

Creating tomorrow's world today: Present and future environments

Strand

Time, Continuity and Change
Place and Space
Systems, Resources and Power

Core learning outcomes

| | | |
|-------------------------------------|----------------|---|
| <i>Time, Continuity and Change</i> | TCC 2.3 | Students cooperatively evaluate how people have contributed to changes in the local environment. |
| | TCC 2.4 | Students describe cause and effect relationships about events in familiar settings. |
| <i>Place and Space</i> | PS 2.2 | Students predict possible consequences for an ecological system when an element is affected. |
| | PS 2.5 | Students express a preferred future vision for a familiar place based on observed evidence of changes and continuities. |
| <i>Systems, Resources and Power</i> | SRP 2.2 | Students create a representation of various people and resources involved in the production and consumption of familiar goods and services. |

Purpose and overview

Students use group work to investigate, envisage and create environments that have an impact on the Earth in positive ways. A variety of activities that incorporate the inquiry processes of investigating, creating, participating, communicating and reflecting provide opportunities for students to critically reflect on their care for and consideration of environments. Students consider how their actions may influence the future and may investigate the contributions people and organisations, such as Tidy Towns, Keep Australia Beautiful, Landcare and city and shire councils, have made to improving local environments.

Students investigate a desert environment in Central Australia and develop understandings of this geographical region and the impact human actions have had on it. The effect of the introduction of non-native species and the consequences for this ecological system over time are explored.

Students also begin to explore how they can contribute to positive environmental changes through caring for a familiar environment such as the schoolgrounds. Students are encouraged to present their environmental action plans at a parents'/carers' evening or other public forum.



| Phases | Activities | Core learning outcomes | Assessment opportunities |
|--|---|---|---|
| 1. Exploring the past, present and future | 1. One timeless desert 2. Seasonal cycles 3. Back to the future — investigation – Part 1: Finding out – Part 2: Making connections – Part 3: Planning for action | TCC 2.3 TCC 2.4 PS 2.2 PS 2.5 | <p>Seasonal calendar: Students discuss or create a seasonal calendar based on observations of the weather/ seasons (Activity 2) as demonstrations of TCC 2.4.</p> <p>Self-reflection record: Students reflect on their role in the re-enactment and learning so far (Activity 3: Part 2) as demonstrations of TCC 2.3, TCC 2.4, PS 2.2 and/or PS 2.5.</p> <p>Letter-writing: Students identify and explain cause–effect relationships between the introduction of non-native species and other human impacts on the environment in their letters to Granny May (Activity 3: Part 3) as demonstrations of TCC 2.3, TCC 2.4 and/or PS 2.2.</p> |
| 2. Investigating environmental challenges | 4. Futures timeline 5. Envisioning 6. One way to make a difference — a litter-free lunch 7. Minimise to the max — reduce, reuse, recycle 8. Litter-free lunch day | TCC 2.3 TCC 2.4 PS 2.2 PS 2.5 SRP 2.2 | <p>Futures timeline: Students record significant events in their lives and suggest probable and preferable futures for when they are 50 (Activity 4) as demonstrations of PS 2.5.</p> <p>Self-selected response: Students negotiate a medium to record their vision of the 'ideal familiar environment' (Activity 5) as demonstrations of TCC 2.4 and/or PS 2.5.</p> <p>Action plan identification: With assistance, students compare a list of elements of the 'ideal familiar environment' with how it is now. They identify issues that need attention in order to create a plan of action (Activity 5) as demonstrations of TCC 2.4 and/or PS 2.5.</p> <p>Discussion: Students discuss the production of packaging that may provide evidence of demonstration of SRP 2.2.</p> <p>Lunch litter analysis — 1 and 2: Students sort and group litter before and after the litter-free lunch day to identify resources involved in the production of lunch food packaging and evaluate the effect the litter-free lunch has on the environment (Activities 6 and 8) as demonstrations of TCC 2.3, TCC 2.4, PS 2.2 and/or SRP 2.2.</p> |
| 3. Synthesising to create tomorrow's world today | 9. A better future | TCC 2.3 TCC 2.4 PS 2.2 PS 2.5 SRP 2.2 | <p>Action plan presentation: Students investigate and communicate a collaborated environmental issue (for example, lunch litter) in a familiar setting (Activity 9) as demonstrations of TCC 2.3, TCC 2.4, PS 2.2, PS 2.5 and/or SRP 2.2.</p> |

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 learning 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.

Assessing learning outcomes at different levels

Activities in this module are designed primarily for students working towards demonstrations of Level 2 learning outcomes. Assessment opportunities may need to be modified or created to enable students to demonstrate core learning outcomes before or after this level. Learning outcomes in the syllabus at Level 1 and Level 3 could provide a guide for teacher judgments. Studies of Society and Environment learning outcomes are organised so that there is a progression of concepts and processes within a strand. For example, the progression from PS 1.5 to PS 2.5 to PS 3.5 involves increasing sophistication and complexity particularly related to the concept of *significance of place* and the process of *reflecting*.

Elaborations of core learning outcomes provide specific examples of how the concepts and processes may be levelled from Levels 1 to 6. See the Queensland School Curriculum Council website at www.qscq.edu.au for more information.

Using this module

Learning contexts

All activities are suggestions only and can be replaced with activities that match students' particular learning contexts — for example, if the students' learning context is a mobile classroom van, the environmental issue that is explored may come from the community setting.

Throughout implementation of this module, support and facilitate students' learning by participating as a co-learner and researcher. Activities develop understandings of how individuals and groups can make a difference to the world in which they live. Initially, students consider consequences of actions from the past. Children's literature provides a stimulus for the activities. By critically interacting with literature, students begin to gain a greater awareness of a multitude of approaches and values that underpin environmental care and conservation issues. As a result, they may begin to question their own personal actions and use this knowledge in the formation of plans for future action.

Strategic questioning is a technique that supports the development of critical literacy through:

- creating new information rather than simply communicating information already known
- providing viewpoints other than those of students
- assuming the answers may lie with the individual and not with governments or others.

Support materials and references

This strategy moves through a sequence from the simple to the complex. When implementing this module, less complex questions involving observation and feelings can initially be used in response to immersion in literature. Students will need prior experience with activities and related concepts before considering more complex questions that involve reflection, such as personal inventory and change, visioning and action (Peavey 1992).

Preparation

The Story of Rosy Dock (see 'Support materials and references') is an essential resource.

Background information

Terminology

In this module students have opportunities to become familiar with and use the following terminology:

| | | | |
|-------------|--------------------|-----------------|-------------|
| aluminium | flood | non-compostable | seasons |
| bauxite | futures | preferred | species |
| calendar | introduced animals | probable | visioning |
| compostable | introduced plants | recycle | waste |
| cycles | landscape | refuse | willy willy |
| desert | litter | researcher | |
| drought | litter free | reuse | |
| environment | native plants | roleplay | |
| feral | natural | rosy dock | |

Support materials and references

The following terms related to drama activities may need to be explained to students:
Teacher-in-role: a strategy which 'requires the teacher to play a role in the drama with the children for a specific purpose. The role itself should provide some focus for the drama. This could be as simple as entering the drama as a messenger and passing on information' (Woolland 1993, p. 55).

Blanket role: involves students sharing a particular expertise such as being friends or students. This may involve the whole class acting out a particular role.

Mantle of the expert: follows on from the blanket role where students play a role individually with acknowledged expertise. In mantle of the expert, they use more advanced skills to create and sustain roles — for example, researcher, archaeologist.

Role-on-the-wall/floor: a picture outline form, usually a large image that can remain on display for the duration of the drama. Students or the teacher may annotate their image to add information about the role as the drama progresses and as they discover more about the designated role. (See *The Arts Drama strand modules* for further information.)

School authority policies

Be aware of and observe school authority policies that may be relevant to this module. Safety issues to consider include:

- wearing gloves when sorting waste materials
- awareness of relevant school policies for planning and implementing outside classroom activities and inviting guests to attend the school.

Equity considerations

Activities 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:

- understand and appreciate multiple viewpoints
- appreciate how the present is affected by past generations and that present generations affect the health and wellbeing of future generations
- respect and care for our environment now and for the future through the identification of positive actions and creation of action plans.

Some students with disabilities may need assistance with some activities. 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 at www.qscc.qld.edu.au for more information.

Other key learning areas

Activities may offer opportunities for planning across key learning areas. However, it is important that the integrity of the key concepts, organising ideas and processes within key learning areas is maintained. References to relevant key learning areas are provided in the activities. Development of opportunities for students to demonstrate learning outcomes will be necessary. Refer to the relevant syllabus documents of each key learning area and use the following suggestions to plan for demonstrations of learning outcomes.

| SOSE inquiry phases | Possible other key learning area links | | | |
|---|--|--|---|--|
| | English | The Arts | Mathematics | Science |
| <p>Phase 1: Exploring the past, present and future</p> <p>(TCC 2.3, TCC 2.4, PS 2.2, PS 2.5)</p> | <ul style="list-style-type: none"> view, discuss and reflect on the video/book <i>The Story of Rosy Dock</i> brainstorm and list seasonal/desert words record a profile of Granny May research facts about the introduction of non-native species referred to in <i>The Story of Rosy Dock</i> write a letter to Granny May about her actions | <ul style="list-style-type: none"> explore a scene from differing perspectives: enact the roles of Granny May and the researcher reflect on role through a deroling task use objects to enhance meaning: participate in teacher narration of the receipt of Granny May's letter write an in-role response to a moment, issue or concern using language/attitude of the role being played | <ul style="list-style-type: none"> sequence familiar events: months, years, seasons, weather identify patterns and order of story elements | <ul style="list-style-type: none"> identify and describe changes in features of the Earth identify and describe short- and longer-term patterns of events, including weather and seasons identify patterns and relationships between features of different living things and how those living things meet their needs |
| <p>Phase 2: Investigating environmental challenges</p> <p>(TCC 2.3, TCC 2.4, PS 2.2, PS 2.5, SRP 2.2)</p> | <ul style="list-style-type: none"> identify, discuss and record action plans about an environmental issue of concern in a familiar environment envision an ideal environment through guided imagery read and discuss an information fact sheet about lunch food packaging | <ul style="list-style-type: none"> contribute to small and whole group discussion by expressing opinions select a medium and represent a vision for an ideal familiar environment design and make a flier to advertise the litter-free lunch day | <ul style="list-style-type: none"> sequence events in one's life sort/group lunch litter investigate lengths of time. How long is: <ul style="list-style-type: none"> one month one year 450 years? make a flow chart that explains the production of a resource, such as plastic collate/graph data relating to amount/mass of lunch litter | <ul style="list-style-type: none"> discuss how the community uses the Earth's resources and features make links between different features of the environment and the specific needs of living things group materials on the basis of properties — explain how and why common materials are used in particular situations |
| <p>Phase 3: Synthesising to create tomorrow's world today</p> <p>(TCC 2.3, TCC 2.4, PS 2.2, PS 2.5, SRP 2.2)</p> | <ul style="list-style-type: none"> write a letter to the editor of the local newspaper/write invitations, thank-you letters prepare and present an information talk on waste minimisation | <ul style="list-style-type: none"> prepare and present a promotional song/dance/drama about a recycling program | <ul style="list-style-type: none"> gather data and represent it in a visual format, such as a graph, table or diagram | |

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
- opportunities provided to gather evidence about students' demonstrations of core learning outcomes
- future learning opportunities for students who have not yet demonstrated the core learning outcomes and to challenge and extend those students who have already demonstrated the core learning outcomes
- the extent to which activities matched needs of particular groups of students and reflected equity considerations
- the appropriateness of time allocations for particular activities
- the appropriateness of 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 Exploring the past, present and future

Core learning outcomes emphasis: TCC 2.3, TCC 2.4, PS 2.2, PS 2.5

Students develop awareness and understanding of how people's actions influence the environments around them. Students learn how people's actions can influence the future by looking at past and present uses of environments. They use literature, research and roleplay to explore multiple viewpoints about care of environments.

Activity 1 One timeless desert

Support materials and references

Teaching considerations

The animated video *The Story of Rosy Dock* (adapted from the book of the same name by Jeannie Baker) uses animation and music by the band Sirocco to aid students' initial focus on the topic. A set of teachers' notes accompanies the video. A wall map of Australia will be needed for this activity.

Show the animated video or read the book *The Story of Rosy Dock*. Afterwards, play a variation of the game 'I went shopping' in which students recall previous responses offered by other students and add one feature they remember from the book or video. For example, the first student might say, 'I went to the desert and I saw a willy willy'. The next student says, 'I went to the desert and I saw a willy willy and a dry creek bed'. The next student says, 'I went to the desert and I saw a willy willy, a dry creek bed and ...'.

At the conclusion of the game, use a map of Australia to locate the Finke River, which is mentioned in the story. To develop mapping skills, find and discuss other geographical features of interest in the area — for example, the MacDonnell Ranges, Uluru and Alice Springs.

Extension activities

- Conduct a study of illustrators and authors such as Jeannie Baker who use 'collage-like' illustrations.
- Use reference books to locate and map places and geographical features in Central Australia.
- Make a class/individual collage of the students' geographical region.
- Listen to and appreciate pieces of music that may assist students to envision a place or climatic region.

Activity 2 Seasonal cycles

Support materials and references

Teaching considerations

The differences in the natural environment around the world mean that people in different countries experience different seasonal changes. In Australia, Aboriginal survival depended on knowledge of the sequence of significant natural events. The Aboriginal people had different calendars based on the natural events that occurred in different parts of the country. Most Aboriginal calendars have between five and seven seasons. (Posters of Aboriginal seasonal calendars are available — see 'Support materials and references'.) In northern Australia, a basic pattern of six seasons is now well recognised and widely used. This pattern is based around the wet and dry seasons rather than around summer and winter. (In southern parts of Australia, the European calendars are still used even though the climate of Australia is very different.)

The following optional activities are designed to meet the needs of a variety of interests and abilities. Select one as a class activity and use the others as extension activities for individual/small groups of students.

A. Invite students to discuss what they know about seasons in Australia. Students will probably choose the four European seasons of summer, autumn, winter and spring. This seasonal calendar was introduced to Australia by the British.

Re-read *The Story of Rosy Dock* and ask students to identify the various seasons of Central Australia. The list may include:

- hot and dry
- windy (willy willies)
- wet.

Discuss the cycle of 'wet, drought, dust storms, drought, wet'. Ask questions to heighten awareness about the seasons:

- How do the seasons in the story differ from the European view of seasons?
- What seasons are the same?
- Why might this be so?

Support materials and references

B. Use the CD-ROM *Time-lines Australia* from the Time-lines Project to assist students to track changes seen each week of the year, through regular recording of interesting environmental happenings in their locality. Information collected can be emailed or sent on disk to a central database. A diary is available for students to fill out with personal observations. The diary illustrates various Aboriginal seasonal calendars.

Links to Mathematics

The CD-ROM *Time-lines Australia* provides suggestions for creating a new calendar using natural events data. Observations of natural events throughout the year have been recorded in Melbourne and six seasons were identified:

| A seasonal calendar for Melbourne | |
|-----------------------------------|--------------------|
| early summer | December, January |
| late summer | February, March |
| autumn | March, April, May |
| winter | June, July |
| pre-spring | July, August |
| true spring | September, October |

C. Ask students to list what the weather has been like recently and how the weather makes them feel throughout the year.

Discuss their feelings and observations about the weather and assist them to match these observations with the months of the year. Assist students to use their lists and observations to make a calendar of the seasons. Each calendar would vary according to a school's geographic location and/or students' prior experiences. This calendar could be kept and compared with observations made throughout the year.

Assessment

Students' participation in creating or discussing a seasonal calendar based on weather/seasonal observations may provide evidence of demonstrations of TCC 2.4.

Activity 3 Back to the future — investigation

Teaching considerations

Plan to do this activity over a few days.

Resources 1, 3 and 4

You will need:

- a copy of *The Story of Rosy Dock*
- copies of Resource 1 for students
- a copy of Resource 3, pasted onto a 'time machine'
- Resource 4 (one copy as a letter, another copy in a modified diary extract format).

Part 1: Finding out

To assist students' meaning-making, and to set a scene of the past and the illusion of travelling back in time, prepare for teacher-in-role as Granny May by organising appropriate clothing (such as an old-fashioned long dress, apron, and bonnet) and obtaining props (such as a bag of 'seeds', gardening gloves). Advise students that they

will be visiting Granny May at a predetermined time.

Resource 4

Ask students to help set up a cosy, intimate storytelling playspace in the classroom. Props such as a book (with diary extract — modify the text in Resource 4), rocking chair (for Granny May to sit in), curtains hung from a 'window' and a table with old artefacts such as milk jug and candle may help to create the scene.

Resource 3

Using a simulated 'time machine' (any negotiated prop, either created for this activity or a classroom resource) and the attached 'time traveller' poem (Resource 3), pretend with students to take off, back in time, to the setting in *The Story of Rosy Dock*. Approach students in role and assemble them in the storytelling playspace.

Introduce yourself as Granny May, the central character from *The Story of Rosy Dock*. Thank students for visiting you at your home. Invite them to tell you the purpose of their visit. Open up the diary and explain that as your memory is not what it used to be, you will need to use the diary extracts to help you remember the events and details surrounding the 'rosy dock incident'. At this point, encourage individual students to retell familiar parts of the story and ask questions about portrayed events. Guide the discussion in an informal, conversational style. It is important to totally immerse yourself in the role so that students will participate meaningfully and actively. The effectiveness of this 'Finding out' stage of the investigation is critical to students' ability to research, record and report on Granny May and events from *The Story of Rosy Dock*.

Resource 1

Students use information (both written and pictorial) gleaned from the story and their participation in the storytelling activity to create a profile of Granny May. Have large pieces of paper drawn up with the information from Resource 1. Complete this sheet collaboratively with students. Invite students to record information in the appropriate place. In pairs/groups, students discuss:

- Where was Granny May born?
- How long did she live there?
- When did she come to Australia?
- Why did she come to Australia?
- What does she like about living in Central Australia?
- What does she not like?
- What does she miss from her homeland?

Resource 2

Assist students, in *mantle of the expert* (refer to 'Terminology') as researchers, to use *The Story of Rosy Dock* and appropriate flora/fauna reference materials to investigate the spread of the rosy dock and introduced animal species. Students discuss in pairs/groups and record information (Resource 2).

To synthesise the learning from Part 1, discuss the findings in a whole class setting, using recorded information. Conduct a *role-on-the-wall* task in response to what students have learned so far. Draw one or two outlines of Granny May's body. Do not add artistic detail as students will be recording their personal responses and reflections about Granny May's character inside the body outline. Invite students, independently and in their own time, to add their responses to the *role-on-the-wall*.

Part 2: Making connections

Recall the events in *The Story of Rosy Dock* by revisiting some of the recorded student responses from the previous activity. Explain that students are going to re-create this time period and roleplay the events and that they will be working in groups/committees to organise this roleplay. Assist students to brainstorm and list possible roles and tasks they may undertake — for example, actors (Granny May, journalist researching the effects of the spread of rosy dock in the past and present), researchers, newspaper reporters, video producers, photographers, costume and set designers.

Discuss and negotiate each of these roles and tasks so that rights and responsibilities are collaboratively understood by all participants. Ensure every class member has a role in this cooperative activity. Plan and conduct the roleplay and then discuss how students felt about being in their particular role. Some questions for students to reflect on are:

- What new information did you learn?
- How did you feel about your role?
- What did you enjoy/not enjoy about your participation? Why?
- What did you learn about Granny May's thoughts and feelings? How is this different to what you thought before the roleplay?

Encourage students to continue to record their reflections on the *role-on-the-wall* after the roleplay. After recording, ask students to move around the paper on the wall, reading the thoughts and viewpoints of class members. Conclude this section by using strategic questioning. You may wish to revisit *The Story of Rosy Dock* or ask the following strategic questions:

Visioning questions such as:

- How would you like the desert to look?

Change questions such as:

- What changes would you like to make to the plants growing in Central Australia today?
- How do people encourage the regrowth of native plants and reintroduction of animals?
- How can people stop the rosy dock plant from spreading further?
- Who could help us to stop this plant spreading more?

Personal inventory questions such as:

- Would you like to help keep the original native plants and animals in the desert?
- What can you do?
- Who would you need to ask to help you?

Personal action questions such as:

- Who do we need to talk to?
- What will you do to help keep the natural environment free from plants and animals that should not be there?

Assessment

Encourage students to reflect on their participation in the re-enactment and their learning so far as possible evidence of demonstrations of TCC 2.3, TCC 2.4, PS 2.2 and/or PS 2.5.

Part 3: Planning for action

To conclude this activity, ask students to consider the following scenario:

If we knew today how our actions would affect the Earth in a hundred years time, would we change anything? Do you think Granny May would still have planted her seeds if she had known what results her actions would have?

Links to English

Invite students to write a personal letter to try and persuade Granny May not to plant her seeds. Suggest that they also write their feelings about the desert today and compare this to how Granny May would have viewed the desert back then. Encourage students to show some understanding and compassion for Granny May, and to outline all that has happened over time and explain how her simple planting changed the landscape forever. Model how to write a letter, considering purposes, processes and format.

Assessment

Students' letters may provide evidence of understanding of the cause–effect relationships between the introduction of non-native species and human impacts on different environments as demonstrations of TCC 2.3, TCC 2.4 and/or PS 2.2.

Place students' letters in a large envelope within the 'time machine'. Talk about the letters reaching Granny May just as the students travelled back in time to visit her. Roleplay transporting the machine to another time and place. What is left behind in its place is for you to create.

Resource 4 Prepare a letter of response from Granny May (see Resource 4). Develop an element of wonder for the students by presenting the letter as it would have appeared in older times. Roll it into a scroll and bury it somewhere close to the classroom, ensuring that a small section of it is visible. Ensure that students notice the letter and that it is addressed to the class. Act surprised about the letter. Dig up the letter and dust it off. Invite a student to open the letter and read it to the class. Encourage discussion of Granny May's response.

- In what ways could Granny May have replied?
- What do you think she may know about introduced plants and animals?
- How do you think she felt about her actions?
- What strategy do you think she may have suggested to make a better world?

Direct students' attention to the time machine and assist them to recall the time traveller poem that was on the outside of it.

Phase 2 Investigating environmental challenges

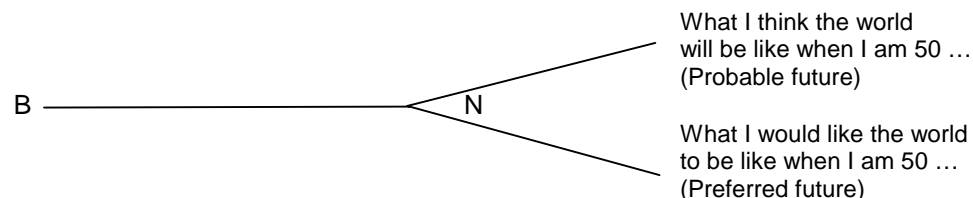
Core learning outcomes emphasis: TCC 2.3, TCC 2.4, PS 2.2, PS 2.5, SRP 2.2

Students collaboratively identify an environmental issue that impacts on their lives every day, such as lunch litter. They plan action to create a desired future and envision how this impacts positively on the future. Through involvement in practical activities that address this plan, students begin to understand how each of us can make a difference to the environments that we live in.

Activity 4 Futures timeline

Introduce the concept of timelines. Suggest what Granny May's younger life may have been like. Assist students to predict what Granny May might have hoped for the future and develop a futures timeline using her letter to aid discussion.

The futures timeline is best done in pairs and provides an opportunity for students to share experiences with others. Provide each pair with a large piece of paper. Assist students to draw the timeline (see below). Ask students to use different coloured pens to plot (draw/write) important events in their lives between the points B (birth) and N (now) on the timeline — for example, the birth of their baby sister, losing their front teeth, winning a sporting trophy.



Ask students to envision what they think the world will be like when they are 50 and to record their ideas in the 'probable future' space on the timeline. Suggested envisioning questions include:

- What activities are you doing?
- Where are you living?
- What does your suburb/community look like?
- What do cities look like?
- What does your home look like?
- What does your grandchild's school look like?
- Does your grandchild ride a bike to school? Why/Why not?
- Are there many parks or recreation areas? Why is this?
- Where do the possums live?
- What do the flying foxes and birds eat? Where do they live?

Encourage students to envision how they would like the world to be when they are 50 (preferred future). Ask the same questions as earlier, or ask students to discuss in their pairs and write/draw what they would like to see when they are 50 years old.

In pairs, students present their work at a whole class discussion or share the most important features of the timeline with another pair of students. Ensure each pair has a chance to share their thoughts and ideas. Display the timelines around the classroom and leave for incidental discussions. After display, collate these timelines into a class big book for independent student use. Use this exercise as a springboard for activities where students envision the future for both themselves and, in a much broader sense, for society, by focusing on preferred futures.

Assessment Students' verbal and recorded responses may provide evidence of demonstrations of PS 2.5.

Activity 5 Envisioning

Teaching considerations

Guided imagery is a strategy that enables equal participation by all students. It involves telling a highly descriptive story and having participants envision the scene that has been 'painted' for them in words. Guided imagery is a powerful strategy for:

- focusing students on the idea of alternative and positive settings
- providing an image of creating change
- looking at solutions instead of problems.

Organise large sheets of paper, pens and crayons for small group work. Students will also need individual supplies of pencils and paper. Ensure a copy of the guided imagery script is ready for use.

Resource 5 Place students in a relaxed and comfortable position. Read the guided imagery script (Resource 5) in a clear, slow voice. Pause between sentences to enable students to reflect on what has been said. As you read the text, students are creating a picture in their mind. At the end of the reading, ask students to individually list three to five mental images. Organise students into groups and ask them to create a cooperative picture or map of the 'ideal school' or community using the large sheets of paper. Allow 15 to 20 minutes for group work and then ask each group to report back to the class.

Assist students to list elements of the ideal school/community on a board or large piece of paper. Use these points to help develop a collective vision for the school/community. Identify the differences between the collective vision and how it is now. Identify environmental issues within the school that need attention. Develop a plan of action from this list. Leave the action plans up around the room for independent student perusal.

Assessment Students' collective vision of an 'ideal familiar environment' may provide evidence of demonstrations of PS 2.5. Students' responses that help create action plans for an environmental issue may provide evidence of demonstrations of TCC 2.4 and/or PS 2.5.

Activity 6 One way to make a difference — a litter-free lunch

Teaching considerations

To prepare for this activity, gather four labels, four ice-cream buckets or similar containers for holding litter and disposable gloves/small freezer bags for handling the rubbish. Ensure workplace health and safety policies are followed when collecting and handling lunch box litter.

A litter-free lunch activity provides an opportunity for students to investigate an environmental issue. Ask students to think about what type of lunch litter they have to dispose of during a school day. If time permits, take students on a 'discovery walk' to observe and note litter in the school eating areas. On return, brainstorm and list different types of litter. Ask students to suggest which litter types are most common. Highlight these and then provide students with the following four labels:

- food
- paper
- tins, aluminium, glass, cartons
- 'other'.

Invite students to attach the labels to four separate bins. You may wish to discuss the terms 'compostable' and 'recyclable'.

Ask students to place their rubbish into the labelled bins. Examine this rubbish and discuss where the material it is made out of originally came from. For example, food wrap can be made of plastic. Discuss how long plastic may take to decompose. Explain that the family car will have rusted away by the time a piece of plastic food wrap has decomposed. A plastic bottle will take 450 years to break down. Plastic breaks down very slowly.

**Resources
6 and 7**

**Support
materials and
references**

Assist small groups of students to use information sheets (Resources 6 and 7) to investigate materials used in the production of packaging and to report back to the class. Refer to *Don't Rubbish Our World* by Iris Flenady for learner-centred activities and ideas about resources and how they are made and recycled.

After discussions about the various materials and their origins, ask students to count the pieces of litter. Assist students to represent this information on a simple bar graph or table.

Encourage students to collect rubbish for a week. Discuss the amount of rubbish.

Assessment

Discussions of the production of packaging may provide evidence of students' demonstrations of SRP 2.2. Students' discussions during sorting and grouping of litter may provide evidence of demonstrations of TCC 2.3, TCC 2.4 and/or SRP 2.2.

Activity 7 Minimise to the max — reduce, reuse, recycle

Teaching considerations

**Support
materials and
references**

The Queensland Recycling Advisory Council's free 15-minute video *Minimise to the Max* raises awareness of how easy it is to minimise waste and encourages individuals to take action. The video provides practical ideas and tips that could be implemented in your environment. A number of Queensland schools are featured on the video. Brisbane City Council also provides a diverse range of brochures on recycling and waste minimisation. See 'Support materials and references' for other references.

View the video *Minimise to the Max* and then sensitively ask students whether they practise recycling, composting and other environmentally friendly strategies at home. Invite discussion about this. Questions relating to familiar environments include:

- Do we compost at school?
- Are items recycled?
- What is missing in this environment?
- What is being achieved here?
- In what ways does our community practise recycling, composting and/or other environmentally friendly strategies?
- What more could we do to minimise waste at home, at school, in the community?

Activity 8 Litter-free lunch day

Begin to plan for a class litter-free lunch day. Ask students to consider how lunches may be packaged to avoid litter and to practise composting and recycling. (Discussions may need to be held with parents/carers, tuckshop convenors and others to provide assistance with lunch packaging.)

Resource 8

In small groups, students design and make a flier with suggestions of how to create a litter-free lunch (Resource 8).

On the litter-free lunch day, ask students to bring all waste materials for sorting and labelling. Count the litter. Graph and make comparisons with the previous waste graphs or tables (Activity 6).

Ask students self-reflective questions to aid comparison of amount of litter and to help them consider their own action for the environment:

- Is there a difference between the amounts of litter?
- Why is there a difference?
- How does less litter affect the school, our homes, our environment?
- What changes would you like to see?

Assessment

Students' sorting and grouping of the litter from the 'litter-free lunch day', their evaluation of the effect this action has on the environment now and their inference of its impact for the future may provide evidence of demonstrations of TCC 2.3, TCC 2.4 and/or PS 2.2.

Phase 3 **Synthesising to create tomorrow's world today**

Core learning outcomes emphasis: TCC 2.3, TCC 2.4, PS 2.2, PS 2.5, SRP 2.2

Students enact their plan to care for and create a better school environment by working on an independent, action-orientated group project. An opportunity is provided for students to present their findings at a parents'/carers' evening or other public forum.

Activity 9 **A better future**

Through practical application, students reflect on and create their own futures for a familiar environment. Revisit the pictures/maps that were drawn from the envisioning task (Activity 5). Using this information, assist students to list areas where change is achievable so the gap between the vision and how the school/community is now can be narrowed. Discuss the list and how the issues may be addressed.

The list may include environmental issues such as:

- | | |
|------------------------------------|---|
| – recycling | – creating an 'Earth carers' code' for the class/school, focused around sharing natural spaces with all living things |
| – waste minimisation | |
| – vegetable, fruit, flower gardens | – inclusion of animal habitats. |
| – energy audit | |

As a whole class, decide democratically on one relevant environmental focus. Committees may be organised to plan each stage of the investigation — for example, writing invitations and letters to community members, designing posters, researching information. A suggested investigation process involves:

- finding out
- making connections for the future
- acting today for tomorrow's world.

Resource 9

Finding out: Provide students with opportunities to gather information about the environmental issue. Accompany students into the schoolgrounds and assist them to assess the current situation and discuss possible changes that can be realistically made. This stage may involve students designing surveys for a particular audience, such as other students, teachers or the school community. Findings may be recorded as graphical or tabled data, as a photographic record or as a written narrative. Scaffold students' initial focus and thinking on this activity by modelling how to respond to the starter sheet on a local environmental issue (Resource 9).

Making connections for the future: Ask students to write about or illustrate their vision and what can be done to achieve the vision. What do students need to do? Students may create personal action plans to contribute to this vision.

Acting today for tomorrow's Earth: Students enact their visions as a whole class. Actions, directions and changes recommended by individual students may be varied and diverse. Examples include:

- creating a promotional song/dance about a recycling program
- organising a formal information talk with a target group on waste minimisation.

Assist students to understand that although all suggestions may not be used, they are advocates within the change process.

Encourage community involvement by organising opportunities for students to share the information they have gathered. This communication could take many forms, including:

- an information evening where students discuss their investigation with parents/ carers and other interested people
- a presentation to a target audience, such as the local council, specific year levels of the school, a schoolgrounds committee or a national award program such as The Banksia Award, Earthworm or Tidy Schools.

Students' presentations may include a chart outlining the format of the project, drama, dance, story, song or a combination of these. Involve students in selecting the format of the final presentation. Consider writing invitations and 'thank-you letters'.

Assessment

Students' participation in planning, organising and presenting this project may provide evidence of demonstrations of each of the learning outcomes: TCC 2.3, TCC 2.4, PS 2.2, PS 2.5 and/or SRP 2.2.

Profile of Granny May **Resource 1**

Profile of Granny May

| | | | |
|--|------------------------------------|-----------------------|-------------|
| A picture of Granny May | Place of birth | Number of years there | Year I left |
| | | | |
| | My reasons for coming to Australia | | |
| | | | |
| My feelings about where I live | | | |
| I like living here because _____ | | | |
| I dislike living here because _____ | | | |
| The things I miss from where I used to live are: | | | |
| | | | |

Me as a researcher **Resource 2**

Research questions

1. What do we already know about rosy dock and introduced animals?

2. Where did the seeds of this plant come from?

3. Where were they planted in Australia according to this story?

4. How did the seeds begin to spread elsewhere?

5. What animals did the settlers bring with them?

6. Where are these animals living today? Where is the rosy dock plant growing in the desert today?

The time traveller poem**Resource 3**

The time traveller

I wonder to travel the path of time unknown
A destiny awaits me but is yet not known.
Seize now the challenge before time turns to dust
I wonder and wait for direction or not.

Letter/diary extract from Granny May**Resource 4**

Modify the following text to create the diary extract.

Dear Children

I could hardly believe what I was reading when I received your letter. It both shocked and saddened me to learn that my few little red seedpods had spread everywhere across the beautiful desert. I really loved the rosy dock plant and I loved the desert too, but I am so ashamed to think that it has created a disaster.

You explained to me that the rabbit, fox, cat, horse, pig and goat have also become feral. If only my fellow settlers had known how their actions would affect the environment for future generations. If only we had known, we would not have been so thoughtless.

Please learn from our mistakes. Think about your world today. Think about where you are. Think about your own school and community. What are you doing in your schoolgrounds now that might cause problems for the environment in the future? Please, take the time to imagine the future. I never did and look what happened! I imagine the future as you would wish it to be and think about making the world better for you and future generations. Think of doing things that will make a better place and start doing them today.

Yours for a better future

Granny May

Guided imagery script**Resource 5**

This imagery script has been set in a classroom context. If the students' context is different — for example, if they are based in a community building, caravan village or mobile classroom van — modify the text to suit their setting.

Creating tomorrow's world today

We are going to take a trip to the future, to the ideal school. This is not as it is today, nor as we think it probably will be. This is the school as we would like it to be, as we would hope it to be, if there were no limits at all in creating a truly wonderful, exciting place for all of us. We hope to create a safe, healthy, friendly, caring and exciting school, so make yourself comfortable — you may even find it useful to close your eyes so that you can more easily see the future in your mind's eye.

I want you to imagine that you are hovering above the school, perhaps in an air balloon. Look down through the trees at the school below you. What does it look like? What colours, shapes and surfaces do you see? Follow the outside fence. Look at everything on the inside. How would you like the playground to look?

Remember, this is the ideal school. This is how you would like the school to be.

Share your ideas with the person next to you.

Let's continue on our trip to the future. We are above the school. Now, slowly go down towards the buildings. We are going to land in this school on a [Tuesday]. As you get closer to the ground, listen to the sounds and smell the scents of the area. Look around you. Who is there? Are your friends there? Are there lots of things for everyone to do? What is everyone doing? Are you happy playing? What are your friends playing with? Do all kinds of children have an opportunity to come to this wonderful place? Remember, this is the most wonderful school in the world. Is there enough space? Is everyone comfortable within this space? What do you feel like in this place? Are the adults comfortable? Is this a pleasant and an exciting place to spend the whole morning?

Remember, this is your perfect school.

Let's return to the playground. Close your eyes if you find that comfortable.

Imagine it's morning tea time. Are there places for the children to sit? Are they comfortable? Is there enough shade? What else are the children doing apart from eating?

It's time to return to the classroom. Where do you meet your teacher? What is the entrance of your room like? Where do you put your school bag and your lunch?

Where do you sit? What does the inside of your room look like? What are the children doing in the classroom? Is it a comfortable room for you and your teacher?

Share your ideas with the person next to you.

School has finished and children are leaving. What is the entrance area like? Is it a nice place for children and parents/carers to walk through? Is it safe? What is the feeling in the school at this time of day? Now, before we leave this ideal school, get back into your air balloon and float back over the school. Think back on all you have seen, smelt and touched. Think back on all the pictures you have created.

Now, I want you to slowly come back to the present time, remembering your trip to the future. When you feel ready, open your eyes, if they are closed, and have a stretch.

Information sheet — Glass**Resource 6**

Glass is used for drinking glasses, jars and bottles, and windows in cars and buildings. Glass is made from soda ash and other materials including sand, limestone, dolomite and alumina. All these materials come from the Earth. Glassmakers can save money by reusing crushed glass, called cullet. This glass is remelted and mixed with the materials listed above.

- Landfill

Glass takes up a lot of space and doesn't rot away. It stays in the ground for a very long time.

- Refillable

Some glass bottles are refillable. After these bottles are returned to the factory they are washed and refilled. Some Australian states give consumers money back if they return bottles for reuse.

- Recyclable glass

Most glass is made for a single use only. It needs to be placed into a recycling bin and returned to a factory where it will be remelted and made into a new glass product. It is important not to put ceramics, pottery or crystal into a glass recycling bin. Melting one of these materials with glass will ruin the whole batch.

Source: Adapted from Flenady, I. 1991, *Don't Rubbish Our World*, Martin Education, Cammeray, NSW.

Information sheet — Aluminium**Resource 7**

Aluminium is mostly made from bauxite. Bauxite is a very old rock made from clay that has changed over about 60 million years. Bauxite is refined into a metal called alumina. When the alumina has been taken out there are some leftovers, including a red mud, which is poisonous and has to be cleaned before being placed out on the ground.

It takes four tonnes of bauxite to make one tonne of aluminium. A large amount of electricity is also needed to make the alumina into aluminium.

Electricity comes from burning oil, coal or gas. Some electricity comes from falling water and this is called hydro-electricity. Once aluminium is made, it is cheaper to recycle the existing material than to make new material.

- Recycling is the answer

When aluminium is recycled, it is melted and shaped into something else. Making a drink can from recycled aluminium uses 95% less energy than making a new can.

- Landfill

When we waste aluminium by throwing it away we are wasting resources.

Source: Adapted from Flenady, I. 1991, *Don't Rubbish Our World*, Martin Education, Cammeray, NSW.

Litter-free lunch day flier information**Resource 8****Suggestions**

- Reusable lunch boxes or cloth bags could be used.
- Drinks could be in reusable containers.
- Left-over compostable materials could be taken to the home or school compost bin. Materials such as apple cores, paper, banana skins and bread are compostable.

Please avoid:

- use of disposable materials such as plastic bags, food wrap
- pre-packaged food
- foil and cans (unless these are to be placed in the recycling bin).

Starter sheet for creating tomorrow's world today**Resource 9****Finding out**

1. What do we want to find out?
2. How will we do it?
3. How will we record what we gather?

Making connections

1. What we found out — the result.
2. Group observations from the results.
3. Our vision.
4. Action to help bring about a better world.

Support materials and references

Baker, J. 1991, *Window*, Julia MacRae Books, London.

Baker, J. 1995, *The Story of Rosy Dock*, Random House Australia, Milsons Point, NSW.

Flenady, I. 1991, *Don't Rubbish Our World*, Martin Education, Cammeray, NSW.

Keep Australia Beautiful Inc. 1996, *School Environmental Audit — A Guide to Best Practice Environmental Management*, Fortitude Valley, Qld.

Murdoch, K. 1992, *Integrating Naturally: Units of Work for Environmental Education*, Dellasta, Mt Waverley, Vic.

Peavey, F. 1992, *Strategic Questioning*, from papers delivered at 'Heart Politics' gatherings in New Zealand and Australia.

Woolland, B. 1993, *The Teaching of Drama in the Primary School*, The Effective Teacher Series, Longman Group, UK.

Posters

Out of the Spinifex: illustrates the spread of introduced animals across Australia. Information and worksheets are printed on the back of the poster and are photocopyable for educational purposes.

Spinifex Times — The Hard Times: looks at Central Australia in drought and depicts how the native animals adapt to the extremes of the desert climate.

Posters available from Ecological Futures, PO Box 5522, Stafford Heights, Q 4053.
Telephone: (07) 3353 1369.

Aboriginal Seasonal Calendar posters are produced by Wet Tropics Management Authority and are available from the Aboriginal and Torres Strait Islander Education Unit — Sub-centre South Resource Centre, PO Box 254, Inala Q 4077.

Telephone: (07) 3372 5460 Fax: (07) 3372 4914

Email: atsi.library@qed.qld.gov.au

Website: www.education.qld.gov.au/tal/atsi/html/reso/reso.htm.

Kits (including audiovisual)

Critical Literacy: Resource Pack (1996): video plus teacher handbook of readings and resources. Australian Association for the Teaching of English.

The Story of Rosy Dock: a ten-minute animated video set in Central Australia plus teachers' notes. Available from Film Australia, PO Box 46, Lindfield NSW 2070.

Telephone: (02) 9413 8777 Fax: (02) 9413 8671

Email: sales@filmaust.com.au

Website: www.filmaust.com.au.

Minimise to the Max — Reduce, Re-use, Recycle: a free video plus activity booklet available from Project Officer, Queensland Recycling Advisory Council, PO Box 155, Brisbane Albert Street Q 4002.

Fax: (07) 3227 8341.

Useful contacts

Keep Australia Beautiful Council Queensland, PO Box 201, Fortitude Valley Q 4006.

Telephone: (07) 3252 2886.

If there is interest in waste disposal and managing waste in your school, contact Keep Australia Beautiful to obtain a copy of *School Environmental Audit — A Guide to Best Practice Environments Management* (1996).

Time-lines Project — The Gould League

If there is interest in understanding the varying seasons of Australia, contact (03) 9532 2860.

Pacific Waste Management, PO Box 6567, Upper Mt Gravatt, Q 4567.

Telephone: (07) 3849 8222.

Has an education officer who provides information for schools.

Environmental Protection Agency, PO Box 155, Brisbane Albert Street, Q 4002.

Telephone: (07) 3227 8186

Produces an environmental contacts poster that covers many topics, including waste minimisation, packaging, recycling and landfill. Also has information about the *SCRAP program* — *School Communities Recycling All Paper*.

Brisbane City Council has information on reduce, reuse, recycle schemes.

Telephone: (07) 3403 8888

Websites

(All websites listed were accessed in April 2002.)

Brisbane City Council. www.brisbane.qld.gov.au/

Environmental Protection Agency. www.epa.qld.gov.au/

Local Government Association of Queensland. www.lgaq.asn.au/

Publishers National Environment Bureau. www.pneb.com.au/

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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