



Waterwise Sensory Maze

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**Suggested age
11-12 years**

Stage 3 (NSW)
Suite 3/Level 4 (QLD)
Level 4 (VIC)
Middle Childhood (WA)
Standard 3 (SA/TAS)
Early Adolescence (ACT)
Band 3 (NT)

Waterwise sensory maze

Waterwise Sensory Maze

Australia is the driest inhabited continent in the world, yet we are one of the highest water users. This sensory maze provides an interactive learnscape which allows for the investigation and demonstration of waterwise gardening practices through mulching, experimental watering regimes and plantings of a variety of sensory plants. Suggested plants include traditional herbs, native grasses, bush foods, fibre and medicinal plants. These plants also demonstrate a range of textures, shapes, colours and fragrances with a further range of sounds and textures experienced through different pathway treatments.

Children learn through sensory and physical activity. The variety and richness of natural settings (colours, sounds, textures, moving and changing elements) and the opportunity to interact with that environment all contribute to physical, cognitive and emotional development in ways that are not possible in an indoor environment. When students are encouraged to also design and create their own sensory maze garden, a myriad of additional learning opportunities become available.

2

Student outcomes

By actively participating in the learning opportunities and creation of a Waterwise Sensory Maze students will:

- select and use a range of equipment, computer technology and other resources to undertake an investigation and a variety of design tasks.
- evaluate aesthetic and functional components in the built environment.
- observe, measure, record and interpret data from the environment and construct graphs and diagrams that represent these findings.
- recognise natural processes and understand their inter-related nature.
- distinguish between indigenous, native and introduced plants.
- understand the concepts of 'biodiversity' and 'sustainable management of resources' and develop strategies to increase both in the school grounds.
- demonstrate confidence in their own ability and a willingness to solve problems and make and implement informed decisions.
- demonstrate leadership and develop a sense of personal responsibility as stewards of the school environment.

KidsGrow resources

- *Steps for creating a Waterwise Sensory Maze*
- *Waterwise Sensory Maze sample design*
- *Waterwise Sensory Maze tips and plant suggestions*
- *Waterwise gardening*
- *Games ideas for your maze*

Other resources from www.kidsgrow.com.au

- *Safety tips for learning outdoors*
- *School friendly gardening practices*

Composting. Compost will enrich your garden and make it grow. Composting is nature's way of recycling. Almost any organic matter can be composted including leaves, straw, food scraps, lawn and garden clippings. You can build your own from timber, bricks or other materials or just make a heap. For fact sheets go to www.abc.net.au/gardening and type in 'compost' in the SEARCH box.

Be Wise About Water. With simple planning and good plant selection you can create a beautiful water efficient garden right from the start. Check out www.wiseaboutwater.com.au for detailed tips on reducing water use and links to other useful websites.

Your local nursery or garden centre is a great place to start for advice on gardening techniques, garden supplies, landscape suppliers and plants suitable for your area.

NGIA thanks *Landscape Planning & Design* for sharing their process in the creation of this themed garden. While every effort is made to ensure the accuracy of the contents, Nursery & Garden Industry Australia Limited accepts no liability for the information.

Safety Disclaimer. All student activities included in *KidsGrow* have been designed to minimise hazards. However, there is no guarantee expressed or implied that an activity or procedure will not cause injury. Teachers selecting a *KidsGrow* garden activity should consider the occupational health and safety requirements within their State or Territory. Any necessary precaution should be clearly outlined by the teacher before starting an activity. Students must also be taught the proper use of tools and provided with all safety and protective equipment such as gloves before beginning an activity. See 'Safety tips for learning outdoors'.



Steps for creating a Waterwise Sensory Maze

ACTIVITIES TO BE UNDERTAKEN

STUDENT LEARNING OPPORTUNITIES

Step 1. Organise your team and create a vision for your garden

Revise student knowledge of the water cycle. Investigate current water issues in society. Research gardens designed to stimulate the senses ensuring that all senses are included. Set up a class garden team and include parents. Tap into community resources and expertise. Introduce the concepts of Australian native plants (including plants indigenous to the local area) and non-native or introduced plant species. Decide on the purpose and type of garden. Refer to the 'Waterwise Sensory Maze tips and plant suggestions', and other support pages. Collect ideas from a variety of other sources. List all the essential elements that need to be incorporated in the Waterwise Sensory Maze. Consult with the principal and relevant school staff to discuss any additional requirements.

Research the water cycle, the international 'water crisis' and water conservation practices being promoted in your local area. **Investigate** where the local water comes from and **discuss** other possible sources of water e.g. storm water, rain tanks, desalination, re-use of water. **Discuss** the important reasons for developing waterwise gardens. **Investigate** sensory garden features using a variety of sources. **Include** all of the senses. **List** the main sensory garden elements. **Examine** the 'Waterwise Sensory Maze sample design' and find the suggested elements. **Invite** an experienced gardener to speak to your class and **contact** local experts to ask for assistance with research and planning for your Waterwise Sensory Maze or to join your class garden team. **Re-examine** the plant elements that make up a sensory garden. **Identify** native and non-native plant species to be included. **Note** each plant's requirements - sun or shade, soil, water needs. **Research** traditional bush foods and plants which originate locally. **Compare** these elements with your list. **Develop** a wish list of elements for your garden based on all your findings. **Collect** ideas from magazines that reflect your wish list.

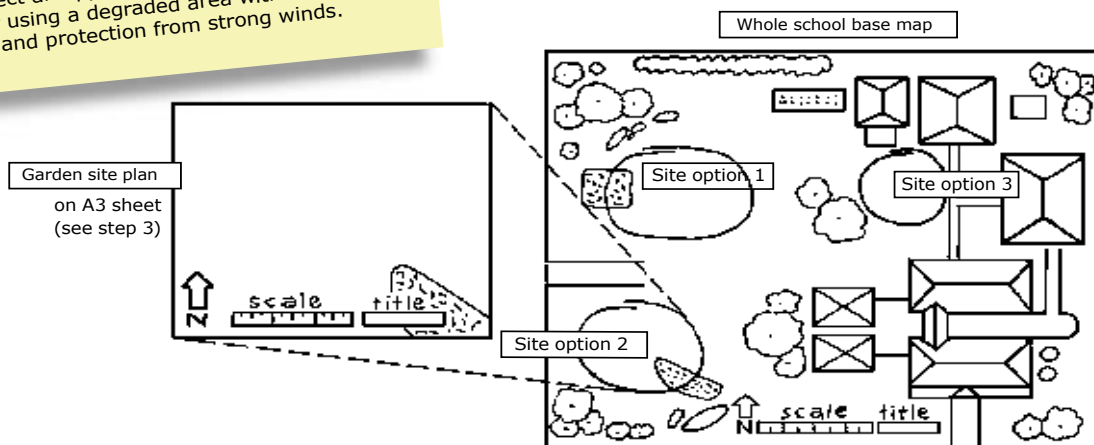
Step 2. Locate the best place for the garden

An area from 200 to 400 sq. metres is desirable. Assess the grounds with a site audit. Consider:

- ☐ Location of buildings and physical features
- ☐ Location of service lines e.g. water, electricity
- ☐ Existing vegetation including weeds
- ☐ Existing animals and evidence of habitat
- ☐ Sunlight and shade at different times
- ☐ Soil quality and type
- ☐ Prevailing winds and climatic influences
- ☐ Slope and drainage run-off patterns
- ☐ Current functions of areas and supervision
- ☐ Vehicle and pedestrian access
- ☐ Views and visual quality
- ☐ Hazards, safety and maintenance issues
- ☐ Environmentally degraded areas
- ☐ Imminent changes affecting the site

Then select an appropriate sensory maze site. Consider using a degraded area with sufficient sunlight and protection from strong winds.

Locate or create a base map of the whole school ground site. **Ensure** the map's accuracy. **Check** by using trundle wheels, tape measures, and a compass. From the map **delete** features that are no longer there. **Draw in** to scale any features not already shown. **Make** multiple copies of the base map to record your site data. **Collect** and **record** any relevant site audit data onto copies of the base map. **Use** a lead pencil and eraser to easily make corrections. **Identify** any degraded areas. **Record** these areas on a base map. **Determine** all of the possible areas to locate the sensory maze. **Mark** each area on a base map by drawing a 'bubble' around it. **Collect** soil samples at different sites. **Test** properties such as texture, pH, water and organic content. **Record** all data on base maps and **display** for the whole school. **Write** an information report on your investigations and findings. **Assess** the best area for your sensory maze by using information collected in the site audit. **Vote** if necessary. **Decide** what type of garden best suits site conditions, budget, vision and purpose. **Photograph** your chosen site at different times and after rain. **Observe** changes in sun and shade, water-flow and any 'ponding'.





ACTIVITIES TO BE UNDERTAKEN

STUDENT LEARNING OPPORTUNITIES

Step 3. Create the garden design

The sensory maze site could potentially provide space for at least four different rings to be developed over a number of years. If an area of 200 to 400 sq. metres is not available adapt the design to suit a smaller area or different shape. Preferably prepare the whole design first and then build each section of the garden in stages. Create a site plan for the proposed garden area. 1:100 is a good scale for students to draw their design ideas (1cm on plan = 1 metre on ground). Mark in any existing features including trees. Identify human influences affecting your site (e.g. foot traffic) and plan to minimise these. Select a variety of vegetation considering the criteria decided e.g. native grasses, non-native and native ground covers, small and medium bushes and herbs. Try to select species which will be easily distinguished from weeds. Choose plants with a maximum height of about one metre. Create different watering zones - low, moderate or high water use - and group together plants with similar needs. Decide how to provide water to your garden. Collaboratively decide the details of the design. Draw up the final design to scale on a site plan. Seek expert feedback and incorporate advice. Refer to the 'Waterwise gardening' page.

Estimate then **calculate** the area of the proposed maze and prepare a site plan for the garden site as it exists currently. **Research** maze and labyrinth designs. **Identify** the difference. **Mark out** the approximate area where the garden will be located. **Refer** to your wish list of garden elements to be included. Individually **imagine** what the area may look like after the maze is built and planted. **Think** about and **draw** your vision for the maze. **Present** your drawing and **describe** your design ideas to the class. **Discuss, select** and **list** any additional design elements you want. **Decide** on the garden shape and size and location of access paths. **Decide** what structures (if any) need to be built. For example: central court, water feature, compass, sundial, pathways, seats. **Consider** everyone's ideas when developing the garden design. **Decide** on what to plant and where. **Refer** to the 'Waterwise Sensory Maze tips and plant suggestions'. **Consider** design elements such as foliage type, texture, colour and flowering time. **Group** plants in watering zones and different themes. **Add** this information to the design. **Draw** up the class garden design on a copy of the site plan. **Display** your sensory maze garden design for broad feedback. **Calculate** the numbers of each type of plant which will be needed. **Compile** a list of materials and quantities needed for the project. **Investigate** local suppliers and **write** letters to ask for prices. **Calculate** the cost of buying plants and materials for the garden. **Write** a school newsletter report that outlines your project and requests donations for materials and plants specifically selected. **Write** letters with similar requests to local and regional suppliers.

**A well designed irrigation system maximises every drop of water applied to your garden.
Consult an expert to determine which will be the most effective.**

Step 4. Lay out the garden

At each stage of development take photographs of the garden and the students' involvement. Set out the garden features from the design. Allow enough width for each garden bed (approximately one metre) and paths wide enough for wheelchair and wheelbarrow access (approximately one metre). Reassess the design to ensure that it is okay.

In groups **estimate** the garden borders. Then **use** trundle wheels, metre tapes, calculators and a compass to **measure, orient** and **mark out** the garden using witches hats, ropes or marking agents. **Form** concentric circles by attaching string to a central stake and **measure** out each radius length for the required number of rings. **Determine** the size, shape and soil depth of the garden beds. **Write** photo captions to be used in a display or class big book.

Step 5. Build garden structure

Call on support networks and helpers to assist in building the garden. Develop a basic action plan. Remove any existing plants that are unsuitable including lawn and if necessary remove asphalt. Construct a paved central court using old bricks. Start with two or three central garden rings. Create raised garden beds by using soil shovelled from the central court area and the pathways. Implement strategies to prevent soil erosion especially on sloping ground. Build stone seating and garden retaining wall in the central court. Pathway surfaces can be developed in stages. Start with bare earth. Then introduce a variety of textures: ground covers, gravel, brick, stone.

Compile a list of jobs to be done and tools which will be needed. **Compile** a set of safety precautions for students and helpers. **Refer** to 'Safety tips for learning outdoors'. **Prepare** the area by removing unwanted vegetation and asphalt. **Create** student made pavers. Some could show the eight compass points, direction and distance to selected places near and far. **Organise** a working bee. **Invite** helpers to help build the garden. **Shape** the garden beds to form a level surface on top so that water will stay on the bed and not run off onto the pathway. **Stay off** the garden beds to prevent the soil compacting. **Develop** different pathway textures for bare foot experiences. **Design** and **construct** fixed or moveable dice for the maze games. **Publicise** thanks for any donations in the school newsletter. **Write** a thankyou letter to everyone who helped build the garden. **Prepare** a report or display about your project for parents.



ACTIVITIES TO BE UNDERTAKEN

STUDENT LEARNING OPPORTUNITIES

Step 6. Prepare the soil

Different plants like different soil types so it is a good idea to test your soil.
A pH test kit is inexpensive and available from your local retail nursery or garden centre.

Healthy well-drained soil is vital for plant health. Dig the soil often enough to break up any clods. Adjust soil properties if necessary. Most plants like a slightly acid soil. The ideal pH is 6 - 7. Adding lime lowers pH and adding sulphur raises pH. Seek advice. Add decomposed organic matter to the soil and dig in well. Then the garden beds need to be well mulched before planting to help retain moisture and slow down weeds and erosion. Consider installing an underground drip irrigation system or perforated hose below the mulch so that roots are directly watered without wastage. See the 'Waterwise gardening' page.

Check your soil type. **Pick up** a handful of moist soil and squeeze. Clay soil will form a tight sticky ball. Sandy soil won't hold its shape and loamy soil will hold its shape but it crumbles easily. **Test** the pH level of the garden soil. **Adjust** the pH if necessary. **Observe** safety precautions when using gardening tools. See 'Safety tips for learning outdoors'. **Add** well rotted manure and other decomposed organic matter, if required, to improve soil quality, drainage and moisture retention. **Cover** the whole garden area with mulch to a depth of 7-10 cm. **Remove** any weeds, carefully selecting one species at a time. **Trial** three types of mulch in different sections of the garden. **Set up** a scientific study to **assess** the decomposition rate of each type of mulch and **compare** replacement costs over time.

Step 7. Plant the garden

Keep the plantings dense and consolidated. Plant alternate concentric circles with Australian sensory plants (including local indigenous plants) and other sensory plants and herbs. See 'Waterwise Sensory Maze tips and plant suggestions'. Plants should be purchased ahead of time. Tube stock may be preferable as they grow faster, have a better chance of growing stronger root systems and are cheaper. Someone with planting expertise should assist students to set out the plants and demonstrate how to plant seedlings.

Gather all required equipment - gloves, buckets, trowels, rulers. **Water** the plants in the tubes or pots so they are well soaked. **Help** place the plants on top of the mulch in position for planting. **Scrape** away an area of mulch forming a large hollow exposing the ground about 15cm diameter. **Dig** a hole a little deeper than the pot without mixing the mulch with the soil. Carefully **remove** the plant from the container by squeezing and holding it upside down. **Place** the plant in the hole. **Pack** the soil gently around the plant. **Water** each plant carefully with at least half a bucket of water applied in a gentle spray (e.g. from a watering can). **Design** plant markers. **Develop** signage for the different sections.

Step 8. Tend the garden

Ensure garden boundaries are defined so that the area is protected during the growing period. Research chemical free care for the garden. See 'School friendly gardening practices'. Create an ongoing maintenance and watering plan. Maintain mulch, feed plants and weed regularly. Prune where necessary and keep the garden tidy. Compost any garden material that is not diseased. Create a class photographic diary as plants grow.

Prepare a job roster and **delegate** roles and responsibilities. **Visit** your garden daily. **Record** observations in a class journal. **Measure** and **graph** the growth of selected plants over time. **Monitor** moisture retention and watering needs of each section. **Compare** decomposition rates of the different types of mulch. **Calculate** the cost over time of replacing different mulches. **Compare** the benefit of the different mulches by comparing plant growth rates in the different sections. **Graph** results. **Formulate** hypotheses from your findings and **test** over time.





ACTIVITIES TO BE UNDERTAKEN

STUDENT LEARNING OPPORTUNITIES

Step 9. Celebrate and share the garden

Document the seasonal progress of your garden. Create different ways of using the maze through student designed games and activities. See suggestions on 'Games ideas for your maze'. Plan a celebration on a special environmental day or at a school assembly. Prepare a presentation about the process of designing, making, using and maintaining your Waterwise Sensory Maze and create a related drama or dance performance.

Maintain and **illustrate** a journal of actions and observations. **Design** games to use the maze for maths, plant identification etc. **Consider** also creating appropriate games for younger students. **Organise** a garden celebration. **Invite** everyone to join in. **Design** and **create** appreciation certificates to thank all helpers. **Harvest** bunches of sensory plants for fund-raising or gifts. **Produce** a poster on waterwise gardening practices to share with the local community. **Create** a map and field guide describing the different plants and their uses and include student sketches. **Share** your maze garden produce with the school community.

**Step 10. Keep your garden going**

Incorporate the maintenance activities into your curriculum plan. Devise a maintenance schedule. Monitor the garden and keep it weeded regularly. Monitor rainfall and evaporation and link to soil moisture and watering regime. Renew mulch, maintain watering systems, paths, labels and ensure overall environmental health. Continue to develop the surface of the pathways in stages. Replace bare earth with ground covers, brick, stone, pavers, gravel, crushed stone and a variety of textured sections including cemented mosaics, marbles and pebbles. Add additional garden rings once the inner beds are established. Explore the concept of increasing plant diversity. Continually develop ways for students to take advantage of ongoing educational opportunities.

Support grounds staff by maintaining the garden. **Assess** and **revise** the job roster. **Delegate** tasks according to interests. **Record** in a class log book what has been grown, when it was planted, when and if it was harvested and how it was used. **Conduct** ongoing field observations. **Keep** a record of all changes. **Compare** the sustainability and biodiversity of various sections. **Explore** the biodiversity of plants between and within species. **Observe** over time which plants serve as 'hosts' to insects. **Study** which factors affect insect population size and **decide** how to further attract desirable insects to increase the biodiversity. **Develop** plans and procedures and **design** simple technological solutions for watering plants during extended holiday periods. **Plan** suggested improvements and additions for the next year. **Share** successes, failures and findings with the wider school community and at www.kidsgrow.com.au

Hand your garden on to a younger class at the end of the year.

Going Further

Add more garden rings to the sensory maze.

Make pot pourri or fragrant sachets.



Use herbs for cooking and experiment with best combinations for cooking purposes.



Devise ways to capture and retain the smell of one of your fresh herbs.

Try to match plants with their dried form and seeds.



Explore how different cultures and people have used herbs.

Useful resources

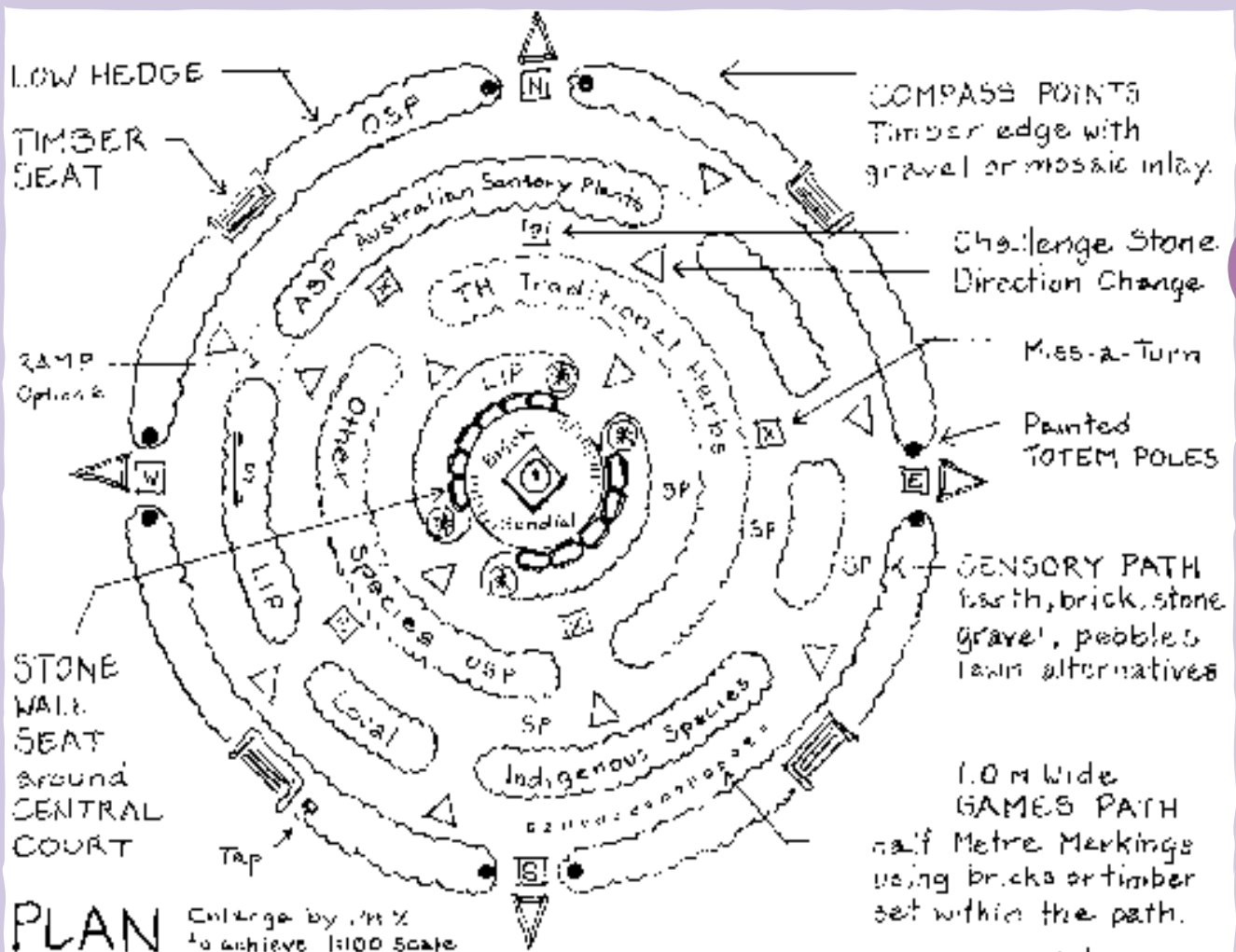
www.wiseaboutwater.com.au for tips and links to other websites.

Waterwise Gardening by Kevin Walsh, Reed New Holland, Australia 2005

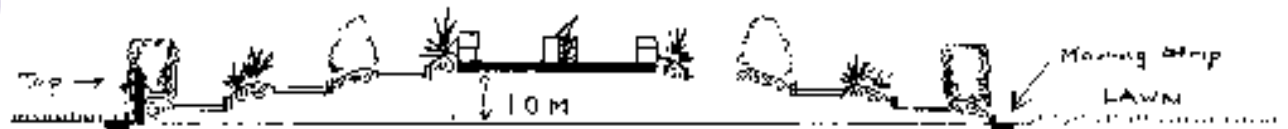


Waterwise Sensory Maze sample design

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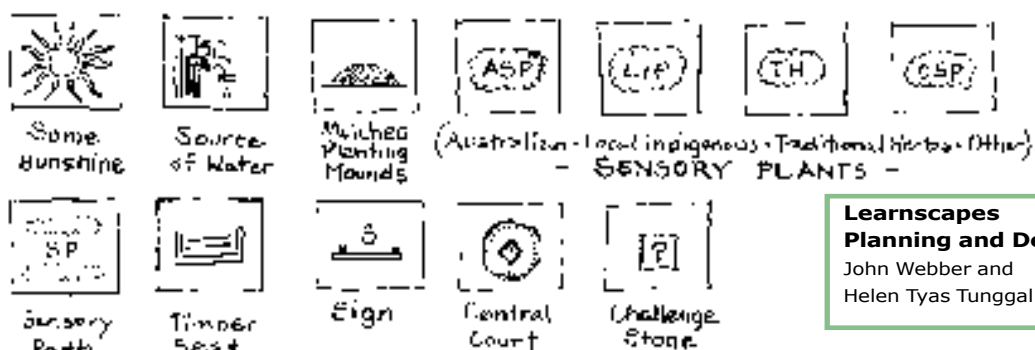


SECTION Option 1. LEVEL SITE with Small Planting Mounds



SECTION Option 2. MOUND with adapted version of the above.

KEY



Learnsapes Planning and Design
John Webber and Helen Tyas Tunggal



Waterwise Sensory Maze tips and plant suggestions



Essential elements

- A detailed design of the maze with measurements.
- Enough daily sunshine to grow selected plants.
- Mounded garden beds and connecting pathways.
- Water source and storage place nearby for gardening materials.
- Water efficient planning.
- Different types of mulch.
- Colour, fragrance, texture, taste, sound and patterns.

Design tips

Plant selection

Choose Australian native sensory plants including bush tucker and other sensory plants such as traditional herbs. Alternate plant types in each ring of the maze with Australian and non-Australian plants.

See list opposite for ideas.

Experiment with sight-sensory experiences – imaginative use of colour, space, shapes, forms, lighting, movement and foliage combinations.

Try placement of strong upright foliage (iris or grass) near small-leaved rounded shapes.

Plant borders and have sections planted in geometric shapes or symmetrical designs.



Create themed sections

- Edible section of bush tucker
- Edible section of traditional herbs
- Group together a diversity of veined leaves
- Colour sections for example silver foliage
- Varieties of the same species e.g. lavender
- Plant types e.g. Mediterranean, succulent, cottage, native

Central court

Pave with old bricks and include student made pavers showing the eight points of the compass, direction and distance markers to selected places near and far. Use stones for seating and to retain the inner circle garden.

Games path

Start with bare earth, sawdust or decomposed granite. Introduce ground cover plants, such as prostrate thyme, chamomile and pinto peanut, gravel, brick, stone and textured sections. Strategically place challenge stones, direction markers and half metre path markings.

For advice on waterwise gardening practices, as well as mounding and mulching go to www.kidsgrow.com.au

Before choosing plants for your Waterwise Sensory Maze, check with your local nursery or garden centre for advice on those best suited to your climate and soil type. Be sure to avoid invasive plants and declared noxious weeds. Your local council will have information on suitable indigenous species and will also have information on potential weeds in your area.

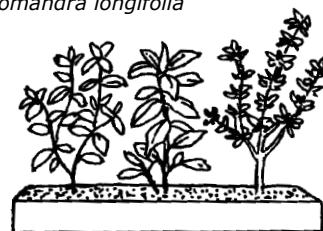
The following are general suggestions of sensory plants up to one metre high you may be able to use.

Australian sensory plants

Woolly bush, Ozi Bloomer (*Syzygium*), native mint bush, straw flowers, paper daisies, *Thryptomene*, native grasses, emu bush, correa

Bush tucker plants

Midyim, native ginger, blueberry lilly, bolwarra, *Grevillea Robyn Gordon*, *Lomandra longifolia*



Other sensory plants

Mexican orange blossom, silver bush, lambs ear (*Stachys byzantina*), dianthus, scented geraniums, snapdragons, salvia, prickly cone flower, artemisia, coleus, wall flower, narcissus, jonquils, cranesbill, *Osmanthus fragrans*, roses, sunflowers, silver santolina, cushion bush, Dusty Miller, portulacca.



Traditional herbs

Lavender (avoid *Lavandula stoechas*), cotton lavender, rosemary, thyme, pineapple sage, fruity sage, catmint, parsley, curry plant, dill, garlic chives, lemongrass, lemon verbena, pot marigolds, *Aloe vera barbadensa*

Safety alert

Herbs are powerful plants. Some are poisonous and others irritate the skin. Typically herbs are used in small quantities. Caution students never to eat herbs or other plants unless their safety is indicated by a reliable adult and reference material.



Waterwise gardening

About mounding

This gardening technique raises the growing bed higher than the surrounding open ground. Mound gardens are able to be shaped to fit any design and are easy to construct and care for. The design discourages trampling and compacting, helping to keep the soil loose and well drained. Mounded garden beds should be formed with a level surface on top to help retain water and mulch.



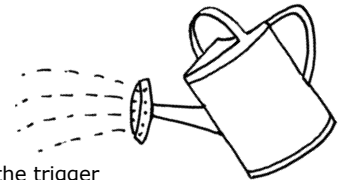
Watering tips

- Design your garden so that plants with similar watering needs are grouped together.
- Choose plants which are appropriate for the local climate and water availability.
- When planting use water saving products like wetting agents and water storing crystals.
- Water plants in the cooler part of the day and only water plants when they need it.
- Water the roots of the plant not the foliage to help prevent water loss through evaporation.
- Drought proof plants by watering them longer and less often to encourage deep root growth.

Did you know?

Water crystals
Wetting agents
Trigger nozzles
Rainwater diverter
Soil-moisture sensor
Drip irrigation line
Watering cans
Chunky mulch

retain water in the soil and release it as needed improve water penetration in the soil stop the water from the hose when you release the trigger redirects water from the downpipe to the garden or water tank probes the soil to give an accurate indication of a plant's water needs applies water directly and evenly to plant roots where it is needed with two handles and a screw on rose or nozzle are the easiest to use with particles > 5 mm conserves water better than finer mulches*



* see page 64-65 ABC Gardening Australia, December 2005

Mulch and more mulch

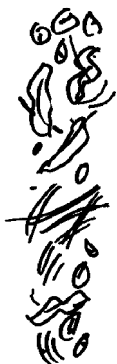
Mulch is a layer of material placed over the soil surface. It keeps soil moist, saves water, suppresses weeds, insulates roots against heat and cold and, if it is organic, adds nutrients to the soil. Using mulch reduces water loss through evaporation by up to 70%.

Mulches can be laid down 7-10cms deep or they can be built up slowly, week by week. Be careful not to mulch too close to the stems of plants to avoid their stems rotting. Recent trials by Yates* suggest that some fine mulches absorb water and actually prevent water reaching the soil and should only be spread thinly.

There are organic and inorganic mulches. Inorganic mulches such as pebbles or crushed glass don't break down, whereas organic mulches like pea straw or lucerne hay will eventually break down and nourish the soil. Organic mulches will need to be topped up each year in spring.

Experiment by using different mulches in different sections of the garden. Keep records over time regarding initial cost, availability, break down rate, size of mulch particles and effect on plant growth and replacement cost.

The following list provides a starting point for research.



Mulch (organic and inorganic)

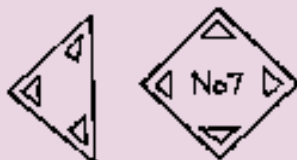
Compost:	Adds humus to the soil, improves soil structure, good moisture penetration.
Pine bark:	Low nutrient, dense, acidic mulch. Slow to rot - it is good for paths.
Leaf litter:	Quick to break down into rich humus. Shred it before use.
Woodchips:	Long lasting but does not add many nutrients to the soil. Allow to age before use.
Pea straw:	Breaks down quickly. Will contain some peas seeds that may self germinate.
Lucerne hay:	Ideal mulch, usually without weed seeds. High in nitrogen. Good for strawberries.
Grass clippings:	High in nitrogen and other nutrients. Should be dried before use. Use sparingly.
Gravel:	Doesn't break down. Used to provide drainage, colour and form. Good for paths.
Seaweed:	High in nutrients, rapidly enriches sandy soil. Wash first to remove salt.

Other mulches to investigate: newspaper, scoria, hessian, carpet underlay, geotextiles.



Games ideas for your maze

The KidsGrow Waterwise Sensory Maze sample plan incorporates a games path with half metre markings using bricks or timber set within the path. Located strategically through the maze paths are 'Miss a Turn' stones, 'Direction Change' stones and 'Challenge' stones.



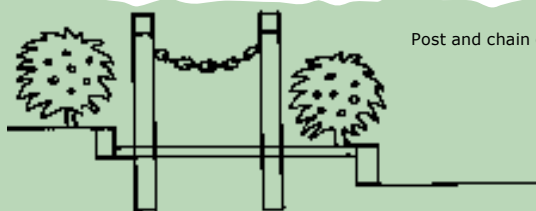
Challenge stones (numbered)
Arrows indicate the direction to proceed according to given answer.



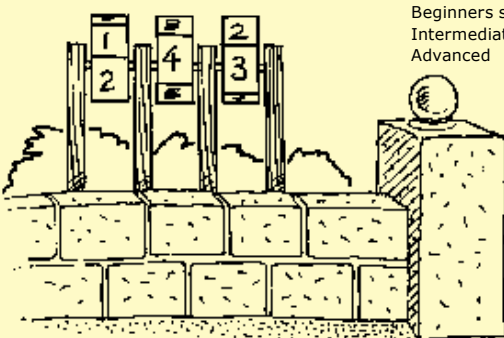
2D paving block (miss-a-turn)

Trackside flags
(conduit in ground sleeve)

3D passage blocks (deadends)
Relocateable to provide variety.



Post and chain gates.



The spinning dice.
Beginners spin one or two only.
Intermediate $2+4+3=9$
Advanced $2 \times 4 \times 3=24$



Student made bricks with place names, direction and distance.

A sample maze game would see four players enter at the N, S, E and W compass points and advance around each of the outer ring half metre markers by the toss of the dice from the 'Keeper of the Court'. Landing on a triangle stone indicates a direction change (either up or down a ring) and a stone with a cross indicates miss a turn. If a player lands on a challenge stone they are required to answer a topic question card. A correct answer sees them moving forward a certain number of spaces while an incorrect answer sees them moving back a number of spaces. The winner is the first person to reach the central court.

Learning opportunities

Topic question cards should be designed by the teachers and students to support class lessons. For example, 'plant identification and use', 'what animal am I?', 'maths', 'household water efficiency', 'geography', 'local history', 'sport'. The cards could be placed so that the shortest route is more difficult and the longer route easier. The possibilities are endless and you can decide how many challenge stones to include in your game.

Time trials

With a runner starting at each entry point, use stop watches to time how long it takes each person to reach the central court. Repeat this with different runners. Record the different times and calculate the average time taken to get to the centre from the N, S, E and W entrances. Change the maze by using blocks to close some entries to the different rings and repeat the game.

Mathematical operations

The use of multiple dice or three constructed spinning dice as shown, provides unlimited opportunities to vary the game - younger children add two or three numbers together; for a faster game multiply two or possibly three numbers together; devise operations such as adding or multiplying the first two numbers and subtracting the third.

Scavenger hunt

Create sensory scavenger hunts and focus hunters' attention on the sensory quality of the plants and garden elements. Clues could include 'smells like a mint', 'has prickly leaves', 'has soft furry leaves', 'feels smooth', 'feels rough (ground surfaces)', 'find flowers of the primary colours', 'a leaf shaped like a kidney', 'a feathery plant', 'smells like a lemon'. For the edible section of the maze hunters could find something that tastes bitter, tastes sweet.

Other games which could be developed include:

- Leaf Shapes - match the plant with the drawing.
- Follow the clues hidden around the maze.
- Orienteering using a compass.
- Barefoot and Blind - create a sensory trail using blindfolds and a guide.