Lean, green cleaning machine: Caring for the environment

Strand
Place and Space
Systems, Resources and Power

Core learning outcomes

Place and Space	**PS 1.2**	Students make connections between elements of simple ecosystems.
	PS 1.3	Students participate in a cooperative project to cater for the needs of living things.
	PS 1.4	Students organise and present information about places that are important to them.
	PS 1.5	Students describe the relationships between personal actions and environmentally friendly strategies in familiar places.
Systems, Resources and Power	**SRP 1.1**	Students identify how elements in their environment meet their needs and wants.
	SRP 1.4	Students describe practices for fair, sustainable and peaceful ways of sharing and working in a familiar environment.

Purpose and overview

The activities assist students to identify strategies to care for familiar environments. They are organised using the investigation phases of exploring, investigating and synthesising.

Students explore a range of environments including places that are important to them. They organise and present information about environments, including identifying and classifying elements of environments. Students investigate the needs of living things in familiar ecosystems and cooperatively care for a simple ecosystem. They analyse this ecosystem to identify connections between its elements and how these elements might meet the needs of living things. Through active and cooperative participation in activities, students identify and develop practices for fair, sustainable and peaceful ways of sharing and working with others. Through synthesising activities that involve implementation of conservation strategies such as recycling and sustainability, students begin to understand the relationship between personal actions and environmentally friendly strategies in familiar places.

QUEENSLAND SCHOOL CURRICULUM COUNCIL

Phases	Activities	Core learning outcomes	Assessment opportunities
1. Exploring Farms, forests, freeways and frogs: Many environments	1. Cooperative envelopes 2. Word wall 3. Mirror images 4. Follow the beat of your own drum 5. My place 6. Out-in-the-real-world I spy 7. Living travel brochure: Where have you been? 8. Sensory exploration trail	PS 1.4 SRP 1.4 SRP 1.1	**Oral presentation:** Students illustrate a place of personal importance and orally present information to the class. (Activity 5, PS 1.4) **Observation checklist/ conference:** Start collecting evidence of students' participation and cooperation. (Activities 1 to 8, SRP 1.4) Activities assist students to work towards demonstrating SRP 1.1.
2. Investigating Mine, yours, ours: Inter-connectedness of ecosystems	9. Thingamasaurus 10. Plant power 11. Like a fish out of water 12. Woolly web 13. Desert island	PS 1.3 PS 1.2 SRP 1.1	**Observation checklist/ conference:** Monitor how students care for living things in a cooperative way. (Activities 10 and 11, PS 1.3, SRP 1.1) **Observation of student diagram**: Students identify and match elements of simple ecosystems. (Activity 12, PS 1.2) **Graphic representation/list:** Students make a graphic representation or list of their needs on a desert island and explain this list. (Activity 13, SRP 1.1)
3. Synthesising The power of positive participation: Environmentally friendly actions	14. What happens next? 15. Rubbish round-up 16. Growing garbage 17. The great paper plan 18. Dinosaurs and all that rubbish 19. So, what is fair? 20. Captain Caring and the community-conscious caped crusaders	PS 1.5 SRP 1.4	**Conference/illustrations/verbal responses:** Students identify and describe human actions and their consequences and which of these are environmentally friendly. (Activities 16,17 and 19, PS 1.5, SRP 1.4) **Observation checklist/ conference:** Continue to collect evidence of students' participation and cooperation. (SRP 1.4)

Assessment

The assessment opportunities outlined are examples of how to assess students' demonstrations of the identified learning outcomes. As often as possible, negotiate assessment with students and support a variety of ways of demonstrating the outcomes. Reflect with students on evidence gathered when making judgments about their demonstrations of learning outcomes. Some students may require more time and/or other contexts in which to demonstrate these learning outcomes. Other modules may provide such time and/or contexts and the 'Levels 1 to 6 module learning outcomes maps' in the *Years 1 to 10 Studies of Society and Environment Sourcebook Guidelines* can be used to identify these modules.

Observations are the primary assessment technique for the learning outcomes identified in this module. Teachers can observe students during the phased activities using checklists such as Resources 1 and 3 and making anecdotal records of representations and discussions with students. Throughout the activities, advice is offered about:

- the potential of an activity for assessment purposes
- the potential of an activity to assess combinations of learning outcomes
- the types of assessment tasks that could be offered.

Support materials and references

Students may demonstrate learning outcomes in diverse ways. Multiple Intelligences theory promotes the notion that students' learning and assessment opportunities should be compatible with their strongest intelligence(s) to ensure effective learning and demonstration of what they have learned. For more information see 'Support materials and references'. Assessment tasks for demonstration of learning outcomes in this module can be modified to suit the multiple intelligences of students — for example:

- **Visual spatial intelligence**: Students develop a flowchart to show the steps involved in the activity 'Growing garbage' and present their findings.
- **Musical rhythmic**: Students could associate various kinds of music and rhythms with a range of types of environments.
- **Intrapersonal:** Students reflect upon their opinions and feelings and consider how their actions may affect aspects of the environment, and describe the type of actions they might take at home and school that are environmentally friendly.
- **Interpersonal:** Students create a group collage of the sequence of events and environments that were encountered on a local excursion or develop a group report on the 'Thingamasaurus'.
- **Logical mathematical**: Students compare and contrast the elements of different environments or create a classified list of resources of their familiar environment according to certain criteria.
- **Kinesthetic**: Students collect diverse tactile objects from a familiar environment.

Assessing outcomes at different levels

Activities in this module are designed primarily for students working towards demonstrations of Level 1 outcomes. Assessment opportunities may need to be modified or created to enable students to demonstrate the *know* and *do* of core learning outcomes before or after this level. Possible relevant learning outcomes are:

- Elements of environments: PS 1.1, PS 2.2, PS 3.2
- Caring for the environment: PS 2.3, PS 2.5, PS 3.3
- Cooperating with others: SRP 2.4

Using this module

Teaching implications

Activities within the phases of this module can be replaced with others that may be more suitable to a particular school's situation. Activities 7, 8, 10, 11, 12, 16 and 17 require planning, some to be started at the beginning of the module.

Strategic questioning

Activities 15 and 18 provide opportunities to use strategic questioning, a technique that promotes critical literacy and regards individuals, rather than institutions, as capable of providing answers or solutions to problems. Questions move from a simple level through to a more complex one. Starting with focus questions, which identify key facts, the process moves through observation, feeling, visioning and change questions and finally to personal inventory and action questions where a plan starts to emerge. Activity 18 sets out examples in some detail. For more information, refer to Peavey's *Strategic Questioning* (1992).

Support materials and references

Environmental education

This module aims not only to develop students' understanding and knowledge about resource use, but also encourages students to become aware of the impact of their behaviours on environments, and how socially active, critical and responsible behaviour can benefit the environment, now and in the future. Within the context of Studies of Society and Environment, the term 'environment' encompasses three elements — natural, social and built.

The natural environment includes the natural elements of environments — for example, biological and ecological systems, water, sun, elements of weather (wind, rain, hail), air and the physical cycles (carbon, oxygen, nitrogen).

The social environment refers to the social world of humans, including governments, economies, religions, cultures, arts, and the ideas, beliefs and feelings of individuals.

The built environment is the human-created and built aspects of the world, including cities, buildings, farms, technology, weaponry, industry and machinery.

All three elements are interdependent and interactive and should not be viewed as separate or competing. Each needs to be considered in relation to the others.

Environmental education aims to help individuals and social groups to develop:
- awareness: awareness of and sensitivity to the total environment and its problems
- knowledge: basic understandings of environments and problems
- attitudes: values and feelings of concern for the environment and the motivation for participating in environmental improvement and protection
- skills: skills required by social groups and individuals to identify and solve environmental problems
- participation: opportunities to be actively involved at all levels in working toward resolutions of environmental problems.

Three approaches are used as the means to achieving the goals of environmental education. These are education in, about and for the environment. Each approach cannot exist or function in isolation. Conducted in unison, they provide the processes necessary for achieving the ultimate goals of environmental education.

Education in the environment: This approach emphasises the importance of providing experiences for students that take place in the environment, whether it be the bush, rainforest, beach, farm or city. Such experiences will help develop and enhance students' awareness and appreciation of the environment. This student-centred approach aims to highlight the relevance and reality of environmental education through practical experience.

Education about the environment: For students to make informed decisions and ultimately act in an environmentally responsible manner, they require a sound knowledge and understanding of the environment. Content is often the basis of this approach, though it is important to ensure that programs include natural, built and social systems.

Education for the environment: This is the action component through which positive change is made in personal lifestyles. By developing an informed concern, a sense of responsibility and the necessary skills, individuals and groups can improve the environment. Education *for* the environment requires students to examine their own values, understandings and beliefs. This approach builds upon education *in* and *about* the environment. It helps students to develop an informed concern and sense of responsibility for the environment, through developing and enhancing an environmental ethic and the necessary skills and knowledge to improve the environment. It is often the action orientation to environmental education that is perceived as the most effective in facilitating critical thinking and fostering social change.

Background information

Terminology

Students will need to understand these terms in the context of the activities in this module:

beach	conserve	farm	pollution
building	damage	forest/bush	recycle
built	desert	friendly	reuse
bush	environment	nature/natural	rotting
care	environmentally	people	saving
city	fair	place	social

School authority policies

Be aware of and observe school authority policies that may be relevant to this module.

Equity considerations

Activities in this module take place in a supportive environment. They provide opportunities for students to increase their understanding and appreciation of equity through valuing diversity and challenging inequities. Activities encourage students to:

- become aware of the diversity of activity in their social, built and natural environments
- recognise that everyone has rights and that every person must take responsibility for himself/herself, for others and for their environments.

Some students with disabilities may need assistance for activities within this module. Advice should be sought from their support teachers.

It is important that these equity considerations inform decision making about teaching strategies, classroom organisation and assessment.

Links

Studies of Society and Environment

This module is one of a suite of modules for Levels 1 to 6. See the Queensland School Curriculum Council website (www.qscc.qld.edu.au) for more information.

This module develops understandings associated with the key concepts of processes and environments, stewardship, spatial patterns, significance of place, interactions between ecological and other systems, and citizenship. It also develops the key processes of investigating, creating, participating, communicating and reflecting.

Other key learning areas

The activities in this module offer opportunities for cross-key learning area planning. However, it is important that the integrity of the processes and concepts within key learning areas is not compromised. Assessment opportunities will need to be developed for students to demonstrate relevant learning outcomes.

Possible links to *Science*:

- SS 1.2 Students collect information about natural phenomena and recognise that some ways of collecting information are more appropriate than others in different situations.
- EB 1.3 Students discuss the uses they make and the care they take of the Earth.
- LL 1.1 Students discuss their thinking about needs of living things.
- LL 1.2 Students group living things in different ways based on observable features.
- LL 1.3 Students observe and describe components of familiar environments.
- NPM 1.3 Students look for alternative ways that familiar materials can be used.

The activities of this module also relate to learning outcomes for *English* and *The Arts*. For more information, visit www.qscc.qld.edu.au.

Evaluation of a unit of work

After completion of units of work developed from this module, collect information and make judgments about:

- teaching strategies and activities used to progress student learning towards demonstrations of core learning outcomes and in the cross-curricular priorities
- opportunities provided to gather evidence about student's demonstrations of core learning outcomes
- future learning opportunities for students who have not yet demonstrated the core learning outcomes
- the extent to which activities matched needs of particular groups of students and reflected equity considerations
- the appropriateness of the time allocations for particular activities
- the appropriateness of the resources used.

Information from this evaluation process can be used to plan subsequent units of work so that they build on, and support, student learning. The evaluated units of work may also be adapted prior to their reuse. For further information, refer to the 'Curriculum evaluation' section in the sourcebook guidelines.

Activities

Phase 1 Farms, forests, freeways and frogs: Many environments

Core learning outcomes emphasis: PS 1.4, SRP 1.4, SRP 1.1

Resources 1, 3

Students *explore* a range of environments including places that are important to them. They organise and present information about environments including identifying and classifying elements of environments. Resource 1 assists in recording evidence of students' demonstrations of PS 1.4. Resource 3 can be used to start recording evidence of SRP 1.4. Activities assist students to work towards demonstration of SRP 1.1. At this stage, it is advisable to set up Activity 16 'Growing garbage' in readiness for Phase 3.

Activity 1 Cooperative envelopes

Support materials and references

Teaching considerations
Cut eight pictures of various environments into pieces to make jigsaws. Include pictures that represent natural (forest, desert, beach), social (playground) and built (city, hospital) environments. See 'Support materials and references' for ideas. Place each jigsaw into an envelope. This activity aims to develop cooperation and nonverbal communication and to highlight the differences between various environments as well as the unique characteristics of each environment. The activity also initiates student reflection on cooperative behaviours to develop SRP 1.4.

Place students into groups of three or four and give each group an envelope containing jigsaw pieces. Students cooperate to piece together the jigsaw without speaking to anyone. After the activity, with students remaining in their groups, use questions to focus and promote discussion such as:

- What do you think your jigsaw is a picture of?
- What can you see in your picture?
- Is there somewhere like that near here? If so, where?
- Have you been to such a place, and what things did you see there?

Have students view the other completed jigsaws. As a whole group, share personal views about places (also called environments) using questions such as:

- Do you have a place that is special to you?
- Is it like any of these pictures? In what ways?
- How is it similar or different?
- Why is it special to you?

Have students reflect on their ability to cooperate using nonverbal communication by discussing:

- Was it easy to communicate this way? Why or why not?
- Did you find ways to communicate in a friendly way? How?
- What made this activity hard? Easy?

Activity 2 Word wall

Teaching considerations
This activity is designed to be continued throughout the module. Most of the activities within the module provide opportunities to introduce and develop new language experiences and vocabulary.

Make a word wall by painting a brick wall on a large piece of art paper, butcher's paper or calico. As new words are encountered in activities that follow, write them on cards and then place them on the word wall. Activities can culminate in using the word wall. Words can be arranged alphabetically, according to environment, whether they are living or non-living objects, or whether they are natural or synthetic objects. Lists of rhyming words or words with similar meanings could also be made.

Provide opportunities for students to attempt their own spelling of words, which can be placed on the word wall. Facilitate class discussion on these attempts — for example, which letters are correct or how some parts may need to be changed.

Activity 3 Mirror images

Develop with students a list of different environments such as beach, bush, desert, farm and city. Write each word from the list on a card for students to use in this activity.

Cut pictures of different environments in half. Present each student with one half of a picture. Students paste this picture onto a piece of art paper and draw the missing half of the picture. Students then place the name of their environment under their picture.

Use finished pictures in a grouping activity. Students group like pictures together and choose a heading or title that they feel represents their group of pictures. Add to the pictures other identifying labels that represent elements within each environment — for example, water, trees, sand, rocks, buildings, cars, sky, animals, plants, people.

Activity 4 Follow the beat of your own drum

Teaching considerations
There is a great deal of music suitable for this activity, ranging from classical pieces through to Indigenous and tribal music and relaxation music. Sound-effects tapes may also provide sample sounds from cities, farms and other environments. Students are asked to focus on what it was about the music that influenced their decision as to the environment it depicted.

Encourage students to explore different environments through music and art. Play pieces of music and ask students to draw the type of environment that they feel the particular piece of music represents. Have students share their feelings and points of view using questions such as:

- How did the music make you feel?
- What did you like or dislike about it?
- What do you think this place looks like?
- Describe a thing in this place. What does it feel like?
- Is it a place you have been to?
- Is this environment important to you? Why or why not?

Activity 5 My place

Resource 1 Assessment

Support materials and references

Teaching considerations
There are a number of books that explore 'special places' and provide students with reasons why people value these. It is suggested that as an introduction to this activity, one or a number of these books be shared with students. (Possible titles include *Amy's Place*, *Window*, *Where the Forest Meets the Sea*, *Magic Beach*.) This activity provides an opportunity to collect evidence of students' demonstrations of PS 1.4. Resource 1 may be used to document evidence during this activity or during other opportunities provided for students to demonstrate PS 1.4.

Have each student bring or draw a picture of a place that is important to them. Students attach a clue about themselves to the picture — for example, I have two brothers, my hair is brown and I like frogs. Display pictures around the classroom.

Have students guess to whom each picture belongs based on the clues. Once identified, students explain their picture and why that place is important to them. Pictures might then be classified into groups such as similar environments, reasons why they are special, living and non-living elements, natural or human environments.

Assessment

Students' drawings and presentations may provide evidence of demonstrations of PS 1.4.

Activity 6 Out-in-the-real-world I spy

Teaching considerations
This activity is to be conducted within walking range of the school. A local area study (for example, local shops, park, creek or bushland, or the school grounds) also helps highlight for students the diversity that can exist within an area. Students will gain most from this activity if there is a lot of contrast between the areas selected to visit. The activity will also highlight for students how the natural, social and built elements of the environment provide resources to meet our needs. An alternative activity will be required if students cannot access the local area.

Take students on a walk through the local area. Encourage students to write or draw observations and collect objects for a class display.

In class, students work towards developing a class chart that represents their findings. Encourage students to think of ways to list, group or label the items they collected. Students group their recorded observations according to criteria they develop and consider the similarities and differences of these groups.

Visiting a variety of environments presents students with opportunities to observe what it is that differentiates each of the environments.

Activity 7 Living travel brochure: Where have you been?

Teaching considerations
Before this activity, send a note to parents/caregivers asking for materials to develop display areas, and inviting parents to be guest speakers about their role in different environments.

Discuss with students the different places they have visited. Ask students to bring associated items or information about these different environments. Use this evidence and questions such as the following to promote thinking about these environments:

- Have you visited different types of environments or special places to those we visited on our excursion?
- What are these?
- What did you see there?
- Were there animals, people, plants, buildings?
- What interesting things did you observe (smell, touch, hear, see, taste)?
- What did you do there?

Familiarise students with travel brochures that illustrate a range of environments — for example, bush, beach, forest, zoo, hospital, park, shops, farm and city. Discuss their purpose, contents and general format.

Within the classroom, set up areas to represent these places by adding pictures, books, artefacts and other items to provide a more comprehensive picture or view of that environment. Call these displays ‘living travel brochures’.

Invite guest speakers to speak about these areas — for example, a national parks ranger, nurse, lifesaver, police officer or conservation society member.

Activity 8 Sensory exploration trail

Support materials and references

Teaching considerations
As a culminating activity for this phase, a sensory exploration trail provides students with the opportunity to identify objects and an environment from which they might come. In setting up this trail, it is useful to put objects into bags or boxes — these can be called mystery bags or boxes — so that students cannot see the objects.

Set up a sensory trail for students to complete. Try to incorporate elements that will allow students to use all of the senses along the trail — for example:

- bricks (touch)
- cut lemons (taste, smell)
- eucalyptus leaves (smell)
- salt (taste, touch)
- flowers (sight, smell, touch)
- picture of a classroom (sight)
- sounds of the classroom, traffic and the sea (sound).

Students identify the element along the trail, which sense(s) they used to identify it, and which environment or place it may have come from — for example, beach, classroom, garden. Assist students to record these on a table like the one that follows:

	Item	Which senses?	Which environment?
Box 1			

Help students classify the environments they identified as sources of the sensory items using the criteria of natural, social (where people do things) and built (where there are buildings or things made by humans) — for example, the bush may be classified as natural while the school may be classified as social and built. The park may be classified as natural, social and built.

Resource 3

Assessment

Students' participation and co-operative skills can be recorded as evidence of demonstrations of SRP 1.4.

Phase 2 Mine, yours, ours: Interconnectedness of ecosystems

Core learning outcomes emphasis: PS 1.2, PS 1.3, SRP 1.1

Students *investigate* the needs of living things in familiar ecosystems and cooperatively care for a simple ecosystem. They analyse this ecosystem to see connections between its elements and to identify how these elements meet the needs of living things. Opportunities arise for students to demonstrate PS 1.2, PS 1.3 and SRP 1.1.

Activity 9 Thingamasaurus

Encourage students to recall their own experiences of caring for pets, which may include worms (worm farm), ants (ant farm), tadpoles, silkworms, bush cockroaches, hermit crabs, mice or a budgerigar. Encourage students to note the similarities and differences between the needs of humans and pets. Group, list and label these.

Help students to apply their understanding of the needs of living things through role-play. Take on the role of a research scientist asking students to assist in the study of a recently discovered animal (the thingamasaurus). In role, give a description of a thingamasaurus. Ask students to draw what they think it looks like, record how it might sound, list what it needs to survive, and describe how they might care for this animal.

Use a whole-class brainstorming session to generate a set of considerations to develop a report using headings such as 'What will it eat?' and 'Where will it sleep?'. Ask students to reflect on their own needs and the needs that they have in common with the thingamasaurus and other living things.

Activity 10 Plant power

Teaching considerations
Simple experiments can be done to extend students' understandings of the needs of living things. These experiments aim to develop students' awareness that plants are also living things and have some needs in common with humans. This activity will need to be conducted over a few weeks. It can be linked to Science core learning outcome LL 1.1.

Conduct experiments to investigate the needs of living things — for example:
- Place a white carnation in a vase containing water and food dye. Leave the carnation for one to two days.
- Place a plastic bag over the branch of a tree to demonstrate transpiration.
- Plant seeds in small containers. Control a range of variables in each container — for example, fertiliser, water, sunlight.

Use questions to discuss the results of the experiments and to identify the needs of living things, such as:

- How do we know that plants like the carnation need water?
- How do we know that plants need air?
- What are some other needs of plants that we observed?

Assessment Students' participation in experiments provides evidence of demonstrations of PS 1.3 and SRP 1.1.

Activity 11 Like a fish out of water

Teaching considerations
Observing or setting up a simple ecosystem provides students with first-hand experience of the relationships, dependencies and interdependencies that exist in simple ecosystems. These may be micro-ecosystems (for example, a freshwater aquarium, ant colony, wormery or guinea pig farm) or a macro-ecosystem, such as part of a creek or bushland.

Resource 3 Set up a simple ecosystem. Have students take on changing roles to care for the living things in that ecosystem for the duration of the module or beyond. With students, monitor and review their responsibilities and cooperative behaviours (Resource 3).

Assist students to make and record observations about the ecosystem. This could be in the form of a class diary. Use the recorded observations to consider:

- What do the different animals eat?
- Which part of the habitat (fish tank, wormery) does each animal use?
- Does each animal have a special way of moving?
- What might happen if we removed some of the plants?
- Do any animals seem to be more bossy than others?
- Does each animal seem to have a special job?
- Are some animals/plants eaten by other animals? Why or why not?

Over time, help students record observations about their ecosystem's needs — for example, when plants looked lifeless, when pets slept, what changes took place.

Assessment Resource 3 offers criteria to assess students' demonstrations of PS 1.3. This activity offers a further opportunity to assess students' demonstrations of SRP 1.1.

Activity 12 Woolly web

Teaching considerations
This activity provides students with a visual representation of the relationships and links within an ecosystem, highlighting the interconnectedness of living and non-living elements within it.

Resource 2 Resource 2 needs to be cut into a set of cards. A picture of the element needs to be drawn or pasted onto the other side of the card. You will also need a ball of string or wool.

Organise students into groups of eight or nine. Give each student in the group a card. Ensure students read the information on their card, so they know what they are connected to. Pin cards to each student with the picture facing out.

If possible, take students to a quiet spot outside. Invite individual students to enact his or her element in the environment. Compare differences between each element by grouping or sorting characteristics—for example, some elements move (grasshopper, tree, plant) and some elements do not (rock); some elements crawl (spider) and some elements fly (kookaburra and butterfly).

Encourage students to suggest how their element may be linked to other elements. Ask a student to remove and read the element card to explain to others how it is linked to another element. Ask this student to hold the start of the ball of wool while another student unravels it until it reaches the student with the card of the connecting element. Students may suggest more than one connection to other elements.

As the wool is used to connect elements, students begin to see the visual effect of the interconnected web. Once the web has been completed, help students develop a diagram that represents the elements of a simple ecosystem.

Assessment

Help students draw diagrams of other simple ecosystems (for example, pond, fish tank, ant farm) and explain connections between elements.

This activity and the diagrams and verbal responses may provide opportunities for students to demonstrate PS 1.2.

Activity 13 Desert island

Teaching considerations
This activity builds upon the understanding that all living things have basic needs. Students identify things that meet some human needs and may see that these differ from wants.

Present students with the scenario that they will be living on a deserted island and are allowed to take only ten items with them. Ask students to define an island (for example, surrounded by water) then establish a shared description of their island (for example, by suggesting features of the island). Refer to previous activities such as Activity 7 'Living travel brochure' or activities in the Level 1 module 'My island dream'.

Assist students to draw a map of the desert island and list, draw or cut pictures from magazines of the ten items that they are going to take. Students share their items with a friend or small group.

As a class, make a list of the ten items most commonly chosen. Ask students to provide reasons for these choices. Students then reduce this list to five items. As a class, discuss the items chosen or not chosen and reasons for their inclusion or exclusion.

Assessment

Assess students' demonstrations of SRP 1.1 by having students explain their choice of items in their list/graphic representation. This activity also offers an opportunity to assess PS 1.1, which is not a focus learning outcome of this module.

Phase 3 The power of positive participation: Environmentally friendly actions

Core learning outcome emphasis: PS 1.5, SRP 1.4

Resource 3

Through active and cooperative participation in activities, students develop practices for fair, sustainable and peaceful ways of sharing and working. These activities assist students to understand the relationship between personal actions and environmentally friendly strategies in familiar places. Most activities provide opportunities to assess demonstrations of PS 1.5 while Resource 3 may continue to be used to assess SRP 1.4 throughout Phase 3 activities.

Activity 14 What happens next?

Support materials and references

Present a number of everyday objects to students. See 'Support materials and references' for examples. Ask students: 'What happens to these things when we are finished with them?' Brainstorm ways to deal with these items once they are used.

Introduce the terms 'recycle' and 're-use'. Ask students to think of ways that they or their families recycle or re-use items.

Activity 15 Rubbish round-up

Have students undertake a rubbish round-up around the school or nearby areas. (Ensure that students wear rubber gloves.) Have students sort the rubbish into those items they think could be recycled and those that cannot.

Use strategic questions (as outlined in the 'Using this module' section) to assist students to consider ways that non-recyclable material can be used — for example:

- Is there another way this can be re-used or made into something else? If so, what?
- What is the best way to use the recyclable material?

Assessment Resource 3

Continue to assess demonstration of SRP 1.4 by observing cooperative behaviours of students as they conduct the rubbish round-up, and record on Resource 3.

Activity 16 Growing garbage

Teaching considerations
You will need to use a garden bed in this activity, so you may need to organise this with the grounds person. Alternatively, use a large pot plant container filled with soil. As you need about three to four weeks for the results to become evident, you will need to start early in the module. It would be beneficial to take photographs of the objects before planting, or to have second examples of each object for later comparison. If the school has a recycling program, students could take part in this to assist their understanding of this concept.

Support materials and references

Present students with a number of items to plant in the 'garbage garden'. See 'Support materials and references' for examples. Place each item in a ten-centimetre hole, cover with soil and pour water over the area. An ice-block stick with a picture of the item on it will help students recover items easily at the end of the month. For best results, you must water the garden every day for a month.

After planting the garden, ask students to predict what they think will happen to the items. Students draw a picture of their prediction to refer to at the end of the activity.

When the objects are removed from the garden, refer to the photographs and students' predictions and discuss and compare these. Have students classify the items according to their changes — for example, no change, totally changed, some change. Discuss the concept of things 'breaking down' (decomposing). Students communicate their findings on a chart according to the results — for example, by placing drawings or descriptive words under the classifications of 'rotting away', 'no change' and 'some break-down'.

At various times, use focus questions to analyse what happens such as:

- What items did not change?
- What were these made of?
- What other items do we use at home or school that are made from this material?
- What happens to these items when we have finished with them or no longer have any use for them?
- Can you think of another use for this object rather than just throwing it away?
- What do you think will happen if we continue to throw these types of things away?

To assist students to recognise how families could conserve resources, ask change and visioning questions such as:

- How can you or your family use things more carefully at home?
- How could you be more careful about the amount of water you use?
- How do we waste water at home/school?
- How could we save water?
- What examples of recycling occur in our school?

Assessment

Commence collecting evidence of demonstration of PS 1.5 by considering student responses to questions.

Activity 17 The great paper plan

Create an opportunity for students to make paper by recycling class paper. Paper that has been printed or written on is usable; shiny surfaced paper is unsuitable. Students may use commercially produced recycling kits or can easily make their own. Use paper-making recipes in arts and crafts books. Use the recycled paper to make gifts or stationery, such as greeting cards.

Assessment

Continue to collect evidence of demonstration of PS 1.5 by asking students why they are recycling paper. Continue to assess demonstration of SRP 1.4 by observing cooperative behaviours of students as they conduct the rubbish round-up, and record on Resource 3.

Resource 3

Activity 18 Dinosaurs and all that rubbish

Support materials and references

Teaching considerations

There are a number of books that explore the theme of human impact on the environment. See 'Support materials and references' for possible titles — for example, *The Lorax*, *The Paddock*, *Window*. Strategic questioning can easily be applied to a variety of texts.

Use strategic questioning to consider human impact on the environment using the story *Dinosaurs and All That Rubbish.* The following questions provide a guide to the type of strategic questions you could use.

Focus questions

- What is this story about?
- Who are the main characters?
- What do they do in the story?

Observation questions

- What do you see?
- What do you know about dinosaurs?
- What do you know about cities and factories?
- What do you know about rubbish?
- What do you know about space?

Feeling questions

- How do you think the dinosaurs feel?
- How do you think the man feels?
- How do you think the other animals feel?
- How do you think the dinosaurs feel about the Earth?
- How do you think the dinosaurs feel about the man?
- How do you feel about people who pollute/leave their rubbish around?
- Do you care if other people pollute/leave their rubbish around? Why or why not?

Visioning questions

- What would you wish for the dinosaurs and animals?
- What would you wish for the man?
- How would you like it to be for the dinosaurs and humans?
- What would you like the Earth to be like?

Change questions

- What do we need to do to make sure we keep the Earth as we would like it to be?
- What do we need to do to help stop pollution?
- Who would we need to help us to stop this pollution?

Personal inventory questions

- Would you like to help keep the Earth a place where animals and humans are safe and healthy?
- What can you do to help?
- Who would you need to help you?

Personal action questions

- Whom do you need to talk to?
- What will you do to help stop pollution?

Activity 19 So, what is fair?

Resource 3

Teaching considerations

This activity is aimed at highlighting how inequities may contribute to unfair, unsustainable and non-peaceful practices and situations. It is important to engage students in reflection following the activity to consider how their actions influence fair, sustainable and peaceful ways of sharing and working with others. The materials listed in 'Support materials and references' are only suggestions and may be replaced depending on what is available. However, it is important to ensure that some groups receive an unequal amount. If it is necessary to have more than six groups, additional groups can be given the same materials as groups 3 and 4. Resource 3 may be used to collect evidence of students' demonstrations of SRP 1.4 throughout this and the next

activity. The terms 'fair', 'peaceful' and 'sustainable' may be represented in language such as fair, friendly, good for people, non-bullying, grateful, saving, using, re-using and environmentally friendly.

Divide the class into groups of four. Give each group different materials with which to work. Explain to students that each group is to use their materials to make a poster (topics might include elements of ecosystems, a range of environments, how best to care for a place, recycling).

Students may question the unfair distribution of materials. Inform students that this will be discussed at the end of the activity and that they are to use what they have. At the end of the activity, each group nominates one member to show their finished product to the rest of the class. After each group has presented their poster, invite students to discuss the finished products. The following strategic questions may direct discussion:

- Do you think the materials were fairly divided amongst the groups? Why or why not?
- How did your group feel when you realised that each group had different materials?
- How did it feel to be in a group that had lots of materials?
- How did it feel to be in a group with very few materials?
- How do you think it might have felt being in one of the other groups?
- Did any group try to do something about the amount of materials they had?
- Did this fix the situation? Why or why not?
- What do you think might have been a better way to give out the materials?
- Do you think it is important to make sure that we are fair in what we do? Why or why not?
- What happens if we are not fair?
- Can you think of a situation that has not been fair?
- Can you think of a way that the problem may have been solved? If so, what? If not, why not?

Assessment

Use student illustrations or conferencing to gain further evidence about demonstration of PS 1.5.

Activity 20 Captain Caring and the community-conscious caped crusaders

Support materials and references

Teaching considerations

This culminating activity aims to draw upon all the learning activities in the module, and provide students with the opportunity to implement what they have learnt. It works best when students decide the nature of the task that they wish to undertake. Students may have found a site or area they feel they can contribute to caring for, or possibilities may exist within the school — for example, participating in recycling activities, establishing or caring for gardens, composting, caring for class pets, plant or seed propagation, developing community awareness of environmentally friendly practices, monitoring wastefulness (such as checking other classes turn lights and fans off when not in the room), or adopting and caring for injured wildlife. 'Before' and 'after' photographs provide students with evidence of their efforts and material for the development of a class book or story map of the activity. *Resourceful Kids* provides real-life examples of students involved in active participation (see 'Support materials and references').

In role as Captain Caring, enter the classroom and present students with a challenge: To become community-conscious caped crusaders, students must undertake a class challenge to demonstrate they are able to tackle a familiar problem or care for a local area or develop more environmentally friendly behaviour.

Help students to list activities that they could do that meet the challenge. Talk about their positive and active environmental tasks, why they have done these, and what the result or outcome of these tasks was. Captain Caring might ask students: 'I need people who have had some experience in caring for the environment. What have you been doing that would convince me you are the right sort of people to become my caped crusaders?'

Encourage students to offer their suggestions. To help students focus on challenges in their familiar environment, ask: 'Can you think of somewhere in or around the classroom or school that may need the care or assistance of Captain Caring and the caped crusaders?'. Discuss the feasibility of their suggestions — for example:

- Do we think we can do this? Why or why not?
- What will we achieve if we do this?

Once an activity has been decided upon and Captain Caring is convinced it is appropriate, present students with crusader badges. Out of role, assist students to plan the activity. Encourage students to think about what needs to be done and how they will go about achieving their goal, equipment that may be needed, who will do what task, and what other help may be required, such as an adult to help remove heavy rubbish or to buy seedlings or plants.

On completion of the challenge, assist students to reflect on their success.

Resource 3 Assessment

Conclude recording evidence of students' demonstrations of PS 1.3 and SRP 1.4.

Oral presentation criteria sheet — Resource 1

Student: _____

PS 1.4 Students organise and present information about places that are important to them.

Criteria	Working towards PS 1.4	Demonstrated PS 1.4	Demonstrated PS 1.4 and working towards Level 2 PS learning outcomes	Comments	Date
Clearly identified specific place(s) of importance					
Identified why this place holds personal importance					
Organised and presented information					
Logically linked ideas					

Woolly web cards — Resource 2

Grasshopper *I am connected to the plant because I eat it.*	***Kookaburra*** *I am connected to the snake because I eat it.*	***Snake*** *I am connected to the kookaburra because it eats me.*
Plant *I am connected to the grasshopper, butterfly and snail because they eat me.*	***Rock*** *I am connected to the snake because it hides under me.*	***Butterfly*** *I am connected to the plant because my pupa is on it.*
Spider *I am linked to the grasshopper and butterfly because I eat them.*	***Tree*** *I am connected to the kookaburra because it lives in me.*	***Snail*** *I am connected to the plant because I eat it.*

Observation checklist

Resource 3

Student:	**Observation checklist for** **PS 1.3** Students participate in a cooperative project to cater for the needs of living things. **SRP 1.4** Students describe practices for fair, sustainable and peaceful ways of sharing and working in a familiar environment.					
Group work skills	**Comments**	**Date**	**Date**	**Date**	**Date**	**Code** WT: working towards D: demonstrated L2: demonstrated and working towards Level 2
1. Able to take turns						
2. Listens to other group members						
3. Encourages other group members						
4. Respects views of other group members						
5. Is comfortable in taking a position different from peer group and does so appropriately						
6. Is willing to take different roles within group including: • leader • reporter • recorder • motivator						
7. Is comfortable in both leader and follower roles						
8. Engages in appropriate risk-taking behaviours						
9. Expresses feelings and gives feedback constructively and appropriately						
10. Demonstrates ability to compromise						
11. Is willing to share ideas and resources with others						
12. Is able to describe practices/strategies for working cooperatively and sharing with others						

Support materials and references

Consumable resources

Phase 1

- a variety of pictures of different environments, such as desert, beach, forest, alpine, underwater, arctic, city and farm environments
- envelopes large enough to hold picture jigsaw pieces
- art paper, butcher's paper
- range of music (classical pieces, Indigenous/tribal, relaxation)
- collage materials
- travel brochures
- objects for sensory trail (lemon, eucalyptus leaves, salt, brick, sound effects tape, boxes or bags for items)

Phase 2

- carnation, dye, seeds, plastic bag
- class pet — for example, worm or ant farm, tadpoles, silkworms
- ball of wool
- pictures to be pasted or drawn on the back of Resource 2 cards

Phase 3

- examples of objects for Activity 14 'What happens next?': banana, softdrink can, empty milk carton, leaf, newspaper, plastic bag, jumper
- examples of materials for Activity 16 'Growing garbage': natural fibre, styrofoam cup, cardboard milk carton, banana peel, aluminium foil, metal spoon, plastic spoon, plastic bag, paper bag, string, wooden skewer, planter, soil
- paper-making materials according to recipes found in arts and crafts books available in most school libraries or available in commercial kits
- materials for Activity 19 'So, what is fair?': Possible distribution of materials for groups:
  - group 1 and 2 — a sheet of butcher's paper cut in half and four lead pencils
  - group 3 and 4 — a large sheet of butchers' paper, four coloured pencils, one eraser
  - group 5 — a large sheet of paper (coloured if possible), a set of coloured pencils, four lead pencils, two erasers, two pieces of coloured paper, two pairs of scissors, glue
  - group 6 — a large sheet of paper (coloured if possible), four lead pencils, coloured pencils, two erasers, four pieces of coloured paper, four pairs of scissors, a magazine, glitter, string

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Electronic

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Websites

(All websites listed were accessed in June 2002.)

Amazing Environmental Organization Web Directory. www.webdirectory.com/
Provides a listing of environmental references, resources and contacts.

Department of the Environment and Heritage, *Environment Australia Online.* www.erin.gov.au/

Environmental Sites on the Internet. www.lib.kth.se/~lg/envsite.htm

Georgia State University, *Global Thinking Project*. www.gtp.org/
A great source of information on current environment-related projects in schools.

Houghton Mifflin Company, *Education Place*. www.eduplace.com/
Provides information about a variety of education-related issues, contacts and activities.

Landcare Australia. www.landcareaustralia.com.au/
Provides access to information about landcare issues, as well as projects that are currently being carried out (community and school based).

Melbourne Zoological Park. www.zoo.org.au/education/melbourne.htm

Network for Change, *EnviroLink Network.* www.envirolink.org/enviroed/
An education-based network linking teachers involved in environmental awareness.

This sourcebook module should be read in conjunction with the following Queensland School Curriculum Council materials:
Years 1 to 10 Studies of Society and Environment Syllabus
Years 1 to 10 Studies of Society and Environment Sourcebook Guidelines
Studies of Society and Environment Initial In-service Materials

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