School Gardens
Cross Curriculum Learning Opportunities

Rick Baldock
Project Coordinator

eat well be active Primary School Project
With thanks to Elizabeth Downs PS and Ungarra PS
Ungarra PS Herb Garden
Session outcomes

• To provide a rationale for gardens in Primary schools
• To suggest useful resources to support your work in school gardens
• To provide examples of cross curriculum approaches to gardens and gardening in Primary Schools
Kids Building a Garden
Why Gardens as part of a healthy food strategy?

Research shows a clear connection between food choices and cognitive function

... research supports the broader implementation and investment in effective school nutrition programs that have the potential to improve student access to healthy food choices, diet quality, academic performance, and over the long term, health.

Florence, Asbridge, Veugelers, 2008, p.213
Healthy Eating & Learning

Children fed a diet characterised by high consumption of fruit, vegetables, and home prepared foods had higher IQ, verbal IQ and better memory performance at age 4 years

*International Fruit and Vegetable Alliance Scientific Newsletter No. 44, April 2010*
Overview

In South Australia there are:

- an estimated 130 food gardens in South Australian schools and over 20 in preschools (not including Stephanie Alexander Kitchen Garden schools)
- 33 Stephanie Alexander Kitchen Garden schools
- at least 52 schools with indigenous food and medicinal gardens including gardens with a strong element of community involvement
- Approximately 40 community gardens many with involvement of schools
- Countless classroom gardens on windowsills and boxes in the yard
Why gardens in schools?

Doing time?

OR

Time spent doing
Benefits for students

- Great exercise:
  45mins gardening = 30min gym workout!
  and it is counted as activity in the Premier’s *be active* Challenge
- Improves strength and flexibility
- Relaxation therapy – promotes wellbeing & learning
- Opportunities for creativity
Gardening…

- Encourages self-determination
- Promotes positive attitudes toward healthy eating and nutrition
- Develops understanding of where food comes from
- Allows young people to enjoy being active
- Promotes resilience and social skills
- Encourages tolerance and understanding between cultures
- Provides entry points for learners of all abilities
- Promotes connection with the community
- Encourages interaction between generations
Students can learn from the smallest garden

No garden? No problem!
Literacy

Students at Elizabeth Downs PS complete a weekly proforma during the gardening lesson.
Our Day in The Kitchen

HIGHLIGHTS/COMMENTS FROM THE LESSON
Adam and I juiced so many lemons that my hands were wrinkled and stinging by the end.
We squeezed lots of lemons to make lemon curd.
I didn't know that we sell foods made from the kitchen too. Kate said the teachers love it!
Lots of Italian and French words are used in cooking.
Croquettes is a French word. They are like potato sausages.
Kelvin made his own recipe of lemon zest, juice and sugar. Bec ate it.
I loved all the food this week.
We are getting better at cleaning up. We beat the lunch bell now.
We had to pick coriander and mint from the garden but we didn't know what it looked like. Bec helped us. She taught us the smell of them.

RECIPES/TASKS WE PERFORMED THIS WEEK
Thai chicken salad
Spinach, potato and cheese croquettes
Vegetable and beef patties
Lemon curd
Sponge cream cakes and lemon curd with crunchy bits

NEW WORDS WE HAVE LEARNT
Thai
Croquettes
curd
Hillcrest PS Community Garden
New words & WOW! words

The ‘new words’ section is used to further Literacy learning.

‘New words’ become:
WOW! Words that we study the origins and meanings of.

For example:
Many *Kitchen* words have a European background.
WOW words!

**Kitchen**
- ANZAC
- Arancini
- artichoke
- bahji
- caesar
- chick peas
- coconut milk
- Croquettes
- crouton
- curd
- emulsion
- fetta
- fettuccine
- harvesting
- Jerusalem
- knead
- korma
- lentil
- minestrone
- olive oil
- peak
- plump
- polenta
- preserve
- rainbow chard
- spinach
- ravioli
- risotto
- Sang Choy Bao
- syrup
- Tarte Tatin
- Thai
- vanilla essence
- whisk
- yolk
- zest

**Garden**
- asparagus
- Bettong
- blue eggs
- Brassica
- coriander
- fibre grain
- leaf mulch
- petunia
- Quoll
- red cabbage
- sage
- self seeded
- silver beet
- snow peas
- spinach
- transplanted
- zucchini
New words

New words are included and organised in the 4 Knowledge’s - words are incorporated in spelling lists and learnt through games and activities.
Immanuel Lutheran School Gawler
Insect Information Reports

• Insects were observed in the garden during and ‘Insect hunt’.

• The students selected an insect to study

• The insects role in the garden and other factual information was presented in an information report
Dragonfly

Written by Braden Schuster

Classification
The dragonfly is an insect. All insects have six jointed legs, a head, a thorax, and an abdomen. The dragonfly belongs to the order Odonata. Dragonfly’s live around lakes and rivers. They are found in the Summer time.

Appearance
The dragonfly has a head with two antennas, a small mouth and two good lensed eyes. Dragonflies have mandibles to munch on food. Dragonfly’s have mandibles to munch on food. Dragonfly’s use their legs to catch and grab prey. They place their legs into a basket shape to do this. They grab prey in mid-flight. Adult dragonflies don’t like to walk.

Reproduction
A male and a female will mate while they are flying in the air they lay eggs on a plant in the water suitable plant and drop them into the water.

Life cycle of a dragonfly

Other Facts
The dragonfly has a life span of over a year. Most of its life is as a nymph. There are three stages of the life cycle of a dragonfly. They are egg, nymph and adult. There are over 5,000 species of dragonfly which can be very different.

References
Dragonflies
http://ecoenvo.uvigo.es/WDA

Mcevey, S., 2001, Dragonflies .MACMILLAN EDUCATION, South Yarra.

PARTS OF A DRAGONFLY

PARTS OF A DAMSELFLY

Behaviour
Diet
Dragonfly’s are carnivorous. They eat other insects. They can also eat tadpoles and smaller fish. Adult dragonfly’s eat various insects such as mosquitoes, gnat, mayflies and flies. They use their legs formed in a basket shape.

Dragonfly Eating an Unlucky Bug
Elizabeth Downs PS
Guided Reading

- Guided Reading groups have studied texts based around the kitchen/garden theme.
- Using this information, students transfer their knowledge into their own Procedural text.
- Procedures include making a grass head, and creating and maintaining a worm farm.
Making Granny Grasshead

Worm Work

Written by Jo Windsor
Accelerated Literacy

The Common Housefly report

- This text complimented the theme of insects and compost
Numeracy

Measurement

• The measuring of ingredients using metric units
• Measuring plant growth – converting between units (mm/cm)
• Perimeter and area of the garden and garden patches
Numeracy/Maths

Tally keeping
• Tallies of insects observed (linked with Literacy)

Time lines and Tables
• Tables of plant growth and timelines of a plant’s life cycle were recorded.
<table>
<thead>
<tr>
<th>Task</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Back Spiders</td>
<td>Keith</td>
</tr>
<tr>
<td>Soil/compost onto 'Echidna' garden bed</td>
<td>(Keith)</td>
</tr>
<tr>
<td>Lizards</td>
<td>Judy</td>
</tr>
<tr>
<td>Sow seeds</td>
<td>(Judy)</td>
</tr>
<tr>
<td>Snakes</td>
<td></td>
</tr>
<tr>
<td>Caterpillars</td>
<td></td>
</tr>
<tr>
<td>Plant tree</td>
<td>Tony + John</td>
</tr>
<tr>
<td>Make bookmarks with dried flowers</td>
<td></td>
</tr>
<tr>
<td>Snake book</td>
<td>Tony + John</td>
</tr>
<tr>
<td>Plant out more onions 'Cooneah' garden bed</td>
<td></td>
</tr>
</tbody>
</table>

**Bananas in P.E.**
- Soil/compost onto garden bed
- Collect lettuce seeds/pull up lettuce/compost

**The Crazy Planners**
- Soil/compost onto garden bed
- Weeding/rake paths/pick produce

<table>
<thead>
<tr>
<th>Task</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sow seeds</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- Tony
- (Shane)
<table>
<thead>
<tr>
<th>Day</th>
<th>Picture</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><img src="image1" alt="Day 1" /></td>
<td>It is a seed in a cup with water and it has a bit of a root.</td>
</tr>
<tr>
<td>7</td>
<td><img src="image2" alt="Day 7" /></td>
<td>The first shoot has grown 3mm; it has not grown many leaves.</td>
</tr>
<tr>
<td>14</td>
<td><img src="image3" alt="Day 14" /></td>
<td>My root has grown from 3mm to 55mm. The seed is growing a root system and it has grown a first shoot 35mm.</td>
</tr>
<tr>
<td>18</td>
<td><img src="image4" alt="Day 18" /></td>
<td>My root is 93mm; it has grown 4 root hairs. My first shoot is about 55mm; it has no leaves, my root has grown from 55mm to 93mm, my shoot has grown from 55mm to 55mm.</td>
</tr>
</tbody>
</table>
Numeracy/Maths

- Plant growth was graphed using Excel
- Patterns in growth were interpreted from the data
Information Technology

- Presentation of Insect Information reports using Microsoft Publisher, Word and PowerPoint
- Including importing pictures and diagrams into text
- Research information using the internet
Science

Classification of Insects

- When researching insects for their Information reports, students studied the classification of all insects and how their insect was classified accordingly.
Kilkenny PS
Life Cycles

Life cycles of a Common Housefly, Cabbage Moth and Butterfly were studied.
Plants in Action

This unit of „Primary Connections“ has encompassed so much work to compliment the garden.

Various strategies from the ‘Primary Connections’ collections were used throughout this unit of work. Such as:

• collaborative learning groups
• a scientific word wall
• drawing scaled diagrams
• a class TWLH chart
• think/pair/share
Seed Anatomy

Explored by cross section of seeds and factual text

The anatomy of a broad bean seed
The anatomy of a lima bean seed:

**Outside of seed**
- Hilum (seed scar)  
- 20 cm

**Inside of seed**
- First shoot (plumule)  
- First root (radicle)  
- Cotyledons (store food)  
- Seed coat

*No coat on a soaking seed*

**Outside of seed**
- 20 mm

**Inside of seed**
- 20 mm

The anatomy of a lima bean seed.
Germination & conditions for this to occur

• Germination of broad bean seeds
• Plant growth records came from this task
Diagram of a plant

- Leaves
- Stem
- Seed
- Roots

scale belongs here

\[ \text{An accurate plant diagram} \]

*labels are written in lower case
Watervale PS Garden & Chook Shed
Flower anatomy

• In relation to reproduction of plants
• Explored by cross section of various flowers and factual text
A diagram of a flower 2 Jul 2016

(before knowledge)

rain so it can germinate
sun so it can germinate

27 Jul 2016

Cross section of a flower

petal
stamen
anther
filament
style
pistil
ovary
ovule

(1cm)

20 mm

 roots

leaves

pollen

flower

soil

seed
Pollination – How this occurs & purpose

• Explored by factual text and viewing of a video

The relationship between flowers and fruit

• Explored by cross section of fruit and factual text

• Observed the development of fruit in the garden
After pollination, the ovary of the flower ripens into a fruit and the ovules develop into seeds.
A flowering plant’s life cycle

• Demonstrating all of the knowledge to represent a comprehensive life cycle

• Assessment piece
Life cycle of a plant

1. This is a normal seed that will be germination when it is planted in the ground. It will need water, sun and warmth to grow.

2. This is a seed that has started to grow a first root it has began to germination. It will need water, sun and warmth to be a strong plant.

3. Now it has started to grow a root system and it is growing a first shoot. Now it will need more water, sun and warmth to grow on time.

4. Now it will need lots of water, sun and warmth to grow fruit. It will germination on time if it gets what it needs. Now it has leaves and a root system.

5. Now a bee has come to pollinate a flower on the strong plant. A bee will come to pollination the plant when it is ready to grow fruit. It will take a long time for it to grow.

6. Now the pollination has worked so this fruit will grow. Now this plant is ready to grow more fruit when it is ready. It is now a big strong plant.
Design & Technology

• The class worked in small groups to create a giant fly
• The fly was three-dimensional, predominately made of a paper outer that was stuffed and painted
• Other recyclable resources were utilised to add the finer details
• This required scale work to ensure the anatomy of the fly was in proportion
Geography & SOSE

- The origin of the class chicken was researched
- This complimented the theme of China
- Locating the geographical origins of recipes on the world map
- Researching the variety of foods the world has to offer, and foods people of other cultures eat
China has the most variety of animals in the world. Some Chinese animals are:
* Red Pandas
* Giant Pandas
* Chinese Alligators
* Red Crowned-Cranes
* Bactrain Camels
* Sun Bears
* Snow Leopards

Chinese houses have big door steps to keep out evil spirits.

China has the world's largest population - leading to the 'one child per family' policy.

The 2008 Olympic Games were held in China's capital - Beijing.

Associated ideas include:
* the stone jade
* mystical country
* fragile ornaments
* different culture
* binded and small feet
* Great Wall of China
* Terricotta Warriors
* intelligent people
* traditional uniform is worn
* children can marry at 10 years of age

China has many different geographical environments, including:
* tropical rainforests
* rice fields
* mountain forests
* icy snow mountains
* deserts
* swamps and fresh water

The Chinese flag is red and gold. Red is the colour of happiness and gold is the colour for youth.

In the old days people simply had splits in their pants. Now there are 'squat and drop' toilets.
Newsletter articles

Garden News
TERM 1 WEEK 2

It was great to come back to school and see all that had grown in the garden over the holidays, thanks to our fantastic irrigation system. The cherry tomatoes have turned into weeds and are growing from one end to the other. The upper primary class harvested potatoes and onions. We picked 16 kilos of potatoes and two tubs of onions. We also identified several weeds, such as paddy melons & love grass. The junior primary class, with the help of Ms Tiller, picked the nectarines from our tree. We were all totally amazed as how many nectarines were on this tree which is only just two seasons old. The children weighed the nectarines, we had picked 27 kilos. We worked out that if we had bought the nectarines at the shop for $8 a kilo that it would have cost us $216. We also discovered that the nectarines weighed more than Yammin but less than Will. We also harvested purple beans, plums, strawberries and a few tomatoes which are just starting to ripen.

From next week the children will be rostered each week to do a garden report. We have set up a lap top with a pro forma for the children to use. We will be taking the lap top and the camera to the garden each week and a child will be in charge of being the reporter and photographer and putting it on to the computer.

Next week for our gardening lesson we are very lucky to be going to visit Joy’s garden wonderland. I have been to Joy’s several times but am still very excited to be going again.

I have included a roster for when we have garden lessons. If you are available, we would love you to put your name down to help out. This enables us to split each class into three groups and also gives parents and community members a chance to come and see the wonderful learning that happens each week in the garden.

Happy gardening, Sue

<table>
<thead>
<tr>
<th>DATE</th>
<th>UP CLASS</th>
<th>JP CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>THURS 10/2/2010</td>
<td>12—1PM</td>
<td>1:45—2:45</td>
</tr>
<tr>
<td>THURS 17/2/2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THURS 24/2/2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THURS 3/3/2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THURS 10/3/2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THURS 17/3/2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THURS 24/3/2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THURS 31/3/2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THURS 7/4/2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THURS 14/4/2010</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In the garden.....

Miss Pobke’s group put up a fence around one of the garden beds to stop those chooks eating all of our greens! Meanwhile Eden’s group planted some spinach especially for the chooks to eat. The groups then worked together fencing off the new spinach plants, so they can grow bigger before the choocks eat them and that way we can also control how much they access.

Sue’s group was busy reviving the wicking bed. They put some new soil in and planted some beans and lettuce plants.

A big thank you to Claire who swept the path, things are really starting to take off and look great.
If you are planning on planting tomatoes, corn or zucchini from seed this spring/summer you can get a head start by planting your seeds now and putting them on a sunny window sill to germinate. They will be ready to go when the weather warms up a bit in a few weeks.

If you have cauliflower in that are just starting to fruit tie the leaves up around the cauliflower head as this will stop the sunlight causing the cauliflower to send up seed heads, making the cauli inedible.

A HUGE thanks to the wonderful kids at Ungarra who always work so hard in the garden. During our last garden lesson they did a fantastic job of getting stuck in to all the jobs that had to be done before the end of term. Each week I can see their gardening skills improving, even if at times I just have to grin and go with it, like when a little Reception planted a whole packet of seeds in an area of about 10cm. Thanks Kiddos you are a great bunch!!

During our last gardening lesson we planted about 15 new fruit trees, including heirloom apples and pears, limes, grapefruit, mandarin and 3 varieties of guava.

Thanks to Teresa Webb for donating a pile of art smocks to the school.

SPECIAL THANKS
To John and Rae De La Salle and Jon and Marion Ashworth for looking after our chicks during the holidays. We sincerely appreciate your help.
Useful Resources

Growing Community

Starting and nurturing community gardens
Resources

Edible Garden Fact Sheet

Inspiration

"Gardening can be a magical experience for children. They love to help out and delight at harvesting berries, blossoming sunflowers, and gathering up lemon for lemonade.

Most adults can recall happy times spent in the garden when young, learning how to plant seeds and grow produce, an experience often shared with our parents and grandparents. Many of us remember the exquisite taste of home-grown food – in contrast to the bland tastes of many supermarket fruits and vegetables today.

Unfortunately, with the trend towards shrinking backyards and increasingly busy lives, domestic food gardens have become a thing of the past. The opportunity to pass on important gardening skills from generation to generation and to share in the joys of home-grown food is being lost.

For children without a vegetable patch, or even a fruit tree, there’s little opportunity to observe how food grows. They may only ever see that and vegetables as the supermarket where they come ready packaged, bear little resemblance to the whole plant and may be sold outside the normal growing season." (Fenton and Linnig 2007)

Success stories

Star of the Sea

Teachers Peter and Adda provided the momentum needed to initiate this productive vegetable garden. Studying Fert year 5, 6 & 7 grouped people and elements of students provided the labour to help establish the garden.

School discipline provided the soil, mushroom compost and the timber frame. Fertile weeds and woodchips were purchased through the science budget. In more recent times, saving scratch and forage have been donated by the parents.

A parent who works at SA-Waste Management donated resources and Teamraig donated a rainwater tank.

Classroom learning is connected to the garden on a number of fronts:

Science explored:
- Energy: recycling of food scraps, Carbon cycle
- Living Systems: Butterfly life cycle, dealing with pests

Health: "We are the image of God (MMTCC)" explored
- Healthy eating and healthy food choices

Environment explored:
- Recycling of food scraps via worm farm and Belaview

ACHPER. South Australia Branch Inc.
Resources

Australian Sustainable Schools Initiative | South Australia

What are the benefits of becoming an AuSSI-SA school or preschool?

CLICK HERE TO FIND OUT
REGISTER with AuSSI-SA
Key messages

• Healthy kids learn better
• Healthy eating is an important part of keeping kids healthy
• Knowledge and skills to maintain health need to be embedded in the:
  • Curriculum
  • Learning environment and
  • School policies
• A whole school approach to healthy eating is essential for success
Farrell Flat PS Garden
ACHPER (SA)

ACHPER (SA) can offer this session to your School/Site.

Contact ACHPER (SA) for more information
info@achpersa.com.au

Or visit our website www.achpersa.com.au

Or telephone 08 8363 5700