



Bringing the Green back into the Gurney Road Community Garden

Project Brief

Acknowledgment of Country

Ninna marni!

Rose Park Primary School acknowledges and respects Aboriginal peoples as the state's first peoples and nations, and recognises Aboriginal peoples as traditional owners and occupants of land and waters in South Australia.

Further, that their spiritual, social, cultural and economic practices come from their traditional lands and waters, that they maintain their cultural and heritage beliefs, languages and laws which are of ongoing importance, and that they have made and continue to make a unique and irreplaceable contribution to the state.

We acknowledge that Aboriginal peoples have endured past injustice and dispossession of their traditional lands and waters.

Background

Gurney Road Community Garden (**Gurney Road Garden**) was a road reserve being the continuation of Victoria Terrace connecting Alexandra Avenue with Grant Avenue, Rose Park.

In 1988, the road reserve was closed and Gurney Road Garden was created as a joint initiative between the City of Burnside (the **Council**) and Rose Park Primary School (the **School**) in which the School and the community shared use of the reserve.

Gurney Road Garden is approximately 2,000m². The site is owned by the Council and is designated Community Land.¹ The Council's website describes Gurney Road Garden as follows:

A grassed play and rest area with seating, adjoining Rose Park Primary School. Fully enclosed fence with child proof lock. Shaded by trees.

Playground

- *Swing set*
- *Various climbing equipment*
- *Fully enclosed fence*
- *Tree shade*

Opening Hours

Public access restricted during school term from 8 am - 4 pm, Monday - Friday. Community use at all other times.

Since 2010 a licence agreement has been in place requiring the School to maintain Gurney Road Garden with non-exclusive rights to use the land for school sport and recreational activities.²

With Council's approval, the School installed artificial playing surfaces for ball sports; a sand pit to the western side; new swings to the southern end; seating under some of the trees; and a three metre high safety net to the southern end of the reserve.

¹ <https://www.burnside.sa.gov.au/Parks/Gurney-Road-Garden>

² Gurney Reserve Licence Agreement 21 March 2017.

The local community uses the facilities in Gurney Road Garden outside of school hours. Children use the play equipment and climb the tree in the playground, and families use the playing surfaces to get their children outside and running around. Many locals walk their pets in the Garden while others use the Garden as a pedestrian thoroughfare. Other groups that use the School's grounds outside of school hours include Out of School Hours Care (OSHC), Greek and Japanese language schools, private music providers, basketball dads, martial arts students, a Christian group and soccer instructors.

This project came about because the community wants to 'bring the green' back to what was once a more vegetated streetscape, and in doing so improve the physical attractiveness of the yard and build understanding in our community of why protecting the natural environment is so important.

Purpose

The purpose of '*bringing the green back to Gurney Road Garden*' is to improve:

- the productivity of the area for the local bird populations and biodiversity,
- wilding for a greener, cooler, climate-resistant environment,
- the canopy cover in a suburb that is experiencing decreased canopy,³⁴ and
- the opportunities for the neighbourhood community, particularly the school children, to connect with the physical endeavours, wellbeing and educational opportunities that the greening process presents.

Project Title

"Bringing the Green back into the Gurney Road Community Garden".

Priority: Green streets and flourishing parklands

A Green Adelaide Grassroots Grant "*Green streets and flourishing parklands (category 3)*" would assist the School to transform Gurney Road Garden into a unique and inspiring streetscape and a green, open public space with enhanced biodiversity for everyone to enjoy.

The School considers that the project aligns with Green Adelaide's priorities:

- 'Green streets and flourishing parklands', as well as
- 'Fauna, flora and ecosystem health in the urban environment', and
- 'Nature education'.

We envisage that the project will deliver on the following key focus areas:

Green streets and flourishing parklands

- Increase greening of streetscapes and public spaces

Fauna, flora and ecosystem health in the urban environment

- Creating, improving and protecting terrestrial habitats, and
- Improving knowledge about species and ecological systems and their management

³ https://engage.burnside.sa.gov.au/FOCUSOnBurnside/news_feed/tree-cover-in-burnside

⁴ https://www.burnside.sa.gov.au/files/assets/public/environment-amp-sustainability/trees/tree-canopy-report/657_report_final_230916.pdf

Nature education

- Community learning and development through educational activities such as citizen science and sustainability activities, and
- Raise awareness and build capacity about Aboriginal cultural knowledge, values and lore.

Given the pressures on our environment with urban development and climate, Adelaide's green spaces and gardens are more important than ever. Gardens in public open spaces provide communities with an opportunity to reconnect with nature, which improves wellbeing and quality of life.

Gardens in a school environment provide children with an awareness and understanding of how nature works, at a macro and micro level, and the role citizens can play to improve outcomes for plants and animals. Gardens nurture in students a desire to care for the environment (and others) and to live more sustainably. The School teaches various units of inquiry relating to the Australian Curriculum and also to the International Baccalaureate (IB). Many components within each of these, particularly the IB programme, lend themselves to application in an environmental and greening context.

Like much of environmental management, children learn and are taught to inquire and question, investigate and explore to gain understanding, consider and problem solve, monitor, review and reflect, and try again (with a revised strategy if necessary).

It is proposed that each year level at the School will take on an area of the Garden to care for and nurture. Student 'ownership' of the Garden will create agency. Signage for each plant species has been selected to assist the community in learning about local indigenous plants.

Appendix 3 outlines the health and well-being benefits of outdoor learning environments for students and the capacity they gain to advocate and act for a sustainable future, as outlined by Australian Curriculum, Assessment and Reporting Authority (ACARA).

Appendix 4 provides information about the IB Primary Years Programme.

Key Focus Areas

The main focus area that this project will deliver on is 'Increase greening of streetscapes and public spaces'.

The School would like to create new streetscape garden beds and plant out existing garden beds with climate - resilient native and indigenous plants (local to Rose Park and also to the Eastern Adelaide Plains / Central Hills Face Zone).

The School aims to:

- restore and rehabilitate the ecological systems that have been lost and degraded,
- encourage biodiversity (particularly habitat and food sources for native butterflies, birds and lizards), and
- restore a healthy ecosystem, and bring colour, vibrancy and originality to the streetscape and Garden.

The native gardens will provide an exciting outdoor learning environment for students and visitors to, and through, the Garden.

There are 15 mature trees established in the Garden. These include five River Red Gums, nine Desert Ash and a Hill's Fig.

Through Partnership with Burnside Council, the Council will plant two trees (not deciduous and not Desert Ash!) along the Gurney Road Garden corridor (thoroughfare). These trees will contribute to the goal of greening the thoroughfare and increase canopy coverage in the area, as well as providing habitat for birds (by extending the tree corridor) and augmenting the streetscape thoroughfare from Grant Avenue to Alexandra Avenue.

The main focus area of improvement is the addition of numerous and varied plants including shrubs, rushes, grasses and ground cover. Plants have been selected for:

- their suitability to the region and specific area of planting (compacted clay soils, position in terms of sun/shade, rainfall and relative to other plant life, durability/exposure to pedestrians/balls etc),
- the plants' characteristics (foliage, growth pattern, berries/flowers etc), and
- their individual qualities (eg the ability to attract and support threatened butterfly species⁵).

The selected plants will individually and collectively:

- increase greening of streetscapes and public spaces,
- reduce urban heat,
- create environmentally friendly habitats for native fauna (and improve existing habitat through diversification of species present and increased pollination opportunities),
- protect the (new and existing) terrestrial habitats, through concerted efforts (eg group/mass/cluster plantings, classroom ownership etc) and physical mechanisms where appropriate (eg corflutes/fencing) while the new streetscape beds are being established,
- provide ongoing opportunities for the school community to improve knowledge about species, and ecological systems and their management, and
- provide ongoing opportunities for the school community to participate in learning and development through educational activities such as citizen science and sustainability activities.

Project Activities and Deliverables

In partnership with the Council, the two bitumen footpaths in Gurney Road Garden are scheduled to be replaced with pavers, and a missing section of pavers is to be installed adjacent to a playground area. The Council has scheduled this work for January 2023, during the school holidays.

The Council will be increasing tree canopy cover by planting two trees beside the footpath adjacent to the playground area in May 2023.

Separate to this work, the School will use the grant to:

Area 1: Revegetate an existing streetscape garden bed adjacent to the Grant Avenue entrance.⁶

⁵ Chequered copper butterfly food plant (nectar and host) is *Oxalis perennans*. Caterpillars eat native sorrel (*Oxalis perennans*) and form a close relationship with small black ants.

⁶ Photo 3

- Area 2:** Revegetate an existing streetscape triangular garden bed adjacent to the pedestrian walkway.⁷
- Area 3:** Create a new streetscape garden bed adjacent to the pedestrian walkway.⁸
- Area 4:** Create a new streetscape garden bed around a tree located at the Grant Avenue end of the reserve.⁹
- Area 5:** Revegetate the existing streetscape garden bed adjacent to Wittber Lane.¹⁰
- Area 6:** Extend and revegetate the streetscape garden bed adjacent to Wittber Lane.¹¹

Burnside Council has provided permission to the School to apply for the grant to revegetate Areas 1 - 4 above.¹² Areas 5 and 6 are owned by the School, hence the Council's permission is not required.

Burnside Council will support the project with in-kind donation of two trees and approximately 200 indigenous plants from the Burnside Biodiversity Nursery in May 2023.

In partnership with Bunnings, Kent Town, the existing streetscape garden bed adjacent to Wittber Lane (Area 5) will be extended by approximately 12.3m to create a new 22.14m² streetscape bed (Area 6).¹³ Bunnings will work with the School community to relocate bark chips and install garden sleepers and dirt. Bunnings will also supply soil and materials for a new streetscape bed to be created around the tree adjacent to Grant Avenue and behind the soccer net (an area of 12.25m²). This work will be undertaken well before May 2023 (possibly as early as December 2022).

Community volunteers will create a new streetscape garden bed adjacent to the pedestrian walkway after the Council has completed its work scheduled in January 2023. This new bed will be 40.39m².

Current photos of the relevant Areas follow.

⁷ Photo 4

⁸ Photos 5, 6 and 7

⁹ Photo 8

¹⁰ Photos 9, 10 and 11

¹¹ Photos 12 and 13

¹² Letter from the Burnside Council to the School dated 27 June 2022.

¹³ Email from Ms Tara Petras, Activities Organiser, Bunnings Kent Town dated 14 June 2022.

Current photos of Gurney Road Garden

Photo 1

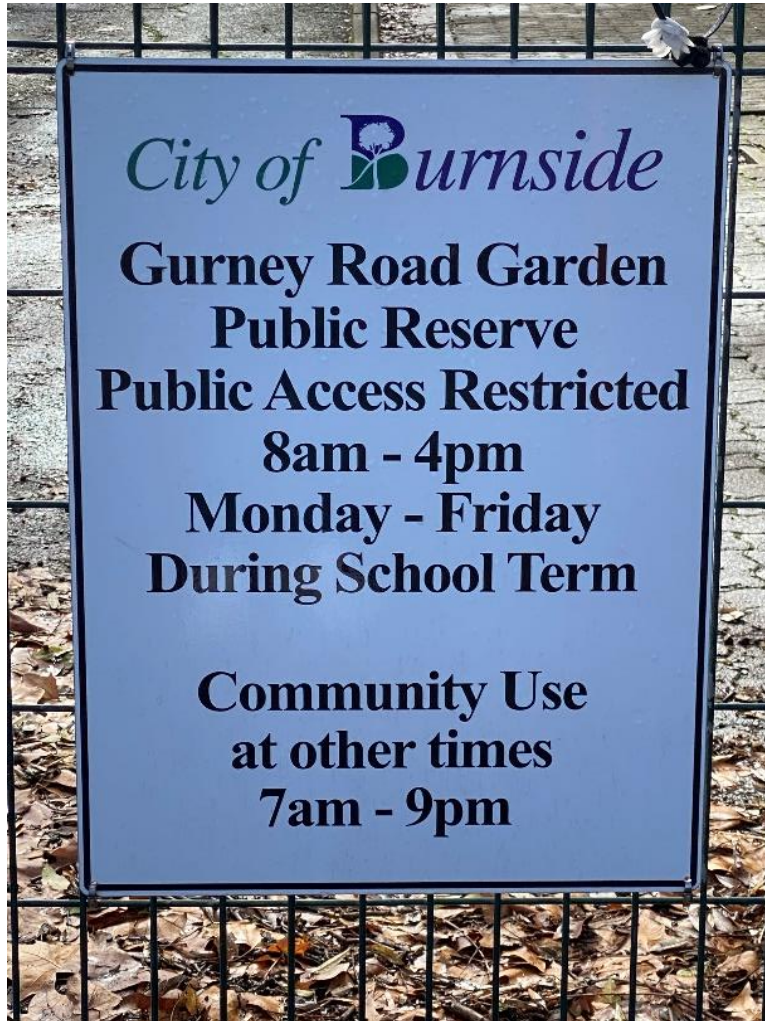


Photo 2



Gurney Road Garden entrance from Grant Avenue

Photo 3



Area 1: Streetscape garden bed at Grant Ave entrance (8.2m²)

Photo 4

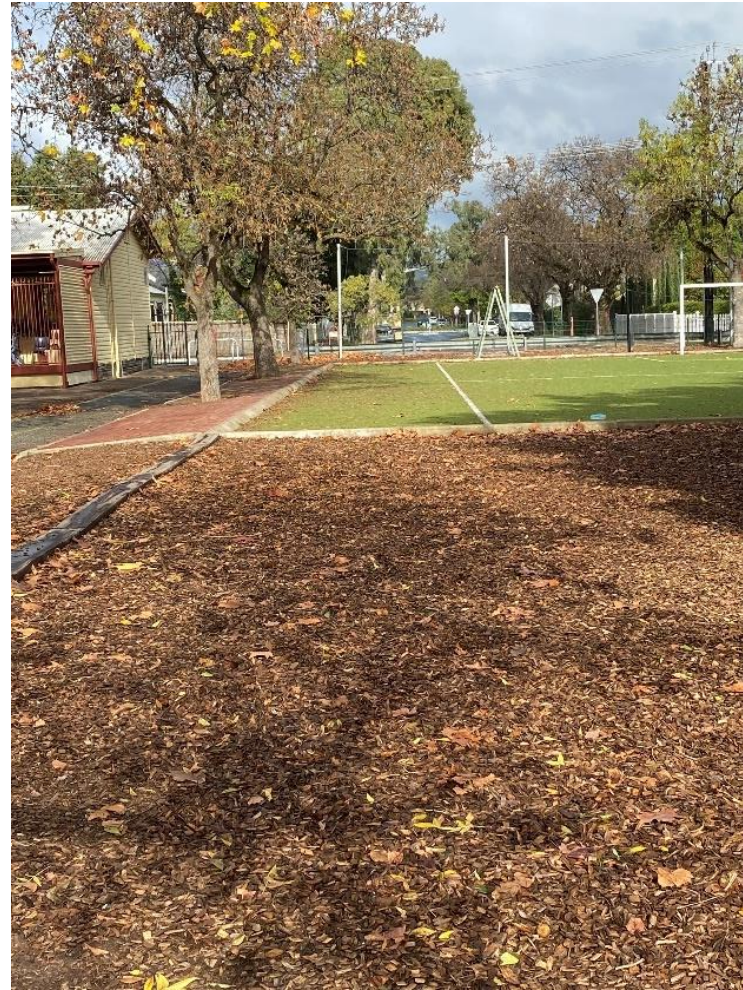


Area 2: Streetscape triangular garden bed adjacent to pedestrian footpath (16.5m²)

Photo 5



Photo 6



Area 3: Sleeper to be moved to right to line up with white line on soccer pitch to create a new streetscape garden bed adjacent to pedestrian footpath (40.39m²)

Photo 7



Playground area with capacity for new garden (photos 6 and 7) to the east (photo left) of equipment

Photo 8



Area 4: Existing tree adjacent to Grant Avenue. New streetscape garden bed to be planted around this tree (12.25m²)

Photo 9



Photo 10



Photo 11



Area 5: Existing Streetscape garden bed adjacent to Wittber Lane (103.88m²)

Photo 12



Photo 13



Area 6: Streetscape garden bed adjacent to Wittber Lane will be aligned with the width of the existing bed, and be extended by a distance of 12.3m (22.14m²)

Revegetation

There are 6 areas of garden to revegetate. The total area to be revegetated is approximately 203.36m². Each garden bed will require the following:

Site Preparation

Preparation of streetscape beds prior to compost and mulching

Site preparation to be undertaken in each garden bed including the removal and disposal of bark chips from the top of each bed, and soil to be dug up and turned over ready for application of compost and mulch.

Site preparation work will be scheduled for March or April 2023.

The School invites Green Adelaide to approve site preparation by an independent labourer to prepare the beds for application of compost and mulch prior to planting.

Installation of an irrigation system

The School notes that irrigation costs are not usually included in grant funding, but may be funded on a case by case basis.

An irrigation system will ensure that the Garden is watered during and, most importantly, outside of the school terms when staff and students are not on site.

The summer vacation period is approximately 6 weeks and involves extremely hot temperatures. There are an additional 8 weeks of holidays throughout the school year.

New plants will require deep, regular watering through the first summer so that the roots don't dry out and to establish strong, deep root systems.¹⁴ Plants will be weaned off deep watering after the end of the second summer. The School anticipates late autumn to early spring will usually require no extra watering in most years.

The School will need to continue watering established plants occasionally and deeply during prolonged dry/hot spells to stop the plants becoming over-stressed.¹⁵ An automated system will ensure the watering frequency can be seasonally adjusted and decrease as plants become established after the second summer.

The installation of pressure compensated drippers will create even watering, and allow easy calculation of water use with a known fixed amount of water delivered per hour.

The School has an existing watering system that can be extended to Gurney Road Garden. Extension and installation can occur when the asphalt footpath is removed by the Council and before new pavers are laid. A supply line can be installed from the existing valve box at the front area of the school with drippers installed for the plants.

Hand watering plants during the school term will not be feasible due to wage costs. Using and moving sprinklers in a school environment is not practical because hoses pose a significant tripping hazard.

¹⁴ <https://www.stateflora.sa.gov.au/the-australian-garden/garden-care>

¹⁵ <https://www.abc.net.au/gardening/factsheets/maintaining-natives/9426644>

For these reasons, the School invites Green Adelaide to approve an automated drip irrigation system.

Compost

An application of good quality compost to the soil surface will improve the soil's moisture-holding capabilities, nutrient content and structure, as well as encouraging beneficial organisms to the root zone (eg through improved air holding capability).

Incorporation of compost to the soil will encourage soil life such as worms and microorganisms to form minute tunnels, building structure into the soil. It is also expected to help with drainage and plants getting established in the compacted clay soils.

The School invites Green Adelaide to approve the application of compost.

Organic Mulch

Application of organic mulch to a depth of at least 5cm – 10cm for each planted area. Deep mulching will assist in better plant growth and self-sufficiency, require less maintenance, build soil organic carbon, form a barrier between the soil and the extremes of temperature, reduce weeds and visually uplift the garden.

Mulch will also provide a habitat for worms, beetles, spiders and lizards.

The School invites Green Adelaide to approve the application of organic mulch.

Planting (no of plants and list species)

In consultation with staff at State Flora Nursery, Belair, and Dr Mark Ellis, Technical Officer, Conservation and Land Management, Burnside Council, the School has identified appropriate plant species for Gurney Road Garden (see Plant Species below).

State Flora

The School attended State Flora, Belair to identify plant species native to the Rose Park area and to obtain advice and recommendations. The School has selected 278 plants from State Flora, that are predominantly ground cover and grasses.

Dr Ellis

Dr Ellis is a botanist who specialises in indigenous plant species. Dr Ellis inspected the planting areas in Gurney Road Garden in person and gave consideration to the native species recommended by State Flora. Dr Ellis made the following recommendations:¹⁶

- 1. Given that many of the planting sites will be quite tough, with competition for light, water and space from existing deciduous trees (Desert Ash) or large eucalypts (River Red Gum) I suggest that you restrict your planting pallet to very tough species that will cope with these conditions. These will mainly include:*
 - A few larger shrubs where space allows that can rise above the traffic of small feet.*
 - Hardy clumping plants (eg Knobby Club Rush, Dianella etc) that can withstand some degree of shade and stomping.*

¹⁶ Email from Dr Mark Ellis dated 16 June 2022.

2. *Give consideration to installation of a temporary fence around planting areas until plants are established to protect them from trampling.*
3. *Shrub plantings can be protected by Coreflute guards or similar sturdy tree guards. You may also need flat stakes for the coreflute guards and Bamboo stakes for plants that are not guarded (but protected by temporary fences). These can be sourced from Arborgreen ...*
4. *I have given below a suggested planting list. These are all indigenous to our area and are grown at the Burnside Biodiversity Nursery. We grow over 100 different species and these are only a sub-set of some of the toughest.*
 - *We would be happy to supply you with up to 200 of these plants (tube stock) for your project at no cost. These would be available in May 2023 in time for winter plantings. For the purposes of your grant you could use the in-kind matching cost of \$4.95 which is what State Flora charges for this size.*
5. *You may wish to include in your grant application an item for purchase of other non-indigenous (but native) plants such as Correa from State Flora.*

Consideration has been given to biological diversity by selecting a variety of plant species for form and function. The purpose of each species has been considered, including for their suitability to the areas being revegetated, individual plant attributes (not limited to height and spread, rainfall, soil and sun preference, frost resilience, pruning maintenance expectations, foliage and flower expectations) as well as for the plants' ability to attract and/or support:

- as habitat and shelter (dense or otherwise),
- as food (berries, foliage, nectar, flowers) or other function; for
 - birds (including honeyeaters),
 - threatened butterfly species (Fringed Blue Butterfly, Grass-Blue, Long-tailed Pea-Blue, Chequered swallowtail),
 - lizards, and
 - bees (including the blue banded bee).

Educational and sensory aspects such as aroma, texture, (vibrant) colours and plants of cultural significance to the Kurna people, as well as allergy/asthma factors in a school setting, have also been considered.

An order for plants will be submitted to the Burnside Council and State Flora Nursery upon confirmation of grant assistance by Green Adelaide in October 2022.

The Burnside Biodiversity Nursery will grow up to 200 tube stock and provide them to the School in May 2023. Term 2 commences on 1 May 2023.

Planting will be achieved by students, parents and staff volunteers at a 'Community Planting Day' following site preparations and plant deliveries. We estimate that we will have 30 to 40 community volunteers available for planting.

Site Follow Up

Temporary Fencing

The School notes that fencing costs are not usually included in grant funding, but consider it a necessity in a primary school environment to allow the plants time to establish themselves.

The School has obtained a quote¹⁷ for materials to fence Areas 1 and 3 only, as these streetscapes are located adjacent to areas where the children will access play equipment.

The fences will be installed as soon as the tube stock has been planted in Areas 1 and 3 by community volunteers at the 'Community Planting Day'.

The School invites Green Adelaide to approve the installation of temporary fencing.

Corflutes and Bamboo

Coreflute guards and flat stakes to protect tree and shrub plantings will be sourced from Arborgreen. Paper cartons and bamboo stakes will be required for all plants. Corflute guards and paper cartons will also act as a visual reminder for students of the presence of the new plants.

The School invites Green Adelaide to approve the installation of corflute guards and/or paper cartons for all plants.

Signage

Signage for each plant species will assist students and the community in learning about local indigenous plants. There are 28 plant species on our plant schedule.

The School invites Green Adelaide to approve the installation of 28 botanic signs.

Fertiliser

Application of fertiliser for optimal growth will be applied to the topsoil after planting when the soil is moist (to avoid leaf scorch) and temperatures are warm enough for regular growth, namely late winter/early spring and autumn after the first rains. Thereafter, application after signs of new season growth throughout the growing season.

Low phosphorous fertiliser, such as 'Bush Tucker' will release nutrients and encouraging beneficial soil biology.¹⁸

The School invites Green Adelaide to consider approving the application of 'Bush Tucker' fertiliser (2 x 20kg bags for two applications to an area of 203m²¹⁹).

¹⁷ Quote from Bunnings dated 23.06.22.

¹⁸ <https://www.stateflora.sa.gov.au/the-australian-garden/garden-care>;
<https://www.abc.net.au/gardening/factsheets/maintaining-natives/9426644>.
<https://www.arborgreen.com.au/product/3020-neutrog-bush-tucker-20kg-bag>: 'Bush Tucker 'is ideal for even the most phosphorus-sensitive plants such as grevilleas, banksias and proteas. Bush Tucker not only directly supplies a wide range of essential nutrients, but more importantly provides a catalyst (through the introduction of beneficial bacteria/microbes) for stimulating the natural processes that occur in the soil – unlocking further nutrients and enhancing root growth. Greater root growth provides a greater soil surface area from which your plants can draw nutrients and moisture.'

¹⁹ <https://www.arborgreen.com.au/product/3020-neutrog-bush-tucker-20kg-bag>: Recommended application rate is 100g per square metre.

Pruning

Annual pruning will occur in mid to late spring or after flowering as appropriate, to improve the shape and the look of the plant (if shaping is required, and to avoid some plants getting too woody), as well as encouraging new growth (and thicken growth).²⁰

Pruning will be undertaken by the School's gardener.

²⁰ <https://www.stateflora.sa.gov.au/the-australian-garden/garden-care;>
<https://www.abc.net.au/gardening/factsheets/maintaining-natives/9426644>

Site Preparation Schedule

Area	Removal and disposal of bark chips and soil to be dug up and turned over	Compost	Mulch	Preparation Date(s)
1. Streetscape garden bed adjacent to Grant Avenue entrance	8.2m ²	0.27m ³ of compost	0.82m ³ of mulch	Site preparation by independent contractors will occur in Term 1 school holidays between 14 April and 28 April 2023
2. Existing streetscape triangular garden bed adjacent to pedestrian walkway	16.5m ²	0.55m ³ of compost	1.65m ³ of mulch	
3. New streetscape garden bed adjacent to pedestrian walkway	40.39m ²	1.34m ³ of compost	4.03m ³ of mulch	
4. New streetscape garden bed around tree adjacent to Grant Avenue	12.25m ² (approx.)	0.46m ³ of compost	1.22m ³ of mulch	
5. Existing streetscape garden bed adjacent to Wittber Lane	103.88m ²	3.46m ³ of compost	10.38m ³ of mulch	
6. New streetscape garden bed adjacent to Wittber Lane	22.14m ²	0.73m ³ of compost	2.21m ³ of mulch	
TOTAL	203.36m²	6.69m³ of compost	20.31m³ of mulch	

Plant Schedule

The table below lists the species intended to be planted.

Refer to **Appendix 1** for examples of why each particular species was chosen based on its unique needs (eg sun/shade, soil, rainfall, frost), characteristics (eg size, hardiness/durability, colour, aroma, flowering time, texture, pruning/maintenance requirements), and ability to create/establish habitat or groundcover in areas where there is none, and to ultimately support biodiversity.

Appendix 2 sets out other determining factors include Indigeneity to the region (conservation status) and cultural (Indigenous) significance, ability to attract and support birds/butterflies (particularly threatened species in the region)/lizards and bees.

Appendix 2 also provides an indication of which Area of the Gurney Road Garden could accommodate each species listed, and is not exclusive but is reflective of the planting intention.

	PLANT NAME: Botanical name	Common Name	Form	Total No. Required	Burnside Biodiversity Nursery (200 plants)	State Flora (purchase)
1	Correa pulchella 'Nana orange form'	Correa pulchella 'Nana orange form'	Groundcover	77		77
2	Themeda triandra	Kangaroo grass	Grass	110	56	54
3	Dichondra repens	Kidney weed	Groundcover	23		23
4	Arthropodium syn. Dichopogon strictum	Chocolate and vanilla lily	Lily	20		20
5	Poa labillardieri	Tussock grass	Grass	20		20
6	Eremophila hygrophana	Blue emu bush	Shrub	15		15
7	Rytidosperma geniculatum (previously known as syn. Austrodanthonia geniculata)	Kneed wallaby-grass	Grass	15		15
8	Kennedia prostrata	Running postman	Groundcover	12		12
9	Lomandra effusa	Scented mat-rush	Rush	10		10
10	Pultenaea largiflorens	Twiggy bush pea	Shrub	7		7
11	Disphyma crassifolium ssp. Clavellatum	Round-leaved pigface	Groundcover	6		6
12	Atriplex semibaccata	Berry saltbush	Groundcover	4		4

	PLANT NAME: Botanical name	Common Name	Form	Total No. Required	Burnside Biodiversity Nursery (200 plants)	State Flora (purchase)
13	Einadia nutans	Nodding saltbush	Groundcover	4		4
14	Correa calycina var. calycina	SA green correa	Shrub	3		3
15	Enchylaena tomentosa	Ruby saltbush	Small shrub	3		3
16	Cynoglossum suaveolens	Sweet hound's tongue	Herb / Understorey	2		2
17	Goodenia ovata - Prostrate form	Prostrate hop goodenia	Groundcover	2		2
18	Banksia marginata	Silver banksia	Tree	1		1
19	Juncus subsecundus	Finger rush	Rush	48	48	0
20	Dianella longifolia var. grandis	Pale flax-lily	Strap-leaved plant / Understorey	29	29	0
21	Cyperus gymnocaulos	Spiny flat-sedge	Sedge	17	17	0
22	Lomandra multiflora ssp. dura	Hard mat-rush	Rush	16	16	0
23	Olearia ramulosa	Twiggy daisy-bush	Large shrub	9	9	0
24	Cullen australasicum	Tall scurf-pea	Groundcover	8	8	0
25	Ficinia nodosa syn. Lsolepsis nodosa	Knobby club-rush	Rush	6	6	0
26	Goodenia amplexans	Clasping goodenia	Small shrub	6	6	0
27	Bursaria spinosa	Sweet bursaria	Large shrub	2	2	0
28	Acacia acinacea	Wreath wattle	Large shrub	1	1	0
29	<i>Trees determined by council</i>		<i>Tree</i>	2	2	0

Total plants:

478

200

278

Total species:

~29

12

18

Trees: 3

Shrubs: 46 (8 species)

Groundcover / Understorey / Lilies: 187 (11 species)

Grasses: 145 (3 species)

Rushes/Sedges: 97 (5 species)

Communication Materials

The project will be communicated by the School to teachers, parents and children via:

- Staff meetings and year level meetings– CENTRAL School Communication platform
- School assemblies;
- SRC Executive Student leaders' meetings;
- Class meetings;
- Edsmart notifications to families;
- the School newsletter and School Webpage;
- Parents and Friend's What's App villages (there is a village group for each year level); and
- social media Facebook pages:
 - Rose Park Sustainability Group
 - Rose Park Parents and Carers
 - Rose Park Primary School Old Scholars

Communication to the School community to ensure stakeholder and community engagement will occur:

1. upon confirmation of grant assistance by Green Adelaide in October 2022 to announce success with Grant Application and save the date for the 'Community Planting Day';
2. at the end of Term 4 and prior to the footpath replacement in January 2023 to announce upcoming rejuvenation of Gurney Garden in January 2023;
3. at the beginning of Term 1 2023 as a reminder to save the date for the 'Community Planting Day' in May 2023;
4. mid/late Term 1 2023 to build anticipation of site preparation and compost/mulch application occurring in April 2023;
5. at the beginning of Term 2 and prior to planting in May 2023 to re-advertise the 'Community Planting Day'; and
6. after planting in May 2023 to advertise successful project delivery.

Posters/flyers/signage will be prepared, laminated and installed on school gates and main entrance doors and also circulated via Edsmart, newsletter and social media.

Based on 6 announcements put up on 13 gates/main entrances the School, the School will require 78 signs. We have adopted June 2022 prices provided by Officeworks for laminating pouches and colour printing costs.²¹

The School will approach the Council, Green Adelaide and a local government minister(s) to be involved in advertising and promoting the project to the wider community.

The School will seek assistance from local media outlets including The Advertiser, the local Messenger newspaper and InDaily. Initial contact with media outlets will be made upon confirmation of grant assistance, with articles being published before and after planting in May 2023.

²¹ <https://appsvc01-pcc-public-p-app-01.s3.ap-southeast-2.amazonaws.com/pdf/print-and-create-price-guide.pdf>

Community/Stakeholder Engagement

Most of the School's community lives in the local school catchment area. The community is enthusiastic and focussed on sustainability, climate change and the environment.²²

The School has a well-resourced community that actively supports the School. Parent and carer volunteers are engaged in education, sustainability, sport, fundraising, wellbeing and social activities, developing the School's Strategic Plans and participating in Governing Council and various sub-committees.

The School will hold a number of community 'working bees' to:

- relocate a sleeper to create a new streetscape bed adjacent to the pedestrian walkway (Area 3);
- work with Bunnings to install the new Grant Avenue streetscape bed (Area 4); and
- work with Bunnings to install the new Wittber Lane streetscape bed (Area 6).

In May 2023, the School will hold a 'Community Planting Day' and invite parents and students to participate in digging holes and placing the plants and signage in designated areas.

Involving parents and students promotes agency for students to take care of the plants and streetscape beds, and will provide a tangible opportunity for the School community to appreciate and connect with nature and each other.

Education Projects

The School has approached Aunty Elaine Magias, a Kurna community elder about the project. She is excited about the project and would like to be involved. She is prepared to provide educational workshops to teach the students about the Kurna knowledge of the plant species, the Kurna name for each species and the importance of protecting the area (respect, connection, understanding and ownership-protection). The students will also learn about artwork, symbols and information which can be used to enhance the streetscape. These workshops will complement the students' current and prior learning.

Cultural consultation is offered as an hourly rate of \$160 for the first hour and \$125 hourly thereafter. The School proposes 1 x leadership and parent consultation session= \$160; 1 x staff meeting session \$125; Assembly presentations and working with students x 2 = \$250.

The School invites Green Adelaide to consider approving cultural workshops as an educational and community based extension of this project.

Bunnings, Kent Town will run volunteer workshops with the students to make wooden nest boxes to put into the trees in Gurney Road Garden. These workshops will be arranged for Terms 1 or 2 in 2023. Children will have their nest boxes hung in the Garden, and some will take them home for residential gardens in the area.

The School teaches the Australian curriculum in conjunction with the IB curriculum. **Appendix 4** is a document prepared by the School that provides information about the IB curriculum and the six transdisciplinary themes in the inquiry programme.

²² The School parents have their own Facebook page: "Rose Park Primary School Sustainability Group". The School's Governing Council Education Sub-Committee has been tasked with sustainability as a focus area.

Recently Year 6 Students undertook a unit of inquiry about how *Living Entities Adapt to Survive in Evolving Ecosystems* in their *Sharing The Planet* subject component.²³ **Appendix 5** is the outcome of the children’s learning about native plants.

Applicant Capability and Capacity

This project will be overseen and implemented by the School’s Environment and Facilities Committee, which is a sub-committee of Governing Council. The project has the support of the School’s Leadership Team, staff, students and families.

The School has the resources and capacity to successfully deliver the project to meet the contractual obligations. Reporting requirements will be undertaken by members of the School’s Environment and Facilities Committee in consultation with the School’s Business Manager and School Principal.

Insurance for Volunteers

The Department of Education holds insurance cover with SAFA (South Australian Finance Authority) as detailed in the confirmation of insurance letter. The cover provides unlimited public liability insurance for all approved department activities (including this grant) and extends to cover the Minister and agents including staff, volunteers and students.²⁴

Links with Current Plans

This project links to Burnside Council and School Agreements – Gurney Rd Garden, City of Burnside Alexandra Ave and Prescott Tce Conservation Management Plan.

The School is in the process of developing and actioning its 5 year Maintenance Plan and creating an Outdoor Learning Landscape Master Plan that builds on the initiatives of the Green Adelaide Grant to promote Green Adelaide’s vision of a cooler, greener and climate resilient Adelaide.

A student, staff and school community consultation process will inform the priorities of The Outdoor Learning Landscape Masterplan with the aim to develop educators’, students’ and families’ knowledge, skills and engagement with creating, improving and protecting habitats and flourishing parklands; improving knowledge about species and ecological systems and their management; with an ongoing focus on Nature Educational activities such as citizen science, sustainability activities and wellbeing.

Long Term Commitment to Project

The School is responsible for the ongoing maintenance of Gurney Road Garden. The improvement of the Garden with indigenous drought tolerant plant species will ensure that the Garden will be available for the next generation of students and wider community to enjoy. It will also help to preserve the local native wildlife and biodiversity in the local area into the future.

We will know that we have achieved our aim by:

- taking before, during and after photos of the Garden and the streetscape;
- observing and monitoring the improvement to the soil and condition of the existing streetscape beds;
- observing the plants thrive and rehabilitate ecological systems in the Garden;

²³ Room 4 ‘Sharing the Planet’ artwork extracted from school newsletter Issue 6, Term 2, 2022: see <https://sway.office.com/s/zvMJNQZfMHnG6pUD/embed>

²⁴ Letter from SAFA dated 9 May 2022.

- observing and monitoring (over time) an increase in local native wildlife, particularly insects, butterflies, birds, bees and lizards;
- involving meaningful community engagement with the project by way of working bees and the 'Community Planting Day';
- seeing more people visiting the Garden to enjoy the rejuvenated healthy green space;
- building on existing education units of inquiry and using the revegetated streetscape as an outdoor learning space for the students to interact with nature and connect with the environment, thereby strengthening their skills, knowledge and capacity to sustainably manage and advocate for our natural resources;
- building on the existing curriculum by providing cultural workshops in an outdoor learning space to nurture a stronger awareness and understanding of Kurna heritage, language, culture, beliefs and relationship with native flora and fauna;
- modelling progressive behaviour for the benefit of our students with respect to the importance of Kurna culture, the environment, climate and sustainability;
- building on the existing collaboration between the School, the wider community, and Kurna People as an important and ongoing step in building reconciliation; and
- strengthening the partnership between the School and Burnside Council which will foster future collaboration to revegetate other areas of the School grounds.

Risk Management

	Likelihood	Impact	Mitigation Strategies
Protection of underground infrastructure	High	High	Use the 'Before You Dig' BYDA service before starting project to identify underground utility services
Risk of not adequately preparing the site (compacted clay) prior to planting, resulting in physical difficulty planting, plants may not establish or may not survive as long as they otherwise would	High	High	Consultation to occur with landscape labourer to ensure that site preparation (eg any earthworks) solution options are carefully considered, for economy, practicality and benefit to risk.
Risk of access to the site being restricted (eg in the event of a COVID-19 outbreak)	Low	Low	Monitor per existing guidelines and practices.
Plant supply – plants not ready by May 2023	Medium	High	Submit orders to nurseries in October 2023 as soon as grant is approved. Ongoing communication with Burnside Council and Biodiversity Nursery and State Flora to ensure plants will be ready for delivery in May 2023.
Planting weekend – not enough volunteers	Medium	High	'Save the Date' communications in October 2023 as soon as grant is approved. Building a sense of achievement, purpose and ownership including promotion of

			<p>the grant announcement, the creation of new streetscape beds with support from Bunnings, Burnside Council's Gurney Road Garden work, site preparation of streetscape beds, the application of compost and mulch, and the 'Community Planting Day'.</p> <p>Ongoing communications and reminders to School community of 'Community Planting Day' in May 2023.</p> <p>Maintain a register of School volunteers, and call in more help if required.</p> <p>The South East Residents' Association Inc have advised of their willingness to volunteer to help the School by providing volunteers if required.</p>
Aunty Elaine not being able to proceed with workshops	Low	Medium	Book workshops well in advance and reach out to other providers/consultants/networks if necessary
Bunnings not being able to proceed with workshops	Low	Medium	Book workshops well in advance and continue to liaise with Bunnings.
Increase in costs of goods and services between June 2022 and April 2023 ²⁵	High	High	Apply a 5% increase to budgeted costs.

Project Budget

To the best of the School's knowledge, this project does not build on previously funded grant projects.

²⁵ https://www.businessaustralia.com/resources/news/rba-sees-inflation-at-7pc?utm_brand=BA&utm_prodcats=content&utm_prod=article&utm_campaigntype=eng&utm_livedate=20220628&utm_target=nat&utm_campaign=BA_newsletter&utm_medium=edm&utm_source=ba&utm_content=rba_sees_inflations_at-7pc&deliveryName=DM25277

Expenditure

Budget Item	Grant Funding Sought (excl GST)	Other Cash Contributions (excl GST)	Other Cash Contributions Source	Notes
Extension of streetscape garden bed in Wittber Lane (Area 6)		\$400	Bunnings	Area 6 – 20 sleepers @ \$20 each
Relocation of one piece of play equipment to create new streetscape garden bed in Area 6		\$2,100	Rose Park Primary School	
Creation of streetscape garden bed (Area 4)		\$240	Bunnings	Area 4 – 12 sleepers @ \$20 each
Irrigation to Gurney Garden	\$7,990			Extension of existing system and supply of drip irrigation
Compost for Areas 1 – 6	\$1,080			Total area: 6.69m ³ . Jeffries Organic Compost 10m ³ blown by Powerscaper as the School does not have capacity to spread compost.
Mulch for Areas 1 – 6	\$2,160			Total area: 20.31m ³ . Jeffries Gardeners Choice Mulch 20m ³ blown by Powerscaper as the School does not have capacity to spread mulch.
Site preparation	\$2700			Labour to turn over garden beds in preparation for compost and mulch as School does not have capacity
200 native tube stock		\$990	Burnside Biodiversity Nursery	Dr Ellis recommends an in-kind matching cost of \$4.95 (average tube stock price of State Flora)
Native tube stock purchased from State Flora	\$820.10			278 plants
Plant delivery by State Flora	\$27			
Two temporary fences	\$737.43			Temporary fencing required to protect plants Areas 1 and 3 until established
75 x Flute tree guards 450mm high	\$119.25			Corflutes for trees and shrubs
75 x Flat stakes	\$62.25			Stakes for flutes
2 x Mallee 2L Carton Cardboard Tree Guard 250/box	\$173.40			Dr Ellis recommends a guard for each plant.

Bamboo Canes 8-10 x 600mm - 500/Bale	\$81.52			Bamboo canes for cardboard tree guards
Two bags of Neutrog Bush Tucker fertiliser (20kg) (\$78.65 each)	\$157.30			Will provide two applications to 203m ² at a rate of 100g per square metre of garden bed
Botanic Identification signs	\$1,200			There are 28 plant species.
78 x Posters/Flyers/Signage	\$76.44			Based on printing at Officeworks of 78 x A3 colour posters at \$0.98 each to put up on school gates and main entrances to buildings
78 x A3 Laminating pouches	\$37.34			Quote from Officeworks
Cultural workshops	\$535			1 x leadership and parent consultation session= \$160; 1 x staff meeting session \$125; Assembly presentations and working with students x 2 = \$250
Bunnings nest box workshops		\$300	Bunnings	Workshops to involve 3 classes of approx. 60 students in total
Sub-Total	\$17,957.03	\$4,030.00		
Risk Management Mitigation for increased costs – add 5% increase	\$855.34	\$152		Excluding State Flora who have guaranteed quote for supply and delivery until May 2023
TOTAL	\$18,812.37	\$4,182.00		

Volunteers

Total number of volunteer hours over duration of project. Total value of volunteer hours (based on ABS rate of \$45.10 per hour).

Additional budget information

Volunteer Activities	No of volunteers	Hours	Notes
Order plants, compost and mulch, and book labourers	1	1.5	
Extend Wittber Lane streetscape bed (Area 6) and relocate existing dirt and bark chips	8	6	
Creation of new streetscape garden bed adjacent to Grant Ave (Area 4)	6	5	
Move existing sleeper to create new streetscape garden bed (Area 3)	5	4	
Move bark chips from existing streetscape beds prior to application of compost and mulch	6	5	
Liaise with Biodiversity Nursery and State Flora between October 2022 and May 2023 to ensure project remains on track	1	2	
Meet with labourer re site preparation	1	1	
Meet with Biodiversity Nursery Project Office to determine planting locations	2	2	
Design, order and collect signs and deliver to Gurney Garden	1	5	
Order and collect fence materials and deliver to Gurney Garden	1	2	
Collect plants from Biodiversity Nursery and deliver to Gurney Garden and unload	3	5	
Prepare multi-media communications to advise community of successful grant application, project initiatives, community planting day etc (School must approve all communications)	3	5	

Community Planting Day	30	3	Volunteers hours by School students, parents and staff. Calculated on approx. 5 plants per person per hour
Install botanic signage	4	2	
Install fences	4	3	
Design 6 posters/flyers/signage	2	6	
Circulation of communications via Edsmart, newsletter and social media	3	2	
Laminate A3 posters and put up at school (6 announcements = 78 posters)	1	6	
Communications to promote/advertise project to wider community via local media outlets (initial and follow up contact)	2	4	
Kaurna cultural workshops	6	3	Three hours involving 6 parent volunteers to help facilitate workshops
Building nest boxes with students	5	6	Three workshops involving 2 volunteers from Bunnings and 3 parent volunteers to help facilitate the workshops
TOTAL	94	78.5	

Partial funding

This project could proceed with only partial funding. In the event of partial funding, the scope of the revegetation works would be reduced accordingly. The School does not have the financial capacity to meet the scope of this project.

APPENDICES

Appendix 1

Noteworthy Plant Attributes

Plant characteristics

	PLANT NAME: Botanical name	Common Name	Height	Spread	Noteworthy characteristics	Flower colour	Flowering time	Pruning notes
1	Correa pulchella 'Nana orange form'	Correa pulchella 'Nana orange form'	0.2-0.4m	0.4m	A cultivar. Open shrub, 2-3m tall and wide. Yellow sprays of flowers in spring.	Orange	Autumn, winter, spring	Tip prune regularly, and prune hard after flowering.
2	Themeda triandra	Kangaroo grass	0.4-1m	0.5m	Tall, perennial tussock grass with copper coloured flowering heads up to 1m tall. Summer active, often flowering and seeding late in the season. Prefers hotter, open situations and forms dense stands.	Brown	Frequently	

	PLANT NAME: Botanical name	Common Name	Height	Spread	Noteworthy characteristics	Flower colour	Flowering time	Pruning notes
3	<i>Dichondra repens</i>	Kidney weed	0.1	1-2m	Greyish-pubescent perennial with creeping stems rooting at the nodes. Distribution mainly in woodland and grasslands; weeds of lawns. Suitable for gaps in pavers. A number of trees in the Gurney thoroughfare have been paved around, but not all the way around leaving some exposed dirt patches that could be planted with something like <i>Dichondra repens</i> , <i>Kennedia prostrata</i> or <i>Disphyma crassifolium</i> ssp. <i>Clavellatum</i> .	Insignificant	Winter, spring and throughout the year, mainly Oct-Jan	
4	<i>Arthropodium</i> syn. <i>Dichopogon strictum</i>	Chocolate and vanilla lily	0.4m	0.4m	<i>Dichopogon strictus</i> , commonly known as chocolate lily, is a herbaceous perennial plant species native to Australia.	Purple	Spring	
5	<i>Poa labillardieri</i>	Tussock grass	0.3-1m	0.3-1m	Beautiful clumping grass that is very ornamental. Grows well under establish trees. Note catalogue doesn't say S for SA, but does indicate Southern Lofty.	Green with yellow centre.	Spring, summer. Attractive fluffy seed heads appear during spring.	Cut back hard in early autumn every few years.

	PLANT NAME: Botanical name	Common Name	Height	Spread	Noteworthy characteristics	Flower colour	Flowering time	Pruning notes
6	<i>Eremophila hygrophana</i>	Blue emu bush	0.7m	1m	This stunning species has attractive grey green foliage and forms a low dense shrub. It is rarely seen without some large purple flowers, with the main flush in late spring to summer. It will grow in most well drained soils in an open position. It may suffer some dieback over winter, but recovers quickly in the warmer months. Makes an excellent pot specimen. Excellent in hot dry conditions.	Purple	Late spring to summer	
7	<i>Rytidosperma geniculatum</i> (previously known as syn. <i>Austrodanthonia geniculata</i>)	Kneed wallaby-grass	0.1-0.5m	0.1-0.3m	Important habitat plant for wildlife. Is a useful soil stabiliser. Graceful grass that can be used in ornamental planting.	Cream: Slender perennial tussocks plus fine, pink-tinged seed heads in spring that age to cream.	Frequently (year round): Spring, summer, autumn.	

	PLANT NAME: Botanical name	Common Name	Height	Spread	Noteworthy characteristics	Flower colour	Flowering time	Pruning notes
8	<i>Kennedia prostrata</i>	Running postman	0.1	1.5-4m	A prostrate or twining shrub with red pea flowers, this plant makes a great ground cover or a restrained climber, ideal in rockeries or to grow over banks. Flowers from winter to summer. It has a spread of around a metre and a half, and has leathery green leaves.	Red, Yellow	Winter, spring	
9	<i>Lomandra effusa</i>	Scented mat-rush	0.2-0.5m	0.2-0.5m	Sweetly scented flowers. Attracts lizards.	Cream with yellow/gold centre.	Winter, spring.	
10	<i>Pultenaea largiflorens</i>	Twiggy bush pea	1-1.5m	0.5-1.5m	Erect shrub with twiggy branches. Masses of orange and red pea flowers. Grows in well-drained, drier positions.	Yellow/gold with red centre.	Winter, spring	

	PLANT NAME: Botanical name	Common Name	Height	Spread	Noteworthy characteristics	Flower colour	Flowering time	Pruning notes
11	Disphyma crassifolium ssp. Clavellatum	Round-leaved pigface	0.1m	1-2m	A native saline succulent with pink flowers. Its rich, sweet fruits were a seasonal favourite. The leaves of this plant are also edible, traditionally served cooked. Be mindful of planting site (might be difficult to rake/keep fallen leaves from deciduous trees off this plant). Suitable in full sun or part shade. Tolerates drought, salt and sandy soils. Suitable for gaps in pavers.	Pale pink	Spring	
12	Atriplex semibaccata	Berry saltbush	0.1-0.3m	1-3m	A perennial herb, this species of saltbush is adapted to inconsistent rainfall, temperature and humidity extremes and to poor soil. It flowers and fruits in spring, and propagates from seed when the fruit splits open.	Insignificant	Frequent	

	PLANT NAME: Botanical name	Common Name	Height	Spread	Noteworthy characteristics	Flower colour	Flowering time	Pruning notes
13	Einadia nutans	Nodding saltbush	0.5m	1m	Climbing saltbush. A perennial, prostrate or twining herb with herbaceous or woody stems spreading to 1 m diameter, small pointed fleshy leaves, tiny yellow flowers and attractive bright red or yellow fruit most of the year. Four forms of Einadia nutans occur; they are distinguished from each other by leaf shape and some fruiting characteristics.	Insignificant	All months, especially May - Nov: Spring.	
14	Correa calycina var. calycina	SA green correa	1.5m	1.5m	Nice colour foliage. Will grow successfully against the base of trees. Partial to full shade.	Green	Winter	

	PLANT NAME: Botanical name	Common Name	Height	Spread	Noteworthy characteristics	Flower colour	Flowering time	Pruning notes
15	<i>Enchylaena tomentosa</i>	Ruby saltbush	0.3-1m	0.5-1.5m	Habit: Dense groundcover or small shrub; Leaves: Soft, narrow, grey, succulent; Flowers: Small, edible, yellow, orange, red or pink fleshy berries; summer to late autumn; Position: Full sun or partial shade. Uses: Hardy for revegetation in drier areas; salt-tolerant; bird and lizard habitat . Widespread and common throughout SA.	(Variable)	Frequent throughout the year	
16	<i>Cynoglossum suaveolens</i>	Sweet hound's tongue	to 0.5m	0.3-0.5m	Perennial, upright or spreading herb. The dark green leaves feel rough (namesake). Sweet forget-me-not. The seeds have barbed spines and are very prickly. Fragrant perfume: White small fragrant flowers with a yellow centre held upright on leafy branched flowering stems. Grows from a rosette of leaves at ground level. Narrow to broad oblong leaves up to 20 cm long and 2.5 cm wide covered in stiff hairs, becoming smaller in size moving up the stem.	White with yellow centre	Oct-May	

	PLANT NAME: Botanical name	Common Name	Height	Spread	Noteworthy characteristics	Flower colour	Flowering time	Pruning notes
17	Goodenia ovata - Prostrate form	Prostrate hop goodenia	0.3-0.8m	1-3m	A cultivar. A very tough ground covering plant that features buttercup yellow flowers over an extended period in spring and summer and bright green fleshy leaves. It is great for spilling over walls or as a border or rockery plant that can spread over a reasonable area.	Yellow	Spring, summer	Give it a light trim at the end of summer to tidy it up.
18	Banksia marginata	Silver banksia	2-8m	1-5m	Feature tree 3 to 5m. Leaves green on top, silver below. Yellow flowers on cylindrical cone, spring to autumn. Interesting foliage and seed pods. Uses: feature plant, streetscaping. Slow growing. If foliage yellows apply chelated iron. Recommended to 'Grow me instead' by Green Adelaide publication.	Yellow	Spring, summer, autumn	Responds to pruning; can prune to single trunk.

	PLANT NAME: Botanical name	Common Name	Height	Spread	Noteworthy characteristics	Flower colour	Flowering time	Pruning notes
19	Juncus subsecundus	Finger rush	0.3-1m	1m	A clump forming sedge that grows in both wet and dry locations, including in clay and swamps. Colonial perennial, herb. Common in damp places associated with a wide range of communities. A rhizomatous, colonising rush with stiff, thin stems. From October to December straw coloured flowers may be present. This plant tolerates shade. Best suits: Moist or seasonally wet soils and partial shade.	Straw, brown.	Mainly in autumn and early summer	

	PLANT NAME: Botanical name	Common Name	Height	Spread	Noteworthy characteristics	Flower colour	Flowering time	Pruning notes
20	<i>Dianella longifolia</i> var. <i>grandis</i>	Pale flax-lily	0.5-0.8m	0.5-1m	Perennial, clumping lily to ~0.75m tall. Many small light-blue flowers in spring on stems much higher than the leaves followed by fleshy purple berries. A rare species which attracts blue-banded bees. Small clumping plants to knee high. Leaves strappy and stiff, blue-green. Blue flowers on narrow stalks above or within foliage line, in spring. Uses: Borders, large or small groupings, indoors.	Blue	Spring, summer	
21	<i>Cyperus gymnocaulos</i>	Spiny flat-sedge	0.2-0.7m	0.5-1m	Sedge to 1m tall, spreads slowly by rhizomes. Can tolerate boggy conditions or drier banks of seasonal creeks.	Brown	Winter, spring, summer	
22	<i>Lomandra multiflora</i> ssp. <i>dura</i>	Hard mat-rush	0.2-0.8m	0.75m	Long lived, slow growing upright tussock. Grey-green, stiff leaves. Masses of tiny yellow flowers held at the base of the plant.	Cream with yellow/gold centre.	Winter, spring, summer	

	PLANT NAME: Botanical name	Common Name	Height	Spread	Noteworthy characteristics	Flower colour	Flowering time	Pruning notes
23	Olearia ramulosa	Twiggy daisy-bush	1-1.5m	1-2m	Attractive shrub to 2m. Soft grey leaves with small white flowers. Drought hardy. Uses: Hedge, colour and texture contrast. Often curry-scented. Suitable for most soils and pots. Full sun.	White, pink: Small white flowers.	Most of the year: Summer, spring.	Prune to retain shape. Prune when flowers fade to encourage second flowering and thicken growth.
24	Cullen australasicum	Tall scurf-pea	0.5-2.5m	0.5-1.5m	Tall herbaceous plant with purple pea flowers. Cut back at end of summer to promote new growth. Only live a few years but spread well from seed. Host plant for Chequered Swallowtail Butterfly larvae.	Pink	Spring	Good idea to prune these plants to form a more solid trunk. Prune also to avoid getting too woody.

	PLANT NAME: Botanical name	Common Name	Height	Spread	Noteworthy characteristics	Flower colour	Flowering time	Pruning notes
25	<i>Ficinia nodosa</i> syn. <i>Lsolepsis nodosa</i>	Knobby club-rush	0.6-1.5m	0.5-2m	Hardy clump forming sedge, can tolerate dry conditions or wet feet in creeklines. 0.5m tall and wide. Uses: Waterway edges, water feature, tolerates dry periods. Habit: Densely tufted rush, root-spreading. Stems: Rigid, upright-arching, cylindrical. Yellow-brown round heads near tip of stem; all year. Especially summer.	Brown	Frequent	
26	<i>Goodenia amplexans</i>	Clasping goodenia	0.5-1.2m	0.5-1m	Low shrub with yellow flowers throughout spring and summer. Grows in woodland and is also found on rocky slopes. Often overlooked in cultivation, this small shrub is fast growing. Will adapt to most soils with good drainage. Prefers full sun but will tolerate some shade. Withstands extended dry periods. Aromatic foliage. Bright yellow flowers appear profusely in the leaf axis during spring and summer.	Yellow	Spring, summer	

	PLANT NAME: Botanical name	Common Name	Height	Spread	Noteworthy characteristics	Flower colour	Flowering time	Pruning notes
27	Bursaria spinosa	Sweet bursaria	3-4m	2-4m	Tall, open shrub. Dense clusters of small white flowers in summer when few other species are flowering. Important plant for beneficial insects. Erect, prickly shrub. Leaves green above, whitish beneath. Fragrant creamy-white flowers, mid-summer. Responds to pruning and pollarding. Uses: informal screen and barrier. Grows well in a variety of soil types except coastal sand.	White	Summer	Only needs a light prune after flowering.
28	Acacia acinacea	Wreath wattle	2-3m	2-3m	An open, very hardy, flowering shrub. Yellow sprays of flowers in spring. Lives for 15 years on average. Tolerant of drought and frost.	Yellow	Winter, spring	
29	Tree(s) determined by council							

Appendix 2

Key attributes considered

	PLANT NAME: Botanical name	Common Name	Birds	Butterflies	Lizards	Bees	Frogs	Cultural significance	Southern Lofty Region Indigeneity (Conservation status)	Intended Area(s) for Planting
1	Correa pulchella 'Nana orange form'	Correa pulchella 'Nana orange form'	Y - Very popular with nectar feeding birds.			Y			-	Area 4
2	Themeda triandra	Kangaroo grass						Y	Indigenous	Area 5 and Area 6
3	Dichondra repens	Kidney weed							Indigenous	Gurney thoroughfare
4	Arthropodium syn. Dichopogon strictum	Chocolate and vanilla lily						Y	Indigenous	Area 1
5	Poa labillardieri	Tussock grass							Indigenous	Area 5
6	Eremophila hygrophana	Blue emu bush	Y						Not determined	Area 5 and Area 6
7	Rytidosperma geniculatum (previously known as syn. Austrodanthonia geniculata)	Knead wallaby-grass	Y	Y	Y				Indigenous	Area 1
8	Kennedia prostrata	Running postman							Indigenous	Wittber Lane (Area 5 and Area 6)
9	Lomandra effusa	Scented mat-rush			Y				Is classed as a Rare species in the Southern Lofty.	Area 1

	PLANT NAME: Botanical name	Common Name	Birds	Butterflies	Lizards	Bees	Frogs	Cultural significance	Southern Lofty Region Indigeneity (Conservation status)	Intended Area(s) for Planting
10	Pultenaea largiflorens	Twiggy bush pea		Y - Food source for larvae of the Fringed Blue Butterfly.					Indigenous	Area 1 and Area 2
11	Disphyma crassifolium ssp. Clavellatum	Round-leaved pigface	Y		Y	Y		Y	Indigenous	Gurney thoroughfare (Area 3)
12	Atriplex semibaccata	Berry saltbush						Y	Indigenous	Area 3
13	Einadia nutans	Nodding saltbush	Y	Y					Indigenous	Area 5
14	Correa calycina var. calycina	SA green correa	Y - Attractive to nectar-feeding birds.						Is classed as a Vulnerable species in the Southern Lofty.	Area 5
15	Enchylaena tomentosa	Ruby saltbush	Y		Y					Area 3
16	Cynoglossum suaveolens	Sweet hound's tongue							Not determined: Understood to be Near Threatened.	Area 1
17	Goodenia ovata - Prostrate form	Prostrate hop goodenia							Prostrate form is not indigenous. (Procumbent hop goodenia is).	Area 2
18	Banksia marginata	Silver banksia	Y	Y				Y	Indigenous	Area 6
19	Juncus subsecundus	Finger rush							Not determined: Understood to be Native.	Area 3

	PLANT NAME: Botanical name	Common Name	Birds	Butterflies	Lizards	Bees	Frogs	Cultural significance	Southern Lofty Region Indigeneity (Conservation status)	Intended Area(s) for Planting
20	Dianella longifolia var. grandis	Pale flax-lily	Y			Y - Attracts blue-banded bees.			Indigenous	Area 2 and Area 5
21	Cyperus gymnocaulos	Spiny flat-sedge	N		N				Indigenous	Area 1
22	Lomandra multiflora ssp. dura	Hard mat-rush	Y	Y					Indigenous	Area 5
23	Olearia ramulosa	Twiggy daisy-bush	Y	Y					Indigenous	Area 5 and Area 6
24	Cullen australasicum	Tall scurf-pea	Y - Very popular with nectar feeding birds.	Y - For nectar and host. Grass-Blue (Zizena labradus); Long-tailed Pea-Blue (Lampides boeticus); Chequered Swallowtail (Papilio demolius).					Is classed as a Rare species in the Southern Lofty.	Area 2
25	Ficinia nodosa syn. Lsolepsis nodosa	Knobby club-rush		Y			Y		Indigenous	Area 1

	PLANT NAME: Botanical name	Common Name	Birds	Butterflies	Lizards	Bees	Frogs	Cultural significance	Southern Lofty Region Indigeneity (Conservation status)	Intended Area(s) for Planting
26	Goodenia amplexans	Clasping goodenia				Y - Attracts native blue bees			Indigenous	Area 3
27	Bursaria spinosa	Sweet bursaria	Y	Y					Indigenous (ssp. Spinosa) Rare (ssp. Lasiophylla)	Area 5
28	Acacia acinacea	Wreath wattle						Y	Indigenous	Area 5
29	Tree(s) determined by council									Gurney thoroughfare

Australian Curriculum, Assessment and Reporting Authority (ACARA)

<https://www.australiancurriculum.edu.au/resources/curriculum-connections/dimensions/?id=46776&searchTerm=Sustainability#dimension-content>



Cross Curriculum Priorities: Sustainability

Through the priority of Sustainability, students develop the knowledge, skills, values and world views necessary to contribute to more sustainable patterns of living.

Outdoor learning enables students to develop a deeper understanding of the relationship between humans and their environment in order to promote, support and sustain the wellbeing of individuals, the community and the environment, now and into the future.

Outdoor learning provides unique opportunities for students to reflect on the ways humans interact with each other and the environment. It encourages students to reflect on ways of interpreting and engaging with the world and enables students to explore how they connect and interact with natural environments, and with other people. Students consider how these connections and interactions within systems play an important role in promoting, supporting and sustaining the physical, social, emotional and spiritual wellbeing of individuals, the community and the environment as a whole, now and into the future. For example, students could investigate geographical features of a place, focusing on forests and treed areas, and propose actions to care for those natural resources.

Outdoor learning gives students unique ways of experiencing and understanding ecosystems. Sensory experiences of seeing, hearing, touching and smelling can only be obtained in an outdoor setting. Understanding and appreciation resulting from a direct experience of ecosystems gives students an incentive to be active in preserving and restoring natural environments. With different world views across a student group, outdoor learning provides opportunities for the discussion of values that inform actions for sustainability.

Students can develop an understanding of their potential to contribute to sustainable patterns of living. Through outdoor movement experiences such as games and bushwalks, students are given opportunities

to develop a connection in and with natural environments and to gain an appreciation of the interdependence of the health of people and environments. For example, students could repurpose a common household waste item, such as plastic bottles, and design and create a new product that could be useful while in the outdoors.

Students can develop a deeper understanding of the relationship between the health and wellbeing of the individual and the environment. They develop this understanding through a range of activities including:

- learning in and about the outdoors
- the creation of spaces for outdoor learning
- active outdoor recreation
- active transport options
- growing, sourcing and choosing food products.

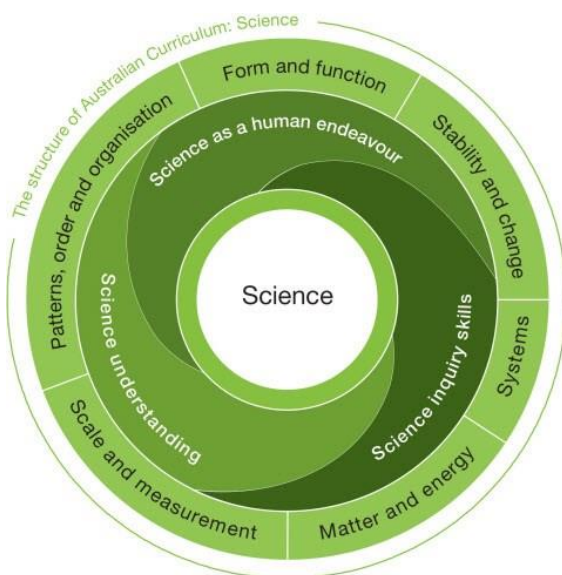
Through such activities, they will gain a capacity to advocate and act for a sustainable future. For example, students could identify and investigate natural, managed and constructed features of environments and familiar landscapes, identifying the natural resources used in these places with a particular focus on soil and erosion.

All Years (Reception – Year 6)

World views that recognise the dependence of living things on healthy ecosystems, and value diversity and social justice, are essential for achieving sustainability.

Biological Sciences and Earth and Environmental Sciences

All Primary Years (Reception – Year 6)



Science Sequence of content F-6: Grand Science Understanding

Sub Domain	Progression Step	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Biological sciences	Living things have form, including their structure (ACSSU001)	Living things have a variety of internal features (ACSSU011) Living things are organisms (ACSSU012) Living things that obtain energy from their environment (ACSSU013)	Living things grow, change and have offspring (ACSSU021) Living things are organisms (ACSSU022)	Living things can be grouped on the basis of observable features and can be distinguished from non-living things (ACSSU031)	Living things have life cycles (ACSSU041) Living things depend on each other and the environment to survive (ACSSU051)	Living things have structural features and adaptations that help them to survive in their environment (ACSSU061)	The growth and development of living things are affected by physical conditions of their environment (ACSSU071)
Chemical sciences	Change in matter that has a molecular structure (ACSIS001)	Energy transfer can be physically changed via results of mass (ACSIS011)	Different materials can be combined for a particular purpose (ACSIS021)	A change of state between solid and liquid can be reversed by adding or removing heat (ACSIS031)	Some solid materials have a range of physical properties that can influence their use (ACSIS041)	Some liquids (and gases) have different molecular structures and behave in different ways (ACSIS051)	Changes in molecular structure can be reversible or irreversible (ACSIS061)
Earth and space sciences	Early and seasonal changes in our environment affect organisms (ACSIS001)	Observable changes occur in the day and seasonal patterns (ACSIS011)	Earth resources are used in a variety of ways (ACSIS021)	Earth's rotation on its axis causes regular changes, including light and day (ACSIS031)	Earth's surface changes over time as a result of natural processes (ACSIS041)	The Earth is part of a system of planets orbiting around a star (the Sun) (ACSIS051)	Human (geological) changes will influence natural systems (ACSIS061)

Published under the Creative Commons Attribution-NonCommercial-ShareAlike license. See <https://creativecommons.org/licenses/by-nc-sa/4.0/> for details.

HASS – The humanities and social sciences are the study of human behaviour and interaction in social, cultural, environmental, economic and political contexts. The humanities and social sciences have a historical and contemporary focus, from personal to global contexts, and consider challenges for the future.

Reception – Year 6: Geography, History – Strands – Inquiry and Skills, Knowledge and Understanding



International Baccalaureate (IB) Primary Years Programme (PYP) Framework

Transdisciplinary Learning

The focus on transdisciplinarity as a means to integrate subject knowledge that transcends traditional subject boundaries in the Primary Years Programme (PYP) has been influenced by the work of Boyer (1995) on human commonalities, and the perspectives of Tye and Kniep (1991). This focus addresses challenges that crossed national boundaries, while being interconnected in the following ways:

- Culturally
- Ecologically
- Politically
- Economically
- Technologically

The six transdisciplinary themes capture human commonalities that are significant and relevant regardless of where students are in the world and to which ethnic or cultural groups they belong. The transdisciplinary themes:

- have global significance—for all students in all cultures to explore the commonalities of human experience
- address contemporary opportunities and challenges surrounding environment, development, conflicts, peace, rights, and governance

Concepts: Concepts are the means through which teachers develop the central ideas and through which students develop conceptual understandings. A related concept deepens understanding of a key concept or a subject. As with key concepts, some related concepts have relevance across other subjects and provide further opportunities to make connections across, between and beyond subjects.

Learning begins at home and within the various communities to which students belong.

...transdisciplinary learning in the PYP conveys learning that has relevance between, across and beyond subjects and transcends borders that confine them to connect to what is real in the world.

They ‘emphasize the importance of making connections, exploring the relationships between academic disciplines, and learning about the world in ways that reach beyond the scope of individual subjects’.

These themes are worth exploring regardless of where PYP students are in the world and with which ethnic or cultural group they identify. Framing the programme of inquiry, these globally and socially driven themes provide a starting point from which students can examine issues and opportunities as they are being experienced in the real world. Taken together, these themes provide students with authentic learning experiences that are not confined to the boundaries of traditional subjects because real-world problems have no boundaries.

Together, the transdisciplinary model and the transdisciplinary themes enable students and teachers to intentionally and contextually put knowledge to work in important ways for students, which Dewey and Dewey (1915) advocated:

- focus on personal and social significance
- unify learning in all its aspects.

Learning ...	How
extends the international dimension of the PYP	The themes have global significance—for all students in all cultures and all places.
is authentic and engaging	The themes address contemporary challenges surrounding environment, development, peace and conflicts, rights and responsibilities, and governance.
is deep	The themes are revisited throughout the students' primary years so that the end result is immersion in broad-ranging, in-depth, articulated curriculum content.
is cohesive	The themes contribute to the common ground that unifies the curriculum in all IB World Schools offering the PYP.
is connected	The model is supported by knowledge, conceptual understandings and skills from the traditional subject areas, but it uses them in ways that transcend the confines of these subjects.
is relevant and current	The model allows for resources to be drawn from current global events and technology development to prepare for the future.

...shared humanity...

Globally important themes...

'students, as they are increasingly posed with problems relating to themselves in the world and with the world, will feel increasingly challenged and obliged to respond to that challenge.'

Connecting transdisciplinarity

The PYP framework supports the symbiotic relationship between the learner, learning and teaching and the learning community.

It encourages the integration of many forms of knowledge and perspectives from all members of the learning community to make sense of a world that has become "too big to know" (Weinberger 2011).

The transdisciplinary model permeates all three pillars of the PYP curriculum framework—the learner, learning and teaching, and the learning community. Together, the PYP framework and elements within it contribute to a learning experience that is transdisciplinary.

A transdisciplinary education, according to Nicolescu (2006: 14) 'allows us to establish links between persons, facts, images, representations, fields of knowledge and action and to discover the Eros [love] of learning during our entire life.'

...personal and societal significance...

The learners or inquirers, individually and collectively, have 'a history, a social and historical context, beliefs, values... take action... to address local and / or global challenges.'

The PYP framework and the transdisciplinary approach encourage and support connections across learning and teaching as a means to raise student awareness of the relevance of their learning to their reality. PYP classrooms and schools are where the framework is turned into effective and innovative practice. Implementing the PYP in their own context, schools and their teaching teams bring to life the transdisciplinary learning experience for all in the community.

Transdisciplinarity presupposes ‘Shared knowledge should lead to a shared understanding based on an absolute respect for the collective and individual otherness united by our common life on one and the same Earth regardless of background or beliefs’ (CIRET 1994).

Transdisciplinarity calls for a collaborative, community-based approach to resolving issues, and to considering opportunities centred on common themes.

...the interdependence of everyone and everything to create a shared understanding of the world. Everyone in the IB community has agency to take action to effect change.

Many of the transdisciplinary themes, such as “Sharing the planet”, “Where we are in place and time” and “How we express ourselves”, signal a shared responsibility and invite communities to act based on collectively shared values and norms.

Elements of the PYP framework

They support the development of ‘internationally minded people who recognize their common humanity and shared guardianship of the planet’ (IBO 2017: 2).

...themes engage the learning community in rich dialogues and ongoing collaboration to build an understanding of themselves, their wider community and the world. Designed to have enduring value regardless of the geography or background of IB World Schools and students, the six themes provide guidance for what students will inquire into. They

- encapsulate our shared commonalities
- indicate the complexity and the connectedness of the human condition globally
- invite students to engage in dialogues about real issues in the world
- allow for authentic embeddedness of subject areas
- contribute to the uniqueness of the PYP.

Transdisciplinary themes	Descriptions
Who we are	An inquiry into the nature of the self; beliefs and values; personal, physical, mental, social and spiritual health; human relationships including families, friends, communities and cultures; rights and responsibilities; what it means to be human
Where we are in place and time	An inquiry into orientation in place and time; personal histories; homes and journeys; the discoveries, explorations and migrations of humankind; the relationships between, and the interconnectedness of, individuals and civilizations from local and global perspectives.
How we express ourselves	An inquiry into the ways in which we discover and express ideas, feelings, nature, culture, beliefs and values; the ways in which we reflect on, extend and enjoy our creativity; our appreciation of the aesthetic.
How the world works	An inquiry into the natural world and its laws; the interaction between the natural world (physical and biological) and human societies; how humans use their understanding of scientific principles; the impact of scientific and technological advances on society and on the environment.
How we organize ourselves	An inquiry into the interconnectedness of human-made systems and communities; the structure and function of organizations; societal decision-making; economic activities and their impact on humankind and the environment.



Sharing the planet	An inquiry into rights and responsibilities in the struggle to share finite resources with other people and with other living things; communities and the relationships within and between them; access to equal opportunities; peace and conflict resolution.
---------------------------	--

> How the World Works: ...the interaction between the natural world (physical and biological) and human societies...environment

> How We Organise Ourselves: ...impact on humankind and the environment.

> Sharing the Planet: An inquiry into rights and responsibilities in the struggle to share finite resources with other people and with other living things; communities and the relationships within and between them...

Inquiry in the PYP

Drawing from the transdisciplinary themes and students' interests, inquiry is an authentic way for students to relate to, explore and understand the world around them.

...collaboration...

PYP teachers understand that learning is activated when students can connect knowledge to concepts and personal experiences in meaningful ways.

Use real world contexts and primary experiences as significant activators of learning.

...make meaningful connections with environments, ideas, materials and concepts.

The learning community and inquiry As inquiries in the PYP are based on human commonalities that have relevance to everyone in the learning community and beyond, members of the wider community also play a meaningful role in the inquiry process.

- provide opportunities for students to take action through their organizations
- conducting open inquiries or building projects together

Concepts

Concepts help to build understandings across, between and beyond subjects.

Key concepts	Key questions	Definition
Form	What is it like?	The understanding that everything has a form with recognizable features that can be observed, identified, described and categorized.
Function	How does it work?	The understanding that everything has a purpose, a role or a way of behaving that can be investigated.
Causation	Why is it as it is?	The understanding that things do not just happen; there are causal relationships at work, and that actions have consequences.
Change	How is it transforming?	The understanding that change is the process of movement from one state to another. It is universal and inevitable.
Connection	How is it linked to other things?	The understanding that we live in a world of interacting systems in which the actions of any individual element affect others.
Perspective	What are the points of view?	The understanding that knowledge is moderated by different points of view which lead to

> Causation: The understanding that things do not just happen; there are causal relationships at work, and that actions have consequences.

> Connection: The understanding that we live in a world of interacting systems in which the actions of any individual element affect others.

- The key concept of “connection” could focus the unit on how the characteristics of the species connects to features of the environment to ensure survival.

Related Concepts:

... “sustainability” could be a related concept associated with “change and responsibility”.

Related Concepts:

Causation> Impact

Change> Growth

Responsibility> What are our obligations? Citizenship, Values, Initiative

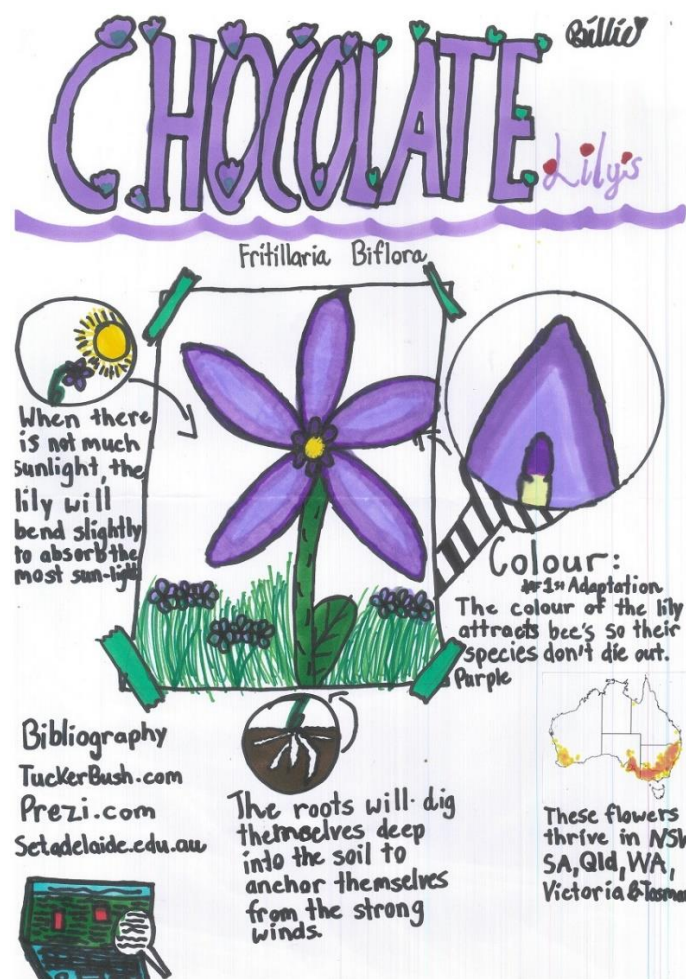


Room 4 Sharing the Planet

Students in Room 4 have been inquiring into how **Living Entities Adapt to Survive in Evolving Ecosystems** for their *Sharing the Planet* unit.

Paying close attention to the physical features of Australian Native Plants has allowed students to understand some of the very clever ways in which our Karna plants have adapted to survive in the climate and conditions here in South Australia's arid, Mediterranean biome.

Students have been thinking about how their actions impact the ecosystem, and about changes they could make to improve outcomes for plants and animals locally and globally.



C
L
E
O

Pink Rock Lily

appearance:
The pink rock lily has pink leaves, green stems and green leaves, and grows on a rock as the name says.
PINK ROCK LILY

Thelyction Kingiarus



Adaptations

The pink rock lily makes pseudobulbs they have a large base, which can act as a food storage unit, which can make survival a much bigger chance for the pink rock lily. The pink rock lily has adapted to live on the coast of NSW because it is warmer there, so it can be protected from most frost and cold weather. It will form in groups/clumps and when the breeding season comes, the plant buds to produce new lilies. The lilies don't need much water in winter, but they store it in winter and use it for summer and warmer days/months.

FACT FILE

Where is the Bottlebrush found?
East and South Australia, two species occur in South West Western Australia.
Scientific name:
Callistemon
What biome does Bottle Brush live in?
Grow in damp and wet conditions usually along creek beds.
What are they?
They grow up to 4 meters

FRUITING CAPSULES

When the flower is pollinated, the anthers produce small woody fruits holding lots of seeds in them. These capsules usually form in bunches along the stem and are held for many years. The capsules take a long time to release their seeds, from a year to several years and some even require fire for the capsules to be opened.



POLLINATORS

The pollinators of the Bottlebrush are Butterflies, Bees, and Wasps. Some Hummingbirds pollinate these plants as the Bottlebrush also grows in the U.S. but mostly grows in Australia. The pollinators are attracted to the plant because of its very bright coloured flowers.



BOTTLE BRUSH

Callistemon



STIGMA AND ANTHERS

The stigma has a sticky surface on the flower's stamen allowing it to catch pollen. The stigma then reproduces the pollen, making the seed. The anther produces the pollen, pollinators are attracted to the flower and start collecting pollen.



BOTTLE BRUSH

LEAVES

The leaves of a bottle brush usually come in dark shades of green with soft hair helping them to collect moisture. This helps protect the plant from heat and dry periods. The leaves are long, thin and tough so they don't lose much water through evaporation. The leaves are aromatic and are covered with tiny oil glands that release a nice or medicinal scent.



ROOT SYSTEM

The root system of a bottlebrush is a root-rot resistant root system meaning that the plant doesn't need to dig very deep into the soil. The roots will usually spread towards shady areas and can grow up to 6-10 feet. The roots spread out to collect water from the circumference of the tree. The roots always seem to be about 10 centimeters below the ground. The roots will get fire water as the roots will spread into the creek but sometimes bottlebrushes would need water very frequently.



KANGAROO PAWS

The colour of the plant changes due to different light levels and temperature.

Fact File:
Family: Proteaceae
Size: When fully grown it may grow to 4 meters, 13-25cm in length
Native: It's native to NSW and it's their state emblem.
Scientific Name: *Telopea Speciosissima*

The Waratah is a shrub. Beauty comes naturally to this plant. The flowers are grouped in rounded heads surrounded by crimson bracts. When Waratahs fully grow they are four meters high and 3 quarters wide. It has a crimson type colour but in different parts of Australia it has different shades for example there are white and yellow.

Waratahs can survive harsh conditions such as wildfires. It can regenerate itself from a 'signature' - an underground stem which contains mass of buds and food reserves. These are capped by the recognizable crimson flower heads. Shortly after the fire they start to sprout.



The only way to propagate Waratahs is by semi-woody cuttings which is best done in spring and summer when the plant is actively growing. By doing this the Waratah is likely to maintain good dense shape and increase the number of flowers for the next year.

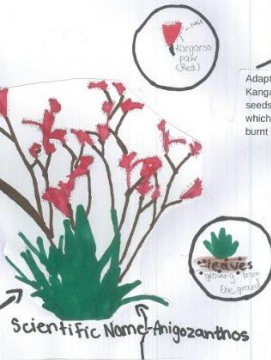
Waratahs are protected by beautiful bracts which are modified leaves. These bracts protect the waratah while it's in bud and open out to give it's full glory. They always love a spot with the morning sun.

Waratahs are mainly pollinated by birds attracted to their bright colour and copious amounts of nectar. The bird seeds out the nectar which is deep inside the waratah and takes that pollen from one waratah plant to another and cross-pollinates.

TELLOPEA SPECIOSISSIMA
WARATAH
ANAS

Adaptation
The plant's leaves grow towards the end of the stem and rise from the underground plant system. That means if you cut the base of the plant, the root system stay's safe and slowly the plant will regrow itself.

Why is it shaped like a kangaroo's paw?
It is shaped like a kangaroo paw so it can attract honeyeater birds. Honeyeater birds suck the nectar from the flower and make it into their food. Therefore the plant has a strong and balanced stem for the birds to sit on. For example the Red Wattle birds and the Eastern Spionbill.



Where do they grow?
They grow naturally in Southwest of Western Australia and it can grow up to 1 to 3 feet tall.

Adaptation
Kangaroo Paws produce many seeds deep under the ground which helps them from being burnt in a fire.

Adaptation
Kangaroo Paws have small hair around it to make it taste weird so predators wouldn't eat it. The hair also helps the plant in storing water as they grow in dry climate.

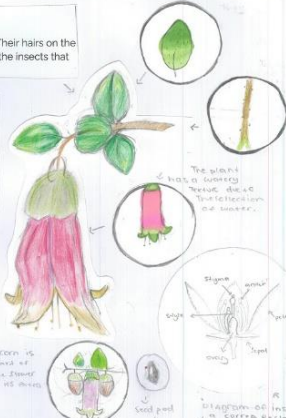
Canberra bells

CORREA REFLEXA
FAMILY - RUTACEAE

In the hot weather the tips of the leaves may fold downwards to protect the flowers from the sun. The flowers will split open when it is dry.

The dark green moisturized leaves have fine spotted dots that are described as the hairs. This keeps them warm, cool and protected. Their hairs on the leaf also help them collect food by trapping the insects that come by.

The Correa Reflexa is able to adapt to many different habitats. Its root system adapts to most soil types and will appreciate the light compost during the heat of the summer. Its waxy root system does not crack deeply into the soil though it tends to grow rather shallow.



These plants have seeds that attract ants for food. The ants carry their seeds the correa reflexa seeds in their nest, burying it in the process for new ones to grow.

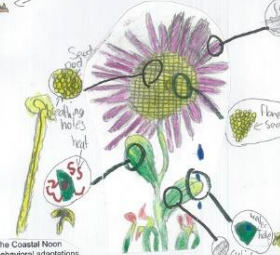
These plants grow to about 5 cm long and belong to the rutaceae family. They are found in south east of South Australia, through Victoria to eastern New South Wales and continues into south-east Queensland and includes eastern Tasmania and Kangaroo Island.

Coastal Noon Flower

Disphyma crassifolium subsp. Clavellatum



find plant groups that are best for plant



When the Coastal Noonflower breathes it sends little particles that become so strong and big that they burst, and that is how this plant makes oxygen. It breathes in and out carbon dioxide and then it goes all around in an invisible bubble and it then becomes so big it bursts making carbon dioxide go and oxygen come. This plant is one of few that do that.

The Coastal Noonflower is also known as pig face. Why it is called that, it is called that because pig face has multiple spines and when you find the coastal noon flower it has a few features that make it look like a pig's face.

Adaptations behavioral: The Coastal Noon Flower or Pigface has 2 behavioral adaptations. The first one is when it is winter the plants petals get frozen and can not breathe. So to solve the problem the leaves gather up heat nearby and absorb it. That then makes the plants petals free and allows them to breathe. The second behavioral adaptation is that the flower can breathe under water as it likes to grow near beaches so when it floods or goes to high tide the flower will survive.

Pigface is found growing around the sand dunes of Queensland. The plant is able to cope with harsh conditions for example high heat and little water. Pigface has a thick waxy coating around its leaves called "cuticle". This reduces the amount of water loss by transpiration from the leaf surface.



Root System: The root system on the Coastal noon flower is underneath it has a curly roots that stab the dirt making it nearly impossible for it to be pulled out. So the roots are making it stay alive.

Bibliography
<https://www.sciencedirect.com/science/article/pii/S0926641017300078>
<https://www.pigface.com.au/>

www.britannica.com/health/2019/01/coastal-noonflower

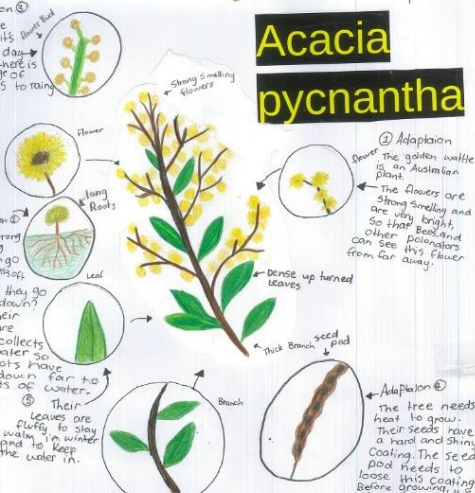
Golden Wattle

Acacia pycnantha

Adaptation 1
The wattle changes its flowering day when there is a change of hot days to rainy days.

Adaptation 2
Their strong and long roots can go so deep as 20m. Why do they go so far down? Well their roots are what collect the water so the roots have to go down far to get less of water.

Adaptation 3
Their leaves are fluffy to stay warm in winter and to keep the water in.



Adaptation 4
The golden wattle is an Australian plant. The flowers are strong smelling and are very bright so that bees and other pollinators can see its flower from far away.

Adaptation 5
The tree needs heat to grow. Their seeds have a hard and shiny coating. The seed pod needs to lose this coating helps it to survive because it stops the seed from growing until the climate improves.

Faith

Dampiera Diversifolia

family : Goodeniaceae

Common name : Dampiera

The roots get very water by 75 species in Australia. The flower's roots are between 1.5m to 2m long. The plant has long roots which makes it hard to pull out. So the roots are making it stay alive.

The bright colour of the flower attracts the bees so the flower can get pollinated.

Description
This is a ground plant with more than 75 species in Australia. The plant is from the goodeniaceae family. It's commonly known as the Dampiera but it has a scientific name of Dampiera pycnantha. The roots are for the ground are her members. It flowers in spring and usually comes with colours of white, yellow, blue and purple. It takes 12 months for it to become a fully grown plant. When fully grown, the plant grows up to 20-30cm tall and 10-15 in width. The lifespan of this plant is perennial which means it can live for a very long time.

FACT 1
Dampiera is a ground plant that grows on the ground but never itself appears.

Features
It has thick roots and succulent leaves that grow longer by a centimeter so that it can get more sunlight to live longer.

Adaptation
This flower adapts to hot climate and full sunlight more so than. It can survive in nearly all tropical areas. It has adapted itself to move its leaves to the top of the sunlight to speed up its growth. It grows well in the drained soils to prevent its root from rotting.



Sturt's desert pea

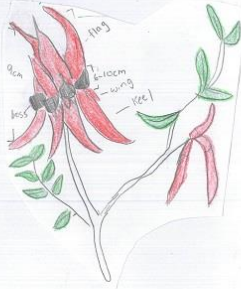
Scientific name: Swainsona formosus

Adaptation

They also have a seed that drops off to make a new sturt desert pea/make their own kids to let the plant survive for the future. This is really common for all the plants that have a seed.

The leaves and stems are covered with downy hairs to keep them warm on a freezing night and also to keep them protected. Additionally, they use their hair to collect food or to keep the insects that they found from escaping. How smart they are to use their downy hairs to collect food!

The gro und Sturt desert pea opens its plain to follow heavy rain. It also can withstand the marked extremes of temperature that was experienced in inland desserts. The plant has greenish grey leaves which sprout their leaves from a hairy stem. They normally do this in fall.



Habitat of Swainsona Formosus

We can find Swainsona formosus all over in Australia but mostly in West Australia. They normally live somewhere in arid woodland and open plain to follow heavy rains.

Features

They are up to 12 cm in length, divided into 10-16 leaflets, gray-green in color, covered in fine silky hairs to provide insulations. The seed pods are up to 8cm. It is also covered with silky hairs. The flowers are normally bright red, with a black thing in the center that is 6-10 cm from base to tip. They also have a plain to follow heavy rain. The flower change into green seed pods too.

Adaptations

One adaptation of sturt's desert pea is a small seed. They have small seeds that hold hard, which allows them to germinate again after plenty of years.

Also, Seeds have a really hard coat, which can protect them from harsh air environments until the next fall. The person who grows the sturt's desert pea can overcome this dormancy by taking the coat away from the eye of the seed or by placing the seed in hot water overnight so that the coat will go away from the seed.

This plant is adapted as a floral emblem of South Australia. It was on 23 November 1961.

NSW WARATAH

TELOPEA SPECIOSISSIMA

FAMILY: PROTEACEAE

ADAPTATIONS
TELOPEA buds enable its ability to bloom in bushfire fire. It is able to survive in the ground after a bushfire. The WARATAH has beautiful flower leaves which are modified to store food. The WARATAH has a deep root system. The WARATAH has a hairy stem to protect it from insects. The WARATAH has a hairy stem to protect it from insects.

TELOPEA SPECIOSISSIMA
TELOPEA SPECIOSISSIMA has a hairy stem to protect it from insects. The WARATAH has a hairy stem to protect it from insects.

ADAPTATIONS
The WARATAH has beautiful flower leaves which are modified to store food. The WARATAH has a hairy stem to protect it from insects. The WARATAH has a hairy stem to protect it from insects.

FRUIT
The fruit of the WARATAH is known to form a seed pod which is filled with seeds.

Pink Rock Orchid

Dendrobium Kingianum

Thelychiton Kingianum

Where is it found?
THE PINK ROCK ORCHID IS FOUND ALONG EASTERN AUSTRALIA, ABOVE NEWCASTLE TO CENTRAL QUEENSLAND HIGH LANDS. IT IS FOUND IN WARM TEMPERATURES ABOVE 10°C IN WET SCLEROPHYLL FORESTS. ROCKS AND TREES ARE THE MOST COMMON PLACES THE PINK ROCK ORCHID IS FOUND. THE WARMER THE WEATHER IS, THE BETTER. SUN LIGHT, AIR FLOW AND PARTIAL SHADE IS ESSENTIAL AS WELL. HERE IS A MAP ATTACHED.

Adaptations
THE PINK ROCK ORCHID PRODUCES PSEUDOBULBS WITH A FATTENED BASE TO STORE FOOD. THIS IS IMPORTANT ESPECIALLY WHEN THE WEATHER IS WARMER AND THERE'S MORE EVAPORATION. THE PSEUDOBULBS EXPAND AND CLOSE ACCORDING TO HOW MUCH FOOD THERE IS AVAILABLE. THERE ARE HAIRS ON THE ROOTS. THESE ARE TO CLING TO THE WOOD AND ROCKS TO STAY AS MOIST AS POSSIBLE AND TO PREVENT ANY CHANCE OF DAMAGE.

What does it look like?
THE PINK ROCK ORCHID HAS 7-9 PETALS AND 1 PSEUDOBULB ABOUT 0 TO 15 FLOWERS PER PLANT. THE PSEUDOBULB IS DARKER SHADE AND BECOMES LIGHTER TOWARDS THE EDGE. COLOURS ARE GENERALLY PURE WHITE TO SOLID PURPLE. SEEDS ARE LOCATED NEAR THE PSEUDOBULB, UNDER THE 5 PETALS. THESE SEEDS ARE SMALLER THAN DUST.

Other Names
THE PINK ROCK ORCHID IS ALSO KNOWN AS THE PINK ROCK TREE ORCHID.

Egg and Bacon

Eutaxia Obovata

Originally from this area.

The petals are horizontal so it can catch more pollen from the bees.

About the Eutaxia Obovata.

The Eutaxia Obovata is part of the pea family, because of its brightly coloured petals it will attract birds, bees and butterflies. While attracting birds the birds will also eat the pests that eat plants. The Eutaxia Obovata can be both drought tolerant and frost tolerant once it has established. The Eutaxia Obovata is commonly known as the Egg and Bacon plant. Egg and Bacon can be used as an informal hedge or as a screen plant. The Egg and Bacon likes well drained soil.

What it likes:

The Eutaxia Obovata likes well drained soil and look after itself mostly. The Egg and Bacon's leaves are from 2mm to 7mm long, they also don't have any diseases and can live a long lasting life. The Egg and Bacon also likes to be in a sunny but also shady area.

How it survives:

Because there are no bushfires in places where the Eutaxia Obovata lives, it has adapted to using heat of fires to release its seeds.

SILVER PRINCESS

BY Lucas

EUCALYPTUS CAESIA

Eucalyptus Caesia only lives in Western Australia.

The vibrant pinkish red flowers attract many birds when there aren't as many insects during the winter. Caesia are classified rare in the wild. They are not yet vulnerable or endangered but are on the priority list.

Bright flowers attract birds.

Eucalyptus Caesia's leaves hang vertically or near vertically to reduce the surface area. This lessens the sun exposure. Sun exposure results in water loss through the leaves. The vertically hanging leaves don't only reduce sun exposure but also divert any falling water to the roots.

vertically or near-vertically hanging leaves

Another way that caesia mitigates against sun exposure is turning their leaves so that the thin side faces the sun. They have multiple features to decrease water loss. They have a thick wax coating on the leaves, also known as a cuticle. The cuticle acts as a barrier against water loss, keeping the water in the leaf. The sun's rays can still pass through into the leaves and reach the photosynthetic cells (so it can still generate energy). This is because the cuticle is translucent.

The gumnuts stores seeds inside. When a bushfire burns these capsules, they open up and the seeds open out of the gumnut. The seeds now can germinate. After the fire, ash is spread out throughout the forest. Ash is very high in nutrients and allows the seeds to germinate well. Also, if some mature trees have burnt down or just their leaves have burnt down, light can come down to the newly sprouting trees.

King Fern Adaptations!

Size 2 meters (10ft)
 Fronds 2.5 meters length (8.2ft)
 By Fletcher Spore

The King Fern plumbs its roots into permanent water source e.g a river or a lake.

Another adaptation that instead of just the king fern it's all of the ferns that have this adaptation which is ferns having something called sporephytes.

My representation

The collage features several elements: a world map in the top right corner; a photograph of a lush fern forest with a dirt path and people in the middle left; a drawing of a fern landscape with a yellow sun and green hills in the middle right; and various text boxes and handwritten notes in purple, blue, and red ink. The text boxes describe the King Fern's root system and the adaptation of sporephytes. The drawing shows a stylized fern landscape with a red stick figure and the word 'survived' written below it.

Anigozathos Kangaroo Paw

One of the kangaroo paws adaptations are tiny woolly hairs on its flowers. The little hairs help by tasting foods they wont eat. The hairs also help by holding on to water and to savour it because in the desert it is very dry and hot.



Instead of relying on insects like bees and butterflies it cant because it lives in the desert so it has to rely on animals like the brown honey eater and birds. they pollinate and germinate are by animals spreading the seeds and pollen.



Root Systems

Kangaroo paw

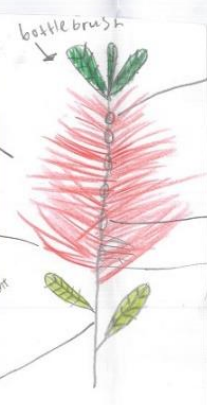
Roots spread out so it can get maximum water

The way the kangaroo paw adapts to the dry desert heat is by spreading its seeds which will germinate when a fire or a giant wind has passed. It gets buried deep into the sand and grows.



Bottle brush Callistemon

lung



adapted to heat, sun, wind and aridity as long as it doesn't experience long periods of drought + stress.

The pollen of the flower forms on the tip of a long coloured stalk called a filament

The seeds and the bright foliage attracts nectar feeding butterflies, birds and other honey eaters.

Each blossom produces a fruit which is small and woody, that holds hundreds of tiny bottle brush seeds.

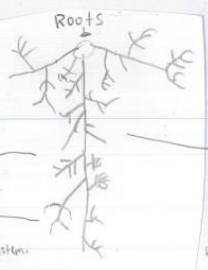
1. As soil water can be low, roots can result in trees too much water in the soil.
2. The roots can be damaged by the soil.
The leaves can fall off and turn yellow if this happens.

Facts:
Bottle brush lives up to 20-40 years. Birds like to take the budding. can be used as medicine for antibacterial, antifungal, anti-oxidant activities and other pharmaceutical and insecticidal properties

Needs full sun, moisture and well drained soil.

Bottle brush need well drained soil, not wet soil.

Bottle brush trees are considered to have a non-invasive root system.



Too much water can cause root rot results if there's too much water in the soil. The root rot fungus can attack the shrubs roots. The leaves can fall off and turn yellow if this happens.