when making their artworks (ACAVAM115)	

Years Prep – 6 **Aboriginal games and food plants (juniors)**	Students play a selection of Aboriginal games; experience tasting several native food plants and take part in string-making. **Curriculum links:** ACARA v8.4 Cross-curriculum priorities • Aboriginal and Torres Strait Islander Histories and Cultures	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 1.5 hours
Years 4 – 6 **Aboriginal use of rainforest plants**	Investigates how specific plants were/are used by Aboriginal communities for food, tools, and medicines. Students examine and taste some native food plants, explore native plants' use as fibres and consider the diverse role of plants in Aboriginal culture. **Curriculum links:** ACARA v8.4 Cross-curriculum priorities • Aboriginal and Torres Strait Islander Histories and Cultures	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 1.5 hours

Year level and topic	Overview	Details
Years 7 – 12 **Aboriginal use of rainforest plants**	Investigates how specific plants were/are used by Aboriginal communities for food, tools, and medicines. Students examine and taste some native food plants, explore native plants' use as fibres and consider the diverse role of plants in Aboriginal culture. **Curriculum links:** ACARA v8.4 Cross-curriculum priorities • Aboriginal and Torres Strait Islander Histories and Cultures	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 2 hours
Years 4 – 6 **The Japanese Garden**	Examines the cultural significance of Japanese gardens and investigates the garden's design features. Students use the setting as inspiration for Japanese sumi-e painting and haiku poetry. ***Optional subcomponent:*** The Bamboo Grove and Bonsai House can be included in this lesson. **Curriculum links:** ACARA v8.4 Cross-curriculum priorities Years Prep-10: • Asia and Australia's engagement with Asia ○ The arts and literature of Asia influence aesthetic and creative pursuits within Australia, the region and globally. (OI.4)	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 1.5 hours

Year level and topic	Overview	Details

Years 7 – 12
 	
The Japanese Garden
	Examines the cultural significance of Japanese gardens and investigates the garden's design features. Students use the setting as inspiration for Japanese sumi-e painting and haiku poetry.
	
	Optional subcomponent:
	The Bamboo Grove and Bonsai House can be included in this lesson.
	
	Curriculum links:
	ACARA v8.4
	
	Cross-curriculum priorities
	Years Prep-10:
	• Asia and Australia's engagement with Asia
	  ○ The arts and literature of Asia influence aesthetic and creative pursuits within Australia, the region and globally. (OI.4)
	
	Languages
	Years 11-12:
	• Unit 2: Exploring our world
	  ○ In Unit 2, students move beyond their personal world to how they engage with the wider world. They do this by exploring options for personal travel and exploration in Japanese-speaking communities and Australia, and by considering the associated cultural conventions. Students consider the ways that Japanese culture has contributed to the world, and reflect upon their experiences, compare options and express preferences, while appreciating diverse cultural values.
		Delivery location: Brisbane Botanic Gardens Mt Coot-tha
		
		Duration: 2 hours

Year level and topic	Overview	Details
	• Unit 3: Our society; culture and identity ○ In Unit 3, students investigate their place in society. They consider groups in the community and how identity is linked or challenged by membership of these groups. Students also explore the role of the arts as a contributor to the formation of culture and identity, and how sporting and leisure activities both reflect and shape our lifestyle.	
Years 3 – 6 **The active and healthy garden**	Students learn about sustainable gardening, plant a vegetable or herb seed/seedling 'pot' to take home and use fresh seasonal herbs/vegetables to create a healthy snack. Includes a walk through the Kitchen Garden looking at the worm farm, compost heap and seasonal produce. **Curriculum links:** ACARA v8.4 Health and Physical Education Years 3-4: • Describe strategies to make the classroom and playground healthy, safe, and active spaces (ACPPS040) • Participate in outdoor games and activities to examine how participation promotes a connection between the community, natural and built environments, and health and wellbeing (ACPPS041) Years 5-6: • Investigate the role of preventive health in promoting and maintaining health, safety and wellbeing for individuals and their communities (ACPPS058) • Explore how participation in outdoor activities supports personal and community health and wellbeing and	**Delivery location:** Brisbane Botanic Gardens Mt Coot-tha **Duration:** 1.5 hours

Year level and topic	Overview	Details
	creates connections to natural and built environments (ACPPS059) Cross-curriculum priority • Sustainability	
Year 5 **City Gardens time traveller**	Step back in time and explore the history of Brisbane through the City Botanic Gardens and its vital role in the establishment of the colony of Brisbane. Enjoy the convict role-play and then discover some of the historically significant plants still living in the gardens today. ***Optional subcomponent:*** Find the ecologically and economically important plants that tell the story of Brisbane from penal colony to modern state capital. Sketch and record your findings as early botanists did to enable further research. **Curriculum links:** ACARA v8.4 HASS: History • The nature of convict or colonial presence, including the factors that influenced patterns of development, aspects of the daily life of the inhabitants (including Aboriginal Peoples and Torres Strait Islander Peoples) and how the environment changed (ACHASSK107) • The impact of a significant development or event on an Australian colony (ACHASSK108) • The role that a significant individual or group played in shaping a colony (ACHASSK110)	**Delivery location:** City Botanic Gardens **Duration:** 1.5 hours

Year level and topic	Overview	Details

Years 10 – 12
 	
Art in the gardens
	The botanic gardens are a bountiful source of inspiration for artists. Through an exploration of the plant collections, students will be inspired by the plants themselves, as well as some of the famous artists whose work features them. Select from processes including sketching, printing, and ephemeral art to further your students' artistic projects.
	
	Curriculum links:
	ACARA v8.4
	
	Visual Arts, Year 10
	• Conceptualise and develop representations of themes, concepts, or subject matter to experiment with their developing personal style, reflecting on the styles of artists, including Aboriginal and Torres Strait Islander artists (ACAVAM125)
	• Manipulate materials, techniques, technologies, and processes to develop and represent their own artistic intentions (ACAVAM126)
	
	Arts in Practice QCAA 2024 v1.1
	• Unit option A: Issues
	  ○ In this unit, students respond to current issues to create and present arts works that comment on an issue for a specified audience. Students engage with issues that are relevant in their lives and the lives of others. They respond in an engaged and informed manner to issues at a local, state, national or global level.
	  ○ Students recognise the diverse perspectives of peers and the community as they collaborate to communicate shared messages and consider
		Delivery location: Brisbane Botanic Gardens Mt Coot-tha ***and*** City Botanic Gardens
		
		Duration: 2 hours

Year level and topic	Overview	Details
	individual viewpoints through a personal or cultural context. ○ Context: global or local environmental challenges (conservation, sustainability, threatened species) Visual Arts in Practice QCAA 2024 v1.1 • Unit option B: Looking outwards (others) ○ In this unit, students respond to issues or concerns that take place locally, nationally and/or globally, and investigate how artists or artisans respond to these in their artworks. In the role of artists or artisans, students explore issues and concerns within times, places and spaces, and the impact these have on themselves and others in the community. Students provide their own commentary on the world around them through art-making processes. Students consider context and purpose when making and responding to artworks. ○ Students work individually and/or collaboratively to experiment with and explore emotive and persuasive visual language, media, technologies and skills used to communicate issues and concerns. They plan an artwork and demonstrate creative thinking skills as they innovate and resolve the planned artwork. ○ Authentic contexts are used to provide learning experiences and generate purposes for making. Through engaging with various perspectives and/or cultural or social contexts, students have opportunities to learn ways of working and to give and gather feedback, enriching their learning. ○ Context: local communities (public or collaborate artwork in public spaces), environmental issues	

Year level and topic	Overview	Details
	(nature deficit disorder, conservation, sustainability, threatened species) Visual Arts QCAA 2025 v1.2 • Unit 1: Art as lens, Unit 2: Art as code, Unit 3: Art as knowledge, Unit 4: Art as alternative ○ The City and Brisbane Botanic Gardens Mt Coot-tha provide an amazing experience in nature that is a stimulus for whichever unit the students are studying. Nature – aside from providing content inspiration – is also a source of art materials, a space in which to present art and the focus of some of humanity's greatest controversies and challenges.	