
HOUSEHOLDERS GUIDE TO SUSTAINABLE LIVING

HELPFUL HINTS TO REDUCE YOUR HOUSEHOLD'S CARBON FOOTPRINT

Prepared by: Householders' Options to Protect the Environment Inc.



Acknowledgments

The first edition of this 'Helpful Hints' booklet was compiled by Melissa Lee Glen, a member of Householders' Options to Protect the Environment Inc. (HOPE). The Helpful Hints booklet consisted of 8 information sheets covering Water; Food; Transport; Recycling; Energy; Building and Renovating; Appliances and Household Goods; and Personal Care. These helpful hints were aimed to reduce your ecological footprint and based on the book *"A Lighter Footprint: A practical guide to minimising your impact on the planet"*, by Angela Crocombe, published in 2007.

Welcome to "Householders Guide to Sustainable Living". The second edition of this booklet was an updated and much expanded edition of HOPE's "Help Hints" series of 2007. The move to more sustainable living has gained momentum and a wider variety of information is available. More up-to-date information was been added to the second edition cited from sources both online and from published books.

This is the third edition, published in May 2014. With the change of government in Australia, departments have been disbanded or created or amalgamated and this edition reflects up-to-date websites.

IDMI Management, on behalf of HOPE Inc. is responsible for the editing and production of the second and third editions.

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Householders' Options to Protect the Environment Inc.

PO Box 6118 - Clifford Gardens, Toowoomba, QLD, 4350

(22 Vacy Street, Toowoomba, Qld, 4350)

Phone 07 4639 2135

Email office@hopeaustralia.org.au | Web www.hopeaustralia.org.au

ABN: 48 036 173 161

Introduction

Australia's Ecological Footprint in the [Living Planet Report 2012](#) was 6.65 global hectares (gha) per person. We are the seventh highest in the world. The report shows that humanity is already using nearly 50% more natural resources than the Earth can replenish. By 2030, the report says, even two planets will not be enough.

The Living Planet Report is the world's leading publication on the state of our planet. In summary, the 2012 report states:

- Nature is the basis of our well-being and our prosperity.
- Biodiversity has declined globally by around 30 per cent between 1970 and 2008; by 60 per cent in the tropics.
- Demand on natural resources has doubled since 1966 and we are currently using the equivalent of 1.5 planets to support our activities.
- High-income countries have a footprint five times greater than that of low-income countries.
- Areas of high biodiversity provide important ecosystem services such as carbon storage, fuel wood, freshwater flow and marine fish stocks.
- The loss of biodiversity and related ecosystem services particularly impacts the world's two poorest peoples who rely most directly on these services to survive.
- "Business as usual" projections estimate that we will need the equivalent of two planets by 2030 to meet our annual demands.
- Natural capital – biodiversity, ecosystems and ecosystem services – must be preserved and, where necessary, restored as the foundation of human economies and societies.
- WWF's one planet perspective proposes how to manage, govern and share natural capital within the earth's ecological limits. We can reduce our footprint by producing more with less, and consuming better, wiser and less.

(Note: Ecological footprints are often expressed as an area (global hectares). A global hectare refers to one hectare [approximately soccer field size] of biologically productive space with world-average productivity.) See: <http://www.bior.org.au/yourfootprint/index.php> The World Wildlife Fund also has a footprint calculator, Also visit the Australian Conservation Foundation Website and look at the consumption atlas: <http://www.acfonline.org.au/sites/default/files/resource/index67.swf>

Australia's footprint is about 2.4 times the average global Footprint (2.8 gha), and well beyond the level of what the planet can regenerate on an annual basis – an equivalent of about 2.1 global hectares per person per year. The most significant factor contributing to the Australian Ecological Footprint is **carbon dioxide emissions from fossil fuels** (constituting approximately half of the total Australian Footprint).

AUSTRALIA ranks among the world's 10 worst countries for environmental impact, according to research that found the richer a country, the greater its environmental footprint. In 2010 the 10 countries with the worst global footprint were Brazil, the US, China, Indonesia, Japan, Mexico, India, Russia, Australia and Peru. The study did not include human health and economic data, instead focusing exclusively on environmental indicators. Professor Bradshaw said while Australia had few forests to start with, land clearing had removed more than half of them since European settlement. (Source: The AGE, May 6, 2010). Australia has moved up to seventh place as the worst "global footprint" countries. The countries are Qatar, Kuwait, United Arab Emirates, Denmark, Belgium, United States of America, Australia, Canada, Netherlands, and Ireland. (Source: ABC Radio National 15 May 2012)

To be more explicit, the [WWF](#) says:

A measure of the impact humans have on the environment is called an ecological footprint. A country's ecological footprint is the sum of all the cropland, grazing land, forest and fishing grounds required to produce the food, fibre and timber it consumes, to absorb the wastes emitted when it uses energy and to provide space for infrastructure. WWF's Living Planet Report 2010 found that in 2007 the global ecological footprint was 18 billion hectares. This means that the Earth's people needed 18 billion hectares of productive land in order to provide each and every person with the resources they required to support their lifestyle and to absorb the wastes they produced. The bad news is that there were only 11.9 billion global hectares available.

Your personal ecological footprint can be estimated at www.earthday.net or go to the [World Wildlife Fund](#). It is here that you can find out how much productive land and water you need to support the resources you consume and the waste you throw away in daily life. Your lifestyle can then be compared to the biological capacity of the earth, determining how many planets it would take to support the human race if everyone lived how you lived. Melissa Glen considers herself environmentally conscious, but taking the quiz it would still take 1.8 planets to sustain life if everyone was like she is. Although Melissa is considerably below the Australian average, it is still a fair way off living sustainably enough for 1 planet, which in reality is all we have! We do have the capacity to create a more sustainable future, and each and every one of us needs to play our part by reducing our ecological footprint.

This booklet will provide the tips for reducing your ecological footprint. These will be addressed under the following areas: water, food, cleaning, transport, recycling, energy, building & renovating, appliances and personal care. Links to resources and organisations that can help you learn more are also provided.



Water

Water is a very precious natural resource. But just how bad is our global water crisis?

- 1.1 billion people lack access to water and 2.6 billion lack adequate sanitation; most of these populations are in developing countries
- Over 50% of the world's wetlands have been lost in the last century alone
- Most of the world's largest rivers are losing their connection to the sea and nearly a quarter of those left risk being disconnected in the next 15 years
- Only one-third of the world's 177 large rivers (1,000km and longer) remain free-flowing, unimpeded by dams or other barriers
- There has been more than a 50% decline in freshwater species populations over the last 30 years, making species loss in freshwater ecosystems faster than any other biome

"[Water footprint](#)" is a measure of water use, and can be calculated for individuals, businesses, cities, and countries. It includes direct water use (such as for drinking and cleaning) as well as indirect use (the water required to produce goods and services). This indirect water use is described as 'virtual' water. For example, UK households directly use around 150 litres of water per person per day. But when the virtual water used to produce the food, beverages, clothing and other products consumed by these individuals is included, the water footprint rises to 4,645 litres per person per day.

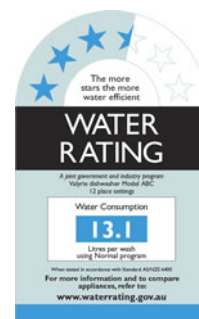
A large part of the water footprint of developed nations is accounted for by water use in other nations to produce commodities. The indirect water use is measured as "virtual" water (the volume of water required to produce a certain product). It includes the use of blue water (rivers, lakes, aquifers).

- green water (rainfall in crop growth)
- grey water (water polluted after agricultural, industrial and household use) (Source: http://www.wwf.org.au/our_work/people_and_the_environment/human_footprint/water_footprint/)

For example, it is estimated that it takes:

- 140 litres of water to produce a cup of black coffee (without sugar)
- 1000 litres of freshwater to produce 1 litre of milk
- 3000 litres of freshwater to produce 1 kilo of rice
- 16000 litres of freshwater to produce 1 kilo of beef

Australia is the driest inhabited continent, with 70% of our land consisting of desert or semi-desert, and yet we are one of the biggest consumers per person of water on the planet. The average annual water footprint of a person in Australia is 1,400 cubic metres.



Tips for the water wise

It is important to adopt sustainable practices, to think beyond our direct usage of water and also consider the water that goes into growing, processing and transporting the products we buy (embodied water). Often simple changes to our everyday lifestyle can make huge differences to our

annual water usage. This not only helps conserve a valuable natural resource but it also saves us money in the long-run.

Water rating labels - The National Water Efficiency Labelling and Standards (WELS) Scheme helps to make informed decisions about the most water-efficient products on the market by giving them a rating of one through to six. With six being the most efficient, a minimum three-star rating is advisable. You can search for the most water efficient products and look at their water consumption before purchasing at www.waterrating.gov.au . See, too, www.waterfootprint.org.

Install aerators on taps - Aerators or flow-control valves can be purchased from hardware stores and are easy to install yourself. They reduce water flow without reducing water pressure and can cut water usage from taps by half.

Fix any leaks - Slow dripping taps can waste up to 20,000 litres of water a year! It's worth replacing that washer or tightening the connection when you think about the long term water wastage and cost. To check if you have any leaks, turn off all water sources in your house and then go and look at the water metre. If the metre is still moving, you have a leak somewhere and will need to find it.

Re-using grey water—Water that is discharged from showers, washing machines and dishwasher can



be re-used in other areas throughout your home. Grey water recycling can be as simple as buckets in the shower/kitchen or a more elaborate set-up that requires council approval. Grey water contains bacteria, organic matter, detergents, soaps and salt, so extreme care needs to be taken to ensure there is no possibility of it being consumed or coming into direct contact with people or pets.

Drop of Water Photo by Constance [Beutel](#),

How much water do you use?

The Queensland Department of Environment and Resource Management offers the following advice. One of the first steps you can take is to find out how much water you really use.

Do this by:

- Checking your rates notice. In some areas your local council will provide you with water use information on your rates notice. This can include how much water your household uses per day and the daily average use for households within your local area.
- Checking your water meter. Write down your meter reading and check it again seven days later around the same time of day. The difference between the two readings is your weekly water consumption. Divide this by seven for an estimate of your daily use for your household. To identify how much water you use in your household per person per day, divide the daily use by the number of people in your house.
- Undertaking a home water use audit. Contact your local council for a copy of the home waterwise quiz brochure. Once you know how much water you use, contact your local council

to find out whether there is a voluntary water target in your local area. If one doesn't exist, set your own!

Your aim is to use less water, so make sure you set an achievable target.

Remember, by saving water you will also save:

- Energy—it takes energy to treat, transfer and heat water. The less water you use, the less energy you use and the fewer greenhouse gases you create.
- The environment—the less wastewater you generate, the fewer contaminants and detergents you release into our rivers and oceans.

Bathroom

About 40% of water use in the average home is in the bathroom.

- Don't leave the tap running whilst brushing your teeth; this can save up to 4000 litres per year.
- Switch to a water saving showerhead and halve your water usage.
- Install a timer in the shower and spend only 5 minutes in there. 20 litres can be saved for every minute less in the shower.
- Put a bucket in the shower to capture the water before it heats up; this excess water can be used on the garden or elsewhere in the household.
- Put a plug in and fill the sink up a little to wash your face or shave instead of having continuous running water.
- Fill the bath only half or three quarters; you can save up to 100 litres.
- Don't flush needlessly, and never flush items other than toilet paper down the toilet. Up to 16 per cent of household water is flushed down the toilet. Unnecessary flushing is one of the biggest wasters of water. There is an appropriate little saying: *If it's yellow let it mellow; if it's brown flush it down.*
- Utilise the single flush on dual flush toilet systems, or if you have an older style toilet you can fill a couple of water bottles and sit them in the cistern to take up a bit of the space. Less water will then be needed to fill up the cistern after each flush.
- Use tank water to flush. Talk to your plumber about having your rainwater tank internally plumbed to your toilet.
- If you are able to, replace your older-style toilet with a 4-star dual-flush system. This can save you up to 8 litres of water with every flush.

Kitchen

About 10% of our water usage is in the kitchen.

- Half fill the second sink for rinsing when washing dishes by hand; if no second sink is available a small amount of hot water from the kettle could be used.
- Use only small amounts of a biodegradable detergent.
- Rinse off at the end.

- Only boil the amount of water you will need to use immediately from the kettle; this saves water and electricity.
- Use a half-full sink or bowl of water to rinse vegetables.
- Keep the lid on the saucepan to boil water.
- Reuse cooking water once it's cooled in the garden.
- Make sure your water thermostat is not set too high.
- Hand washing dishes instead of using the dishwasher for small loads can save water, or don't start the dishwasher load until it is full.
- Keep a water bottle in the fridge for cool water during summer, a much better option than waiting for the warmer water in the pipes to run through.



Source: <http://www.wired.com/2010/10/kitchen-sink-white-hole/>

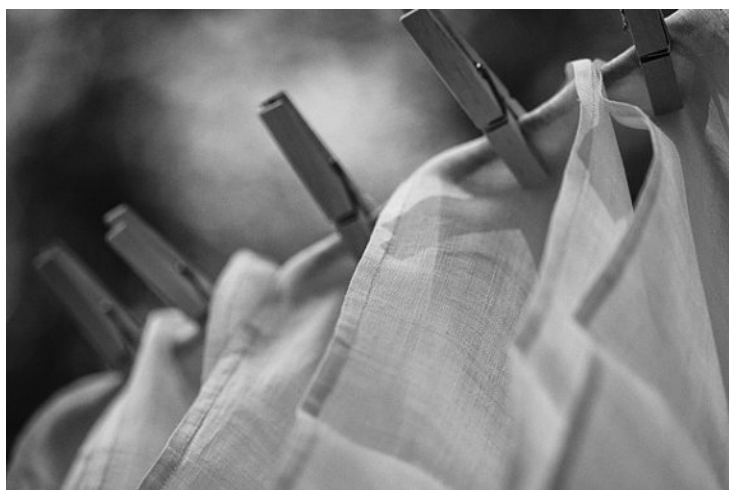
Did you know that a 5-star water-efficient dishwasher uses as little as seven litres of water? This means that a water-efficient dishwasher will use less water than washing dishes by hand.

You can save even more water by thinking about how you use your water-efficient dishwasher. Make sure you:

- only use the dishwasher when you have a full load
- scrape your plates clean instead of pre-rinsing your dishes under the tap.

Laundry

Up to 20% of total water usage in the home is in the laundry. The best way to save water in the laundry is to make sure that you select the right washing machine. Select one that has a water rating of 4 stars or more. This will usually mean a front-loading washing machine. On average, front-loading washing machines use up to 50 per cent less water, 35 per cent less detergent and 30 per cent less energy than top loaders.



Wait until you have a full load to do washing; otherwise washing a few number of items by hand can save huge amounts of water and also electricity costs.

Consider updating older model machines as they use more water per load.

Use the minimal amount of detergent and make sure it's biodegradable.

If you are doing a few loads, use the suds-saver option if your machine has it.

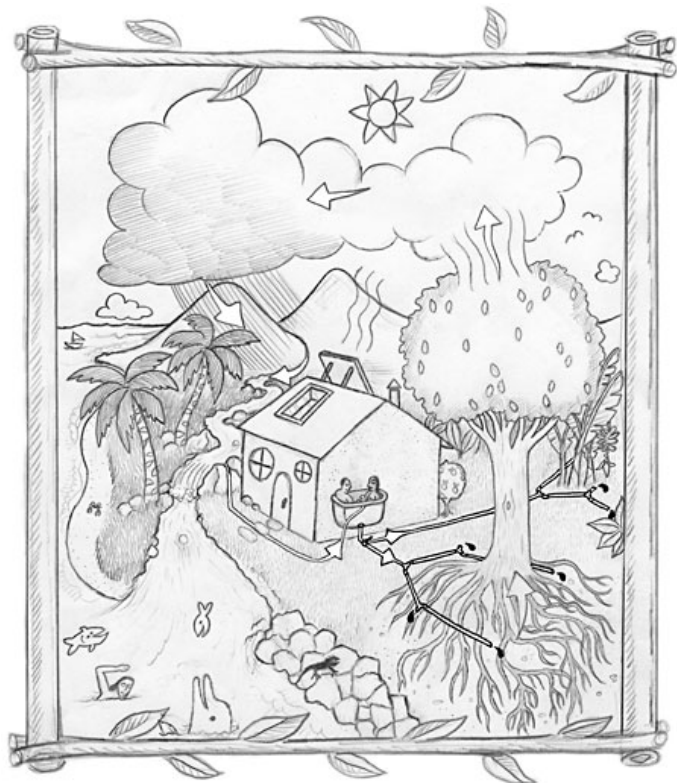
Clothesline by Tricia McKeller, Flickr

Capture the water from your washing machine's rinse cycle with a bucket and use on the garden (avoiding any vegies you plan on eating raw). Or divert greywater from your washing machine for immediate use on your garden, but don't use it on your vegetables. Also consider using biodegradable, low-phosphorous, low-sodium and low-nitrogen detergents, which are better for the garden.

If you are washing clothes by hand, use only as much water as you need in the sink or bucket. Reuse this water in your garden.

Outdoors

- Use a broom to sweep outdoor driveways and areas instead of a hose or a garden blower.
- Wash your car or boat on the lawn or bare ground so the water runs into the soil and use a bucket.
- Mulch, Mulch, Mulch around plants to save water, prevent evaporation and stop weed growth
- Water the roots of the plant for a deep soaking and the leaves if you need to generate humidity.
- Plant at appropriate times of the year when conditions are right for suitable growth.
- Fit a trigger nozzle to all hoses.
- Install a rainwater tank. Tanks are available in various sizes and styles
- Select the appropriate plants for your region or select native plants that require less water.
- Use fertilizers sparingly and in the correct seasons. Use only slow release fertilizers and organics. The conventional fertilizers dissolve quickly to be taken up by the plants, which respond with a flush of soft growth that requires more water to sustain that growth.
- Turn all your garden waste into mulch (or compost).
- Only water one quarter of your garden per day (if needed). This allows you to water that section properly and you should not have to water it again for another week.
- Only water your garden in the cool of the day – early morning or after dusk (water restrictions permitting). Up to 40% of water will evaporate if you water your garden during the day.
- Water less frequently but more thoroughly.
- Check the forecast. If there's rain ahead, let the rain do your watering for you.



Source: Humans enjoying their role as responsible stewards of the water cycle by [Art Ludwig](#)

- Minimise the number of potted plants you care for. During hot, dry weather they need to be watered every day.

The [Water Corporation](#) offers the following top ten gardening tips:

1. Apply a soil improver with a soil wetting agent
2. Choose waterwise plants
3. Hydrozone your garden - group plants with similar water requirements together
4. Make your verge more water efficient by replacing surplus lawn
5. Apply between 5-10cm of waterwise mulch to reduce evaporation
6. Only water once on your rostered watering day
7. Get a trigger nozzle for your hose or use a watering can
8. Install a garden bore
9. Use a pool cover
10. Use products displaying the Waterwise Approved and Smart Approved WaterMark symbols.

Water and detergents



Some 75per cent of the earth's surface is covered by water. For centuries our lives have been tied to the natural rhythms of rivers, bays and coastlines. But in the last century or so water pollution from various substances has been a growing worry for concerned citizens. Most of the 700 or so known chemical contaminants in public drinking water are not detectable to the nose or eye or taste (Christensen, 1995, p. 157). Nitrate fertilizers are a serious threat to our water supplies as are organophosphate pesticides.

Intensive farming practices of pigs, cattle and chickens produce manure that is treated as a disposal problem rather than a source of fertilizer, and the slurry and sewage that runs off into our water supply requires expensive purification and chemicals to be added to the water. There is not much that you or I, individually, can do about these problems. However, we can try to make use of detergents in the home that are as eco-

friendly as possible. See <http://www.globalstewards.org/ecotips.htm#water> for more information about using water responsibly.

According to Christensen (1995) and Logan (1997) synthetic detergents used in the household contain softeners, bleaches, brighteners and enzymes, and most contain phosphates. The result of the detritus entering our water supplies is something called 'eutrophication'. It means "to become rich in food". What happens is that the plant life in lakes and streams grows far more rapidly than they would normally. Excessive supply of phosphates and nitrates results in excessive growth in algae. Other forms of water life, including fish, die. If we switch to biodegradable, phosphate-free

detergents we will help to save our water from contamination. You can make your own detergents. There are biodegradable, phosphate free products available commercially. But make sure you read the labels carefully. If a product says it is 'eco friendly', make sure it also says phosphate free!

[Care2](#) outlines how you can read "Signal Words" on labels. They say the signal words *poison*, *danger*, *warning*, or *caution*, found on the label of products such as pesticides and cleaning products, are placed there by order of the federal government and are primarily for your protection. In some cases these signal words are on the label because of the potential impact the product can have on the environment. *Poison/danger* denotes a product of most concern, one that is highly toxic, and ingesting small amounts—in some cases a few drops—can be fatal. *Warning* means moderately toxic, as little as a teaspoonful can be fatal; and *caution* denotes a product that is less toxic, one in which it would be necessary to ingest between two tablespoons and two cups to be fatal. *Corrosive* products can damage skin and mucous membranes, and a strong sensitizer is a chemical that can increase allergies. (Care 2: <http://www.care2.com/greenliving/clean-house-top-10-eco-friendly-ways.html>).

Cleaning

The ecological cleaning cupboard: tips and recipes for creating non-toxic cleaning products

In [Care2](#), Lush and Flemming, (2010), Schluter (2002), Stewart (2002), Laundry (2001), Logan (1997) and Christensen (1995) nominate basic non-toxic cleaning products that you can have in your home and which can have many uses.

Toxic products are those that contain the danger words *poison*, *danger*, *warning*, or *caution*.

The bad guys are:	
Alcohol	Lye
Ammonia	Naphthalene
Bleach	PDCBs (paradichlorobenzenes)
Butyl cellosolve	Perchloroethylene
Cresol	Petroleum distillates
Dye	Phenol
Ethanol	Phosphoric acid
Formaldehyde	Propellants
Glycols	Sulphuric acid
Hydrochloric acid	TCE (trichloroethylene)
Hydrofluoric acid	

The good guys are:	
Baking soda	Lemons, limes or reconstituted lemon juice
White distilled vinegar	Essential oils (Pure essential oils are made from nature – lemons, lavender flowers, peppermint leaves, cloves, almonds, apricots, etc.)
Liquid soap	Olive oil
Borax	Soda water
Purified water	Salt
Vanilla	Tea tree oil
Methylated spirits	
Glycerine	

A 'toxic' cleaner for heavy grease cutting power

½ cup grated common bathroom soap

2 tablespoons methylated spirits

½ cup white vinegar

2 tablespoons bicarb soda

Combine the ingredients in a 600 ml glass jar. Seal the jar and shake until all the ingredients have dissolved. Top the jar up with water and shake again. Wearing rubber gloves (the solution can irritate the skin), apply the cleaner with a rolled-up pair of pantyhose. Rinse with clean water. (This can be used for the tops of cupboards, fridge, walls near the stove etc.) (Lush & Hayes 2010)

Soap

Liquid soaps and detergents are necessary for cutting grease, and they are not the same thing. Soap



is made from fats and lye. Detergents are synthetic materials discovered and synthesized early in the 20th Century. Unlike soap, detergents are designed specifically so that they don't react with hard water minerals and cause soap scum. If you have hard water, buy a biodegradable detergent without perfumes; if you have soft water you can use liquid soap (both are available in health food stores). Soap flakes can be combined with other ingredients to produce liquid soaps and washing up liquid.

Source: <http://www.whitehouseblackshutters.com/wp-content/uploads/2012/08/image9.png>

Washing-up liquid

There are many recipes for an ecological washing up liquid. Here are a few, but bear in mind what was said above about soap.

2 litres boiling water 2/3 drops tea tree oil 8 gm soap flakes (about 1 ½ teaspoons) (A natural soap made from vegetable oils not animal fats e.g. Sunlight Soap or grate your own from a natural soap. Lux Flakes are more expensive to buy but are also a natural soap.) 8 gm of soda crystals (sodium carbonate, water softening agent, e.g. Washing Soda or Baking Soda) 1 tsp vinegar Mix and put in soap dispenser	Water Salt, A natural soap Lemon juice, Sodium bicarb, Glycerine (the cake version) Some essential oil. (Experiment with the quantities to suit your area's water supply)	3 tbs organic liquid castile soap ☼ 2 cups warm water 2 tsp vegetable glycerine 2 tbs white vinegar or lemon juice (I used freshly squeezed lemons for my batch) 10 drops lemon essential oil Mix thoroughly in a clean jar or bottle, and use 1 tbs at a time.
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☼The word *castile* comes from Castilian soaps made in Italy from olive oil. Today it can be made from any vegetable oil. You will generally only find “real soaps” in health-food stores.

Generally any of these recipes are fine and will be especially effective if you also rinse the washed dishes in a mixture of white vinegar and water.

Scrubbing brushes, scouring pads and microfibre washing up cloths can be used very effectively with vinegar or just water rather than any liquid soaps.

If making your own washing-up liquid is too time consuming, then shop for washing up liquid that is eco-friendly i.e. biodegradable and non-toxic.

Laundry powder

According to Logan (1997, pp. 191-193) laundry detergents can include quaternary ammonium compounds, ammonium compounds, sodium carbonate (washing soda), sodium alkyl benzene sulfonate, sodium silicate, bleach, enzymes and sometimes, phosphates. These are not good for you or for the environment. Moreover, it is best to use less than more when it comes to washing clothes because the recommended amount provided from manufacturers is an average for hard water and soft water situations, and they err on the side of caution. If you have ever washed clothes without putting any detergent into the machine you will often find that some soap suds come out. This is because dirt binds with the detergent to be lifted out of the clothes, but if you use too much detergent, then the dirt and the soap doesn't come out. So the rule is to use less, not more. So use half as much of your favourite laundry detergent as you normally use and perhaps some ½ cup of borax or baking soda to boost the dirt out.

- In a large jar, mix together 450g of pure grated soap (or soap flakes) and 50g of borax. Add 3 tablespoons of methylated spirits and stand overnight, then add one tablespoon of eucalyptus oil. Store until needed, shaking well before use. Use 1 tablespoon of this mixture for every nine litres in your washing machine.
- Bring ½ cup of water to the boil and add one cup of grated pure soap. Remove from the heat and stir the mixture until smooth. Add one cup of washing soda and one tablespoon of eucalyptus oil.
- 4 cups grated laundry or homemade soap or soap flakes (Lux); 2 cups borax; 2 cups washing soda. Mix all the ingredients together and use two tablespoons per wash.

Bicarbonate of soda

A commonly available mineral full of many cleaning attributes, baking soda is made from soda ash, and is slightly alkaline (its pH is around 8.1; 7 is neutral). It neutralises acid-based odours in water, and adsorbs odours from the air. Sprinkled on a damp sponge or cloth, baking soda can be used as a gentle non-abrasive cleanser for kitchen counter tops, sinks, bathtubs, ovens, and fiberglass. It will eliminate perspiration odours and even neutralise the smell of many chemicals if you add up to a cup per load to the laundry. It is a useful air freshener, and carpet deodoriser.

Bicarbonate of Soda can be used for:

- Greasy pots, pans, hands and dishes
- Getting scuff marks off the floor
- Cleaning and deodorising your cutting board
- A great scrub for stainless steel
- Cleaning tea/coffee stains from cups
- Softening and dissolving black, burned-on food spots on pots and pans
- Cleaning and deodorising picnic coolers, lunch boxes and thermos bottles
- Deodorising any funny smell in the sink
- A first-aid for bug bites
- A fire extinguisher for oil fires on the stove.

As an **oven cleaner**, mix enough bicarbonate of soda and water to form a stiff paste that you can spread over the oven sides, top and bottom. Heat the oven for 30 minutes. Turn the oven off and leave it to cool. Then using a stiff, dry brush, clean off the soda along with all traces of burnt- on food and grease.

Or you may wish to loosen baked- on food. To do this, put four tablespoons of bicarbonate of soda in the bottom of an oven-proof dish. Heat the oven for 30 minutes, turn it off and leave the dish in the oven overnight. Next day, using screwed- up newspaper or an old stocking/panty hose, wipe off baked- on food or grease. Wash down with hot, soapy water (Logan 1997).

Fabric conditioner

Add $\frac{1}{2}$ to $\frac{3}{4}$ of a cup of white vinegar to the final rinse water. Clothes, especially towels, will come out soft and fluffy.

Table salt

Salt, according to [Care2](#), provides an inhospitable chemical environment for most bacteria, including Salmonella, E. Coli, and it serves double duty against bacteria in that it also removes water from food and cells, making it harder for bacteria to grow without moisture. Salt is formed when acidic and alkaline materials combine and are neutralised. The resulting neutral pH is unique and offers many uses. Because of its neutral pH, salt is also used



purposely to kill off vegetation. Salt also is a good non-abrasive scrubber and provides many uses in the home and for the body for this reason.

Kitchen uses:

- Brass, Silver, and Copper Cleaner: Make a paste of salt and vinegar, scoop it onto a soft cloth, rub the metal, rinse, and buff dry.
- Drain Deodorizer: Mix ½ cup of salt with ½ cup of hot water, and pour it down the drain periodically to eliminate odours and cut through grease build-up.
- White Marks on Furniture: Combine a teaspoon of salt with enough olive oil to make a dry paste. Scoop some of the paste onto a soft cloth, and then rub into the white marks until they are gone.
- Grease Cutter: Scrub greasy pans first with salt before washing with a detergent.
- Deodorise Cutting Boards: Dip a damp cloth in salt and rub it into the cutting board.
- Prevent Food from Sticking: Rub the pan with salt. This will also prevent smoking.
- Refresh coffee percolators and pots: Add 4-5 tablespoons of salt to container and process as if there was coffee in the pot.
- Clean sponges: Soak in cold saltwater after you have washed them.

Miscellaneous hints:

- Deodorise shoes: Sprinkle salt into the shoes at night; brush out in the morning.
- Drive away moths and ants: Sprinkle areas the pests travel with salt.
- Brighten colours: Add ½ a cup of salt to coloured wash loads to enhance the colours. Note that salt is used to set dyes, so it works as a fixative.
- Eliminate mould and mildew stains: Scrub with salt and lemon juice, then set in the sun. Wash, rinse, and dry.
- Put out grease fires: Cover the fire with salt. (Don't use water on grease fires.)

Antiseptic and personal care uses:

- Sore Throat Gargle: Add 1 teaspoon of salt to a glass of warm water. Gargle.
- Teeth and Gum Cleaner: Pulverise salt with baking soda (1:2 ratio).
- Mouthwash: Combine equal parts of baking soda and salt. Add 1 teaspoon to a glass of water; rinse out mouth.
- Eye bathe: Make a salt solution of ½ teaspoon of salt to 1 pint of water. Soak a soft washcloth in the mixture and lay it on closed eyes.
- Puffy Eye Help: Use the mixture, above, on puffy eyes, but soak longer.
- Foot Soak: Fill a pail of warm water to just the right temperature. Add ½ cup or so of salt. Soak your feet for as long as it feels good, rinse.
- Dry Salt Scrub: Exfoliate dead, dry skin, by giving yourself a massage with dry salt.
- Dry skin remover: After bathing and while still wet give yourself a massage with dry salt. It removes dead skin particles and aids the circulation.

Garden uses:

- **Weed Killer:** Sprinkle salt along the cracks of patios where weeds are, sprinkle with water, then pull out the dead weeds and dead grass.

Lemons or Limes

Like vinegar, much of lemon's gift is that it is an acid. It smells much fresher than vinegar, which is fermented. As an acid, lemon juice provides the benefits of vinegar, such as being a very good antiseptic killer of mould, germs, and bacteria.

**Lubricant:**

- Lemon oil is renowned for being very lubricating, which is why it is so often used on furniture.

Aromatherapy:

- Known to calm fears and lift depression, adding a few drops of pure lemon oil added to a diffuser is considered to be a good tip for when someone is experiencing these symptoms.

Antiseptic/deodorizer:

- Lemon juice is a great choice for deodorising counters, cutting boards, and more. The acid in lemon juice kills mould, bacteria, and germs. While not a 100 percent kill rate, lemon juice can't sterilize your house anyway, so if you look at lemon juice as a solidly good deodoriser you will turn to it when you don't need a hospital-level disinfectant job.
- Using leftover lemon and lime rinds in the garbage disposal is a great way to deodorise this apparatus, which so often can give off an odour. It is also a great way to deodorise an oven.

Glass and china cleaner:

- The acid in lemon juice will break down the alkaline minerals found in hard water. It will also work on stains. Make a solution of $\frac{1}{2}$ water and $\frac{1}{2}$ lemon juice and place in the glass, letting the solution set there for a few hours before washing as usual.

Air freshener:

- Simmer sliced lemons in water. I like to use 2-3 lemons to about 4 cups of water. Simmer for a few hours, replacing water as needed.

Microwave cleaner:

- Just put a slice or two of lemon in a cup of water and put in the microwave for 30 seconds on high. Use a cloth to clean dry. You can substitute a tablespoon or so of lemon juice with water.

Metal cleaner:

- An acid like lemon juice works wonders for cleaning metals such as chrome, copper, and brass. There are myriad ways to get the lemon juice onto the metal, from simply rubbing the metal with a cut lemon (use the majority of the juice for a salad dressing), to mixing lemon juice with salt for a bit of an abrasive.

Whitener

- Lemon juice and the sun combined have been proven to whiten clothes, hair, and more. Soak grey clothes in some water and lemon juice. Add ½ a cup of lemon juice to a small load of laundry and let it soak, agitating occasionally, before rinsing and hanging on the line on sunny days.

Soap scum/shower stalls

- Soap is very alkaline and when it combines with hard water minerals it tends to form soap scum that can then coat shower stalls, bathtubs, and sinks. Acids cut through this soap scum. Use lemon juice straight on a sponge and wash it onto the soap scum, let set for a few hours, and then rinse.

Mineral buildup/scale

- Minerals are very alkaline and the acid of lemon juice cuts through and dissolves the minerals. Known as scale, mineral build-up frequently gets hard and in particular resides around faucets. Pour straight lemon juice on a washcloth or clean cloth. Lay the cloth over the scale and let set for a few hours before rinsing and cleaning the area.

Cleaning cloth

- Give your home a lovely lemon fragrance—lemon is known to lift the spirits—while the acid in lemon juice works particularly well to pull dirt right out of the wood, leaving your furniture truly clean. These fresh and clean smelling dusting cloths are great for your wood furniture. They are fun and lemony, and even make dusting a pleasure.

Ingredient: 10 drops of lemon oil, 2 or 3 tablespoons lemon juice; a few drops food-grade linseed oil, olive oil or jojoba oil

Place the lemon oil and lemon juice in a bowl, add a few drops of the oil, and saturate a dusting cloth with the liquid. Use the cloth to dust with.

Lemon Peels

Lemon juice is about 5 to 6 percent citric acid and has a pH level of between 2 and 3. This low pH acidity makes lemon juice a great ally in breaking down rust and mineral stains, but gentle enough to not dull finishes. There is generally sufficient juice left in used lemon halves to tackle small tasks, and it all comes with its own applicator (the rind itself).

Greasy areas: Sprinkle some salt (for abrasion) on a juiced lemon half and rub on the greasy areas, wipe up with a towel.

Clean kettles and coffee pots: Fill the kettle with water, add a handful of thin slices of lemon peel and bring to a boil. Turn off heat and let sit for an hour, drain, and rinse well. For coffee pots, add ice, salt and lemon rinds to the empty pot; swish and swirl for a minute or two, dump, and rinse

Clean the microwave: Add lemon rinds to a microwave-safe bowl filled halfway with water. Cook on high for 5 minutes, allowing the water to boil and the steam to condense on the walls and tops of the oven. Carefully remove the hot bowl and wipe away the mess with a towel.

Polish chrome taps and stainless steel sinks: Rub with a squeezed lemon half, rinse, and lightly buff with a soft cloth.

Keep pests out: Chop of the peels of lemons and place them along thresholds, windowsills, and near any cracks or holes where ants or pests may be entering.

Refresh cutting boards: Because of lemon's low pH, it has antibacterial properties that make it a good choice for refreshing cutting boards. After proper disinfecting (wash in hot soapy water or spray with a week solution of peroxide) give the surface a rub with a halved lemon, let sit for a few minutes, and rinse



Essential Oils: Tee tree oil

Australian tea tree oil is a broad spectrum germicide, fungicide, and bactericide. This essential oil comes from the melaleuca tree, a shrub/tree that has needle-like leaves. There are 100 varieties of melaleuca, but for our purposes we are speaking of Australian tea tree oil, or *melaleuca alternifolia*.

Here are five smart ways to use Australian tea tree oil at home:

1. General Tea Tree oil spray
 - a. Combine 2 teaspoons of Australian tea tree oil in 2 cups of water in a spray bottle. Shake to blend. Spray on mould and don't rinse. The smell will dissipate in a few days.
2. Tea Tree oil grout spray
 - a. Using the same formula as in #1, spray grout to repel mould and mildew. While this formula won't take away the mould discoloration, it will kill the mould.
3. Musty mould remover
 - a. The must will be removed from anything using the above formula. Just don't rinse.
4. Household antiseptic spray
 - a. Use the above formula to spray areas that need antiseptic attention, such as after someone has vomited.
5. Laundry helper
 - a. Add ½ teaspoon tea tree oil to your laundry for towels and other fabric prone to getting mouldy.

Borax

Borax is a natural mineral product that kills germs and mildew. Borax is environmentally friendly in the household but it is toxic to most plants. Therefore, while it can be used to soak nappies, whiten clothes, soften water and increase the effectiveness of plain soap, do not use it for these purposes if you are using grey water on your garden. Borax will dissolve grease, dirt and resinous substances. It can be used to clean most delicate fabrics, silver, glass and china. It is an effective cockroach and ant poison. Keep away from children and pets.

- Toilet bowl cleaner – use 20-30 drops of tea tree oil to ½ cup of borax. Add the borax directly to your toilet bowl and then add the tea tree oil.
- Sprinkle some borax onto your cleaning brush. Use the brush on the toilet bowl and under the rim. Leave overnight and then flush the toilet in the morning. It is 70 per cent effective, but it costs approximately 92 cents as opposed to \$3.99.
- Borax is great as a water softener if you have hard water. Borax is a strong alkaline but is toxic if swallowed and is an eye irritant. So use it carefully. Washing Soda is also a good water softener.



White distilled vinegar

White vinegar and lemon juice are acidic—they neutralise alkaline substances such as scale from hard water. Acids dissolve gummy build-up, eat away tarnish, and remove dirt from wood surface

Washing soda

Washing soda is a crystalline form of sodium carbonate that contains 68 per cent water. It is used as a cleaning agent and water softener. Much cheaper than other cleaning products, it is believed to be more environmentally friendly. It is a chemical neighbour of baking soda; washing soda (sodium carbonate) is much more strongly alkaline, with a pH around 11. It releases no harmful fumes and is far safer than a commercial solvent formula, but you should wear gloves when using it because it is caustic. Washing soda cuts grease, cleans petroleum oil, removes wax or lipstick, and neutralises odours in the same way that baking soda does. Don't use it on fiberglass, aluminium or waxed floors—unless you intend to remove the wax.



Mould killers and disinfectants

For a substance to be registered by the EPA as a disinfectant it must go through extensive and expensive tests. EPA recommends simple soap to use as a disinfectant. There are many essential oils, such as lavender, clove, and tea tree oil (an excellent natural fungicide), that are very antiseptic, as is grapefruit seed extract, even though they aren't

registered as such. For killing mould on walls or any hard surfaces all you need is a teaspoon of oil of cloves in one litre of water. Spray it and leave it for 24 to 48 hours and the mould is dead. Do this every three months. Mould thrives in damp, dark places that do not get enough fresh air and

sunshine. Chalk will absorb damp. For example, if you place a line of chalk along the back of your bookshelves, your books will not get mouldy.

Recipes for mould removal

- Use one teaspoon of essential oil to 2 cups of water in a spray bottle (make sure to avoid eyes). A grapefruit seed extract spray can be made by adding 20 drops of extract to about five cups of water.
- Dissolve 20 drops of lemon oil or tea-tree oil in one teaspoon of methylated spirits and mix with one litre of water. Use in a spray bottle on all bathroom and kitchen surfaces.
- Mix six drops of tea tree oil with six drops of eucalyptus oil, then dissolve in one teaspoon of methylated spirits. Add eight cups of warm water. This can be used on sinks, toilet bowls, baths and bench tops.
- To get mould out of linen and clothes—use one kilo of salt per bucket of water and soak overnight. Hang the clothing or linen on a clothesline without rinsing it. Once it dries, a salt crust forms on the fabric. Brush it off. ([Care 2](#))

Furniture polish

Fill a plastic squirt bottle with $\frac{3}{4}$ cup of olive oil (the light kind if you prefer); $\frac{1}{4}$ cup of white distilled vinegar; 50 drops or 1 to 2 teaspoons of pure essential oil or lemon juice. Squirt it onto a clean, lint-free cloth and polish wood furniture, picture frames, wood panelling etc. (If you use lemon juice only make small quantities, because the lemon juice will go off unless kept in the fridge.)

Lemon oil makes a good wood furniture polish because it is so lubricating and antiseptic. Make sure to use pure lemon oil, not the commonly available lemon oil furniture polish that is full of petroleum distillates. One way to find out if the furniture polish has petroleum in it is to read the label for cautions. “Flammable” is a good indicator that petroleum distillates are included! The purest lemon oil is available from herbalists and those used for medicinal purposes.

Read more: <http://www.care2.com/greenliving/why-lemon-oil-for-furniture-ask-annie.html#ixzz2QgeS9luQ>

Floor cleaner

Many floor cleaning products contain phosphates, detergents, formaldehyde, ethanol, chlorine and ammonia. These are dangerous to humans and to the environment.

Floor cleaner recipes:

- If you add one cup of vinegar to half a bucket of warm water you can clean wood floors, cork, ceramic, lino and slate.
- An alternative for timber or bamboo floors is 1 litre boiling water, 4 teaspoons black tea leaves or 4 black tea bags, 9 litres warm water, 1 cup white vinegar. Brew the tea in the boiling water for 5 minutes. Pour 3 cups of this strained solution into a bucket with the warm water. Add the white vinegar. Sweep the floor with the mixture using a soft kitchen broom



Photo source: [Writing Lives](#): Working class women cleaning

with the head stuffed down the leg of a pair of pantyhose and the remaining pantyhose leg tied around the handle to secure it. Have the remaining cup of tea yourself (Lush 2010). The tannin in the tea feeds the timber and keeps it in good condition.

- Fill a spray bottle with equal parts of white distilled vinegar and water. Add 15-20 drops of pure peppermint oil. Shake to mix. Spray on wood, tile or lino floors and use a mop to wipe clean. For extra tough smudges sprinkle some baking soda onto the area and then spray and wipe clean. You can have several scented spray bottles in your cleaning cupboard (simply combine ¼ teaspoon to one litre of vinegar of any favourite essential oil. Scented vinegars are good for removing odours from pets, sour milk, vomit, mildew and much more.



Floor polish

Almost all commercially available floor and furniture waxes contain neurotoxic petroleum-based solvents. Neurotoxic chemicals can cause headaches, lack of concentration, irritability, and more, and are best avoided and substitutes used. A few safe commercially available products are available online or at health food stores.

Here is a simple polish formula to make yourself that is solvent free, inexpensive,

and easy enough to make. Protect your furniture, your health, and the environment.

Basic Polishing Cream Waxing Formula

4 ounces oil (2 1/2 ounces olive oil or jojoba, 1 1/2 ounces coconut oil)

1 ounce beeswax

1 ounce carnauba wax

4 ounces distilled water

Melt the oils and waxes in a double boiler over medium heat. Remove from the heat, pour in the water, and mix with a hand mixer until thick and creamy. Dab some cream onto a soft cotton rag and rub into the furniture. Buff and polish until the oils are well worked into the wood.

(Shelf Life: 6 months to a year.)

Floor polish

Melt two candles and 250g of shredded soap in one litre of boiling water. Stir the mixture and when cold add one cup of turpentine and one cup of linseed oil. However, many people do not wax or polish their floors at all.

Read more: <http://www.care2.com/greenliving/solvent-free-furniture-polish.html>

Glass and mirror cleaners

- Use half a bucket of warm water and $\frac{1}{4}$ cup of vinegar. Wipe it over the window and then use a paper towel (not newspaper as modern newspaper print contains latex and it smears the glass) to soak up the water as you wipe it over the window. Wipe the inside window in a horizontal direction and the outside window in a vertical direction. That way you will be able to see missed areas. Don't clean windows when the sun is shining – the windows will dry too quickly and be streaky.
- Use soda water in a spray bottle. The secret ingredient in soda water is the sodium citrate. It softens the water and helps to clean. It takes longer to dry than other cleaners so use one soft lint-free cloth to wipe on, and another to wipe-off. The saving: a 500ml spray bottle of club soda will cost you about 45 cents as opposed to a blue window cleaner of approximately \$1.50.
- Mix two tablespoons of vinegar with two cups of water and a few drops of liquid soap in a spray bottle. Use a lint-free cloth to clean. Cold tea and paper towel also work well.



Household cleaning shortcuts

1. The top tip to cut your household cleaning down is to remove your shoes before entering the house. Most of the dirt in our houses is brought in from outside. So in addition to removing shoes, make sure you have a doormat at entrances.
2. Lint brushes can make so many frustrating dusting jobs a heck of a lot easier. Use a lint roller to quickly clean up pet hair on the furniture, dust lampshades, clean up glitter, and even the inside of your handbag.
3. Many cleaning products will actually work better if you let them rest before you wipe up. Let bathroom cleaners and kitchen appliance cleaners sit overnight and wipe them up in the morning. It makes a huge difference!
4. Clean up while you cook: Wipe up spills when they happen. Hand wash those dishes while your food is baking.
5. The microwave is often the one appliance that is not cleaned regularly, especially in a shared household. The power of steam will help make your microwave a cinch to clean up. Bring a cup of water to a boil and wipe away.
6. Take control of your fridge: Throwing out too much food? Don't waste time cleaning it out — get smarter about what you buy, and what you do with food that's on its last legs. Try starting a list of what's getting tossed out and going from there. Some items you might want

to stop buying all together. You can also create a special spot in your fridge for things that are about to go bad, so you remember to use them up.

7. Have a place for everything: Implementing an organization system — and actually using it — will cut down on your cleaning time considerably. Have a hamper in your bedroom and your bathroom. Keep a shoe rack in the hallway. Always put your dirty dishes away if you're not washing them immediately. Etcetera.

In summary:

- Choose natural products that are biodegradable, low allergy, not tested on animals and presented in recyclable packaging where possible.
- Baking soda is fabulous for cleaning most things, as well as clearing drains and deodorising.
- White vinegar is great on glass, tiles and mirrors.
- Lemons have a multitude of uses.
- Salt works wonders as a cleaning product.
- Essential oils such as tea tree, eucalyptus and citrus are great disinfectants and add fragrance to other natural cleansers.
- Pure soap flakes and hot water will perform many cleaning jobs without resorting to chemical cleaners.
- Microfibre cloths are fantastic.

Food

Tips for ethical eating

Food makes up about 28 percent of our ecological footprint. To be aware of the food chain and be more disciplined about what goes into our mouths is very important in order to minimise our negative impact on the planet. Ethical eating is a complicated issue that requires awareness of numerous factors, while also recognising that there are no hard and fast rules.

Often it is virtually impossible to know that everything you eat has been ethically produced. However, important issues to consider include, factory farming, genetically modified crops, organic food, free-range eggs, vegetarianism and of particular importance in the context of global warming, 'food miles'.

- **'Food miles'** relates to the distance that a piece of food has travelled to arrive on your plate, and the method of transportation.
- **'Ghost acres'** is the problem of vast tracts of land devoted to growing food (usually soy or corn) for factory-farmed animals. The costs of exploiting this land are not factored into the cost the consumer pays for the product.

What you can do

Buy locally and seasonally to combat the negative impact of 'food miles' and 'ghost acres'. *Think globally, act locally*—get to know your local neighbourhood by walking rather than driving; support local retailers not multinationals and support local producers. Though keep in mind that depending on the methods used to grow the produce, buying locally may not always be the best option.

Look for sites like Body and Soul and read up about how to eat ethically:

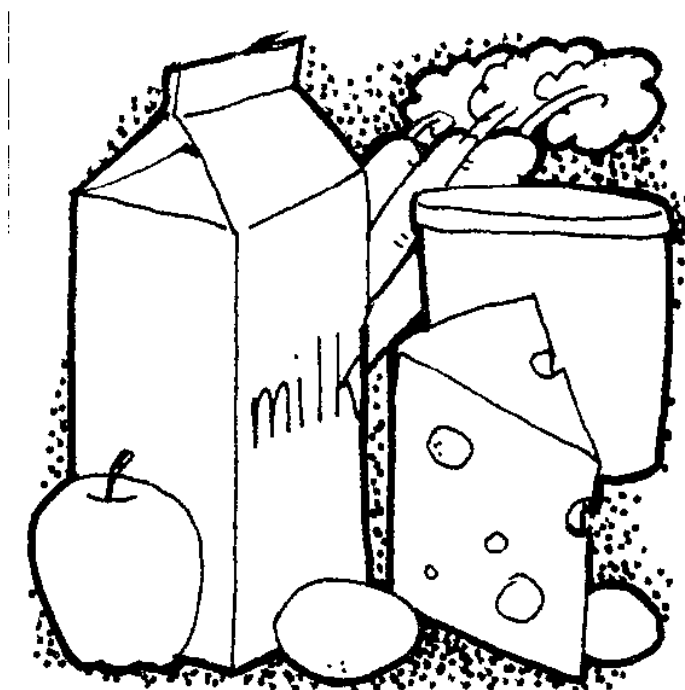
<http://www.bodyandsoul.com.au/food+diet/nutrition/how+to+eat+ethically,18857>

Use local farmers' markets to buy your fruit, vegetables and meat where possible. To find out where

and when your local farmers' markets are held, contact your local council or visit the website of the Farmers' Markets Association at

www.farmersmarkets.org.au or Local Harvest Organisation

<http://www.localharvest.org.au/>.



Tips for eating...

- Use a water filter to remove impurities and chemicals from your tap water. It is far better for the environment to fill and take your own water bottle when you go out, rather than constantly buying bottled water.

- Buy organic foods where you can, and buy your fruit and vegetables in season as much as possible. Organic fruit and vegetable are generally grown

locally and in season because they cannot be transported very far and do not have the preservatives that conventional produce does.

- Opt for free-range eggs, preferably certified organic ones.
- Ask if seafood has come from overseas and try to avoid long-lived or deep-sea species. Choose sustainable seafood. Three-quarters of the world's oceans are over-exploited. The Australian Marine Conservation Society has produced a Sustainable Seafood Guide as well as a pocket guide and these can be ordered by calling 1800 066 299 or going to www.amcs.org.au.
- Buy canned fish with a blue logo on the can to show that it has been certified by the Marine Stewardship Council (MSC). For more information on ethical fishing practices and products go to www.msc.org.
- Cut back on processed foods. "A lot of products like breakfast cereals and soft drinks are packaged in intensive ways that use extra resources to produce," Charlie Davie from Environment Victoria says. "At the other end, we dispose of packaging – all that adds to the environmental impact of the food." Check ingredients lists and avoid products that are excessively packaged or contain high levels of artificial colours, flavours and sugars.

- Avoid genetically modified foods. The most common products with genetically engineered (GE) ingredients come from imported canola, corn and soy products. Also try to avoid factory-farmed animals, which may have been fed genetically modified foods. Greenpeace has created a list of companies that don't use GE ingredients at www.truefood.org.au.
- Make sure your coffee is Fairtrade. Fairtrade is a growing international movement to ensure that producers in poor countries receive adequate payment for their products. You can find out more about the fair trade campaign at the Fair Trade Association of Australia and New Zealand at www.fta.org.au.
- Ask for organic options at restaurants, supermarkets and other shops. The more we ask for them, the more likely retailers are to stock organic products.
- Buying organic products will help to stop animal cruelty. Choosing food products marked with the RSPCA's "Paw of Approval" at the supermarket is one of the easiest ways to guarantee you are buying meat and eggs from farms that prioritise animal welfare. "The RSPCA works with producers that voluntarily want to meet higher standards than those required by law," says Hope Bertram from RSPCA Australia.
 - Whether it is pigs locked in tiny pens or chickens sitting on wet litter and getting breast blisters, there are myriad animal welfare issues surrounding the production of meat and eggs. Victorian farmer Fiona Chambers, who produces free-range pork and lamb, is horrified by the conditions in which some animals are raised and slaughtered. Chambers says choosing certified organic meat is another way to ensure food ~~was~~ is raised under humane conditions. "It's a guarantee that those animals are free range for the entirety of their lives," she says. "Certified organic farmers are audited annually to make sure the relevant processes are in place."
 - It is also important to take these philosophies out of the home and into the restaurant world. "Ask about food sources and encourage your local cafe to serve higher-welfare food as it will have a big impact on the wellbeing of farm animals," Bertram says.
- Instead of buying all of your fruit, vegetables and herbs, why not grow your own? A simple veggie patch near your house or herb garden on your windowsill can be a wonderful way to supplement your diet.
- Eat less meat and animal-based products, as it will make a huge difference to climate change. Not only does meat take thousands of litres of water to produce, but a UN study found the livestock industry is responsible for 18 per cent of our greenhouse gas emissions. Many Australians eat well above the recommended dietary guidelines for meat, dietician Nicole Senior says, and cutting back should not impact on your health. She suggests sticking to 450 grams of lean red meat a week



Transport

Transport methods contribute greatly to Australia's footprint. The average Australian householder will create nearly six tonnes of greenhouse gas due to transport, representing around 34% of their total greenhouse gas emissions. Being more aware of your transportation methods can make a huge difference. The [Australian Conservation Foundation](http://www.environment.gov.au/node/22002) created its first Sustainable Cities Index in 2010. It provides a snapshot of comparative performance in each of Australia's 20 largest cities, with the aim of encouraging healthy competition, stimulating discussion and suggesting new ways of thinking about how our cities can be sustainable. It tracks progress on sustainability in Australia's 20 largest cities. It measures 15 different indicators across three broad areas: Environmental Performance; Quality of Life and Resilience. You can learn more information about the livability of human settlements in Australia, at this site: <http://www.environment.gov.au/node/22002>



In 2010 Darwin has emerged as Australia's most sustainable city.

Environmental Performance indicators: Air Quality, Ecological Footprint, Green Building, Water, and Biodiversity

Quality of Life indicators: Health, Density, Subjective Wellbeing, Transport, Employment

Resilience indicators: Climate Change, Public Participation, Education, Household Repayments and Food Production

Table 1: Results of Sustainable City Index 2010

City	Position	Score	City	Position	Score
Darwin	1	119	Toowoomba	11	152
Sunshine Coast	2	121	Sydney	12	161
Brisbane	3	123	Launceston	13	163
Townsville	4	129	Adelaide	14	165
Canberra-Queanbeyan	5	133	Ballarat	14	165
Hobart	6	139	Albury-Wodonga	15	167
Melbourne	7	142	Wollongong	16	171
Gold Coast - Tweed	8	143	Newcastle	17	172
Cairns	9	145	Geelong	18	174
Bendigo	10	150	Perth	19	183

Note: The best potential score is 15 and the worst potential score is 300. (Source: The [Australian Conservation Foundation](http://www.environment.gov.au/node/22002) Sustainable Cities Index 2010)

Table 2. Quality of life indicators and each city's position placing under each

City	Health	Density	Subjective Wellbeing	Transport	Employment
Adelaide	15	6	6	19	6
Albury-Wodonga	17	10	12	13	6
Ballarat	11	19	9	18	20
Bendigo	10	20	3	14	18
Brisbane	1	15	13	11	7
Cairns	6	12	16	1	19
Canberra-Queanbeyan	5	17	8	9	3
Darwin	18	9	2	4	1
Geelong	16	4	4	16	12
Gold Coast-Tweed	3	11	7	7	11
Hobart	8	5	11	17	9
Launceston	12	13	10	12	8
Melbourne	4	3	14	15	10
Newcastle	13	2	18	8	15
Perth	7	7	17	20	5
Sunshine Coast	3	14	1	10	13
Sydney	14	1	19	5	14
Toowoomba	9	16	20	6	2
Townsville	2	18	5	3	4
Wollongong	19	8	15	2	17

Legend: **Top** **Mid** **Poor**

Visit the Consumption Atlas at the Australian Conservation Foundation to see how your area is doing:
<http://www.acfonline.org.au/sites/default/files/resource/index67.swf>

Transport facts for Australia

1. Road congestion costs the Australian economy more than \$21 billion per year.
2. Road vehicle crashes cost us more than \$18 billion every year, kill over 1,600 Australians and seriously injure 30,000 more.
3. Road building is the most expensive option per passenger kilometre travelled. Dual carriageways cost about 1½ to 6 times more than two track railways per passenger kilometre travelled.
4. Commonwealth Government spending on roads has been 12 times more than on rail. From 2004 - 2009 Auslink allocated \$14 billion to roads but only \$1.2 billion to rail – over a tenfold difference in spending allocations.
5. Physical inactivity costs over \$10 billion per year in direct health costs.
6. The fringe benefits tax concession for private use of company cars will cost the government \$1.18 billion in 2008-09 and is effectively a subsidy that encourages driving.
7. Reduced car ownership would result in wealthier families through lower transport costs.
8. Building more roads induces traffic growth and results in more carbon, air, water and noise pollution.
9. Australian bike ownership is among the highest in the world, but usage remains very low by international standards due to inadequate infrastructure.
10. Urban sprawl increases the demand for travel. There needs to be a redesign of our urban centres using Transit Oriented Development to reduce travel demand.
11. Roads and parking account for one third of urban land use.
12. Petrol costs will rise and it is the disadvantaged who will pay the most. They often live in areas distant from jobs and services which are poorly serviced by public transport and rely more on increasingly expensive private motorised transport than wealthier people living closer to town centres.
13. Greenhouse gas emissions from road freight haulage are projected to grow by more than 27 per cent in the next 10 years.



See: <http://australia.gov.au/topics/transport/public-and-private-transport>

Tips for the use of cars

The most environmentally friendly option would be not to have a car, but obviously this isn't practical for many people.

There are many ways to try to minimise the effect your car will have on the environment though:

1. Leave the car at home when possible
2. Opting to use public transport, a taxi, to walk or ride a bike is far more preferable from an environmental perspective, particularly if you are the only person in the car. To understand the seriousness of this issue please look at the table below.
3. When travelling, figure out the most efficient routes in advance, try to avoid peak hour traffic. Can you wait and then combine several outings into the one trip? Think ahead.

Table 3: Impacts of car dependency

Economic impacts	Social impacts	Environmental impacts
Loss of productive rural land and increased cost of food transport	Social exclusion for non drivers especially in remote suburbs	Rising greenhouse gas emissions
Reduced land use efficiency and productivity	Loss of community including public safety and street life	Loss of habitat for biodiversity
Health costs: - accidents - fatalities - inactivity - air pollution - noise pollution	Increasing ill health due to inactivity and pollution	Toxic air pollution and photochemical smog
Highest value use: perverse subsidies for Fringe Benefits Tax	Car accidents and fatalities	Water pollution – road run off
Fuel price vulnerability	Reduction in superannuation savings	Noise
Infrastructure costs – road building		
Congestion		

Car pooling & car sharing

Car pooling can often be a viable option for journeys to work or dropping children at school. Car sharing can be great for those who only use cars occasionally and don't want the overhead of owning

or leasing a car of their own. It's a type of inexpensive rental scheme where cars (often environmentally friendly) are available for hire by the hour or by the day.

- www.goget.com.au Sydney & Melbourne
- www.flexicar.com.au Sydney & Melbourne
- <http://www.ozcarpool.com.au/> or <http://www.carpoolone.com.au/> or <http://www.coseats.com/> register and find other people in your area who want to car pool.
- <http://www.urbanecology.org.au/topics/transport.html>



Plan your purchase

Research before you buy:

<http://australia.gov.au/topics/transport/road-transport>

Is that huge four wheel drive essential for your inner city living? Consider new car purchases carefully and how it will contribute to your environmental footprint. The website

www.greenvehicleguide.gov.au is a fantastic resource provided by the Australian government.

Different vehicle models are given an environmental impact star rating, and many factors such as fuel efficiency, air pollution rating, level of greenhouse gas emissions and overall efficiency can be compared.

Environmentally friendly car options

Hybrid cars

- Combine electric and petrol power for greater fuel efficiency
- Battery charges every time you brake and petrol engine automatically turns off when stopped and restarts when you accelerate

Diesel

- Emissions = up to 40% less than petrol
- Short-term option as it is a non-renewable resource made from mineral oils

Biodiesel

- Produced from renewable plant or animal sources and potentially include recycled products
- Emissions = very low greenhouse and reduces carbon monoxide by 70%
- Non-toxic and biodegradable

LPG or autogas

- Emissions = 15% less greenhouse gas and one-fifth of the toxic gases of petrol
- It is much cheaper than petrol, but less efficient as an energy source

Ethanol

- 100% renewable source made from grains (corn or sugarcane usually)
- Non-carcinogenic emissions
- Emissions = 30% less greenhouse gas than petrol
- The main concern with ethanol is that production diverts valuable land to grow crops as fuel rather than as food.

Hydrogen

- Hydrogen fuel cells use hydrogen to create electricity
- Emissions = small amounts of water
- Expensive and hydrogen produced currently from non-renewable fuel sources

Air travel

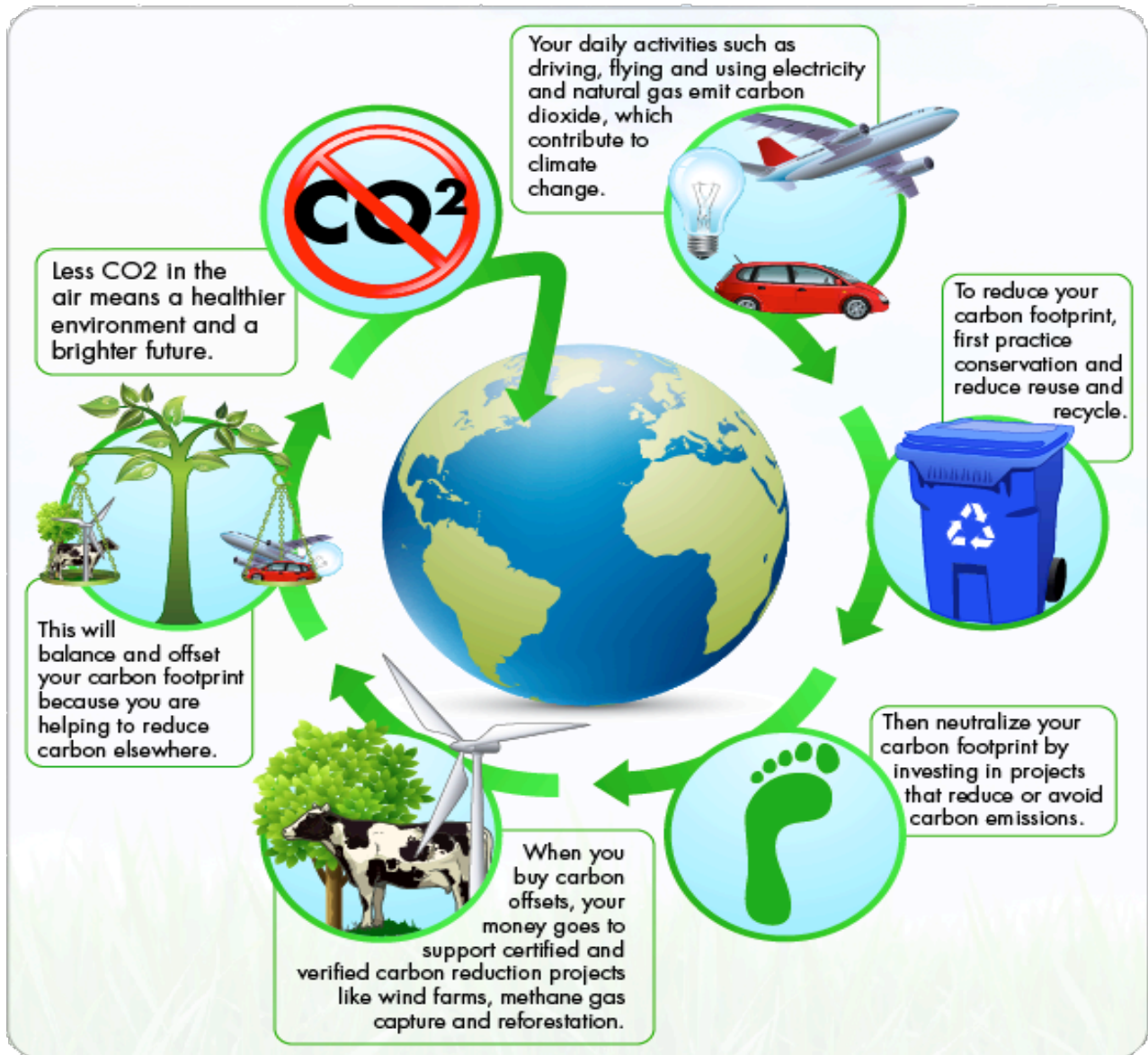
1. Try to get the most direct flight to your destination
2. Offset the carbon emissions from your flight – currently in Australia there is not a compulsory carbon tax on flights, but you can opt to include a carbon tax at the time of purchase.
3. Minimise your emissions where possible by travelling short distances by train or bus instead.



Source: [Stock image. theconversation.com](https://www.theconversation.com)

Carbon offsetting

There are various companies and organisations in Australia that specialise in carbon offsetting schemes. For example, Greenfleet is a non-profit organisation and for only \$55 per year they will plant 17 native trees on your behalf, to help absorb the greenhouse emissions that your car produces in one year. For more information go to www.greenfleet.com.au and see too, <http://www.climatechange.gov.au/climate-change/going-carbon-neutral>



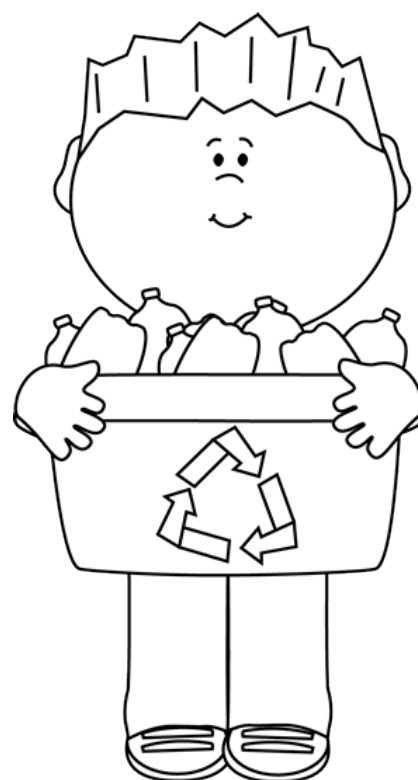
Source: <http://asia-backpackers.com/udon/wp-content/uploads/2014/04/carbon-offset-diagram2.png>

Recycling

Australia is one of the highest producers of waste in the world, which can be linked to our high levels of household incomes and gross domestic product. Unfortunately, we have become a disposable society. Recycling can prevent rubbish ending up in landfill and over the last 10 years Australians have realised the importance of recycling and embraced the concept.

The four R's—refuse, reduce, re-use, and recycle.

- *Refuse* plastic bags; take your own cloth bags when shopping.
- *Reduce* your need for new products and try to avoid excess packaging. Buy recycled products wherever possible.
- *Re-use* items and packaging when you have finished with them, e.g. glass jars for storage, plastic bottles to drip water the garden.
- *Recycle* items you can't re-use by putting them in a recycle bin or if it's a household item, donate to a charity, give to a friend or sell it.



Footpath recycling

Recycling reduces household rubbish going into landfill and has a compound effect on our emissions. Depending on where you live there can be variations in what can be recycled, or if you are permitted to do kerbside recycling, i.e. leaving large household objects/material on the footpath for the Council to collect. The alternative is to hold a garage sale.

What can be recycled through your local Council recycling bins?

Paper and cardboard

The main categories that can be placed in your recycling bin are:

- Include - newspapers, magazines, writing paper, cards, egg cartons, advertising leaflets, envelopes with plastic windows.
- Do not include – waxed cardboard or paper, thermal fax paper, paper contaminated with food, used tissues. Paper that has become too damp can sometimes be a problem.

- Tips – flatten cardboard boxes, don't wrap newspapers or paper in plastic bags.
- Other uses – write on both sides of paper; newspaper as wrapping paper; to wipe up spills or light fires; shredded paper as mulch; donate boxes and egg cartons to schools and kindergartens for craft activities.

Glass

- Include - glass jars, clear, green and amber bottles.
- Do not include - oven-proof glass (it has been chemically treated), wine or drinking glasses, broken windscreen or window glass, ceramics, china, light globes.
- Tips - remove lids (most are steel and can also be recycled), rinse off any food, try not to break bottles. If glass is added to recycling that is too contaminated with food it can affect a whole recycle cycle.
- Other uses – re-use glass jars as storage containers; wine bottles make good water bottles or vases.

Plastic

- Include – plastic containers have recycling code numbers often on the bases. To check which code numbers your council recycles, go to your local council website or www.recyclingnearyou.com.au .
- Do not include – plastic bags, disposable nappies.
- Tips – lids can be left on, but rinse away any food remaining.
- Other uses – plastic bottles as slow-drip water systems in the garden.

Drink cartons

- Include – liquid paperboard cartons (milk & juice), brick shaped cartons (long-life milk & juice).
- Tips – rinse and flatten cartons; try to fit flattened cartons into an open carton.
- Other uses – cartons make good seedling containers, or they can be donated to school and kindergartens for projects.

Aluminium, foil and steel

- Include – aluminium soft drink cans and beer cans, food and pet food cans, jam jar lids, aluminium foil without food remains, bottle tops, aerosol cans.
- Do not include – aluminium cans with steel ends and foil chip bags.
- Tips – remove plastic caps and rinse.
- Other uses – re-use cans as vases, pencil holders or biscuit cutters.

Organic waste

It is estimated that close to 40 per cent of landfill is organic waste. Organic waste, or green waste, is organic material such as food, garden and lawn clippings. It can also include animal and plant based material and degradable carbon such as paper, cardboard and timber.

Burying organic waste in landfill is a big problem and it's not just because of the resources we lose. When organic waste is dumped in landfill, it undergoes anaerobic decomposition (because of the lack of oxygen) and generates methane. When released into the atmosphere, methane is 20 times more potent a greenhouse gas than carbon dioxide.

Methane is, however, also a valuable resource. The natural gas piped into our homes is primarily methane. Organic waste can also be treated to make compost and soil conditioning products, as many people do in their backyards and gardens. This is the best option – to have your own compost heap and reuse this valuable resource (<http://environmentvictoria.org.au/content/organic-waste>).

General recycling tips

- Put a “No junk mail” sign on your letter box to discourage the littering of advertising material.
- Know your local council's rules for kerbside recycling.
- When out, bring home your litter if there is no bin or it's full and encourage others to do the same.
- Don't drop cigarette butts.
- Take cloth bags with you to put your shopping in.
- Take plastic bags back to the supermarket for recycling.
- Get into composting with a compost bin, a Bokashi bucket or a worm farm and reduce your household waste by up to 40%.
- Before throwing something out, consider carefully how it can be recycled and make an effort to do so.
- Recycle used oils, chemical, paints and other toxic products to prevent them going to landfill and leaching into the environment or polluting our waterways.
- Donate unwanted goods to charity or to a Freecycle network.



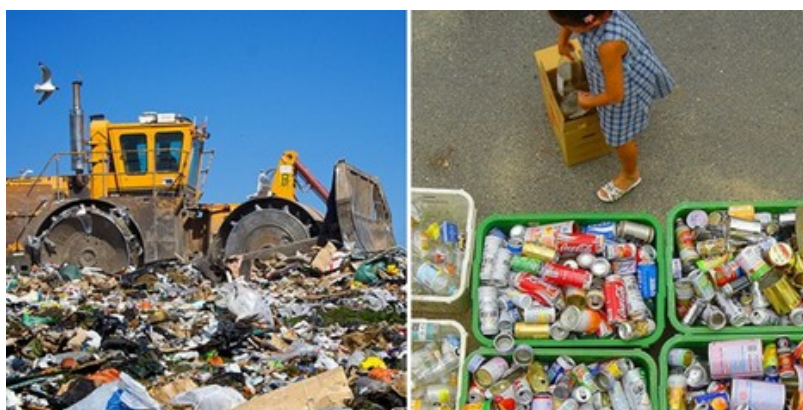
Effective recycling

As a householder, it is important that you put the right material in the right bin. Separating the different kinds of waste is critically important for effective recycling and there are a few steps that will help in the process.









- All recycled containers need to be empty so their contents don't contaminate other recycled materials or damage the recycling equipment at the plant.
- Lids and bottle caps are sometimes too small for the recycling equipment so it is best to remove lids from any plastic bottles or glass bottles before recycling them.
- Cut any large pieces of plastic into smaller pieces, especially blue, because this can harm birds that can choke on plastic rings or plastic bags.

The following are some of the products that cannot go into a recycling bin. They must go into the waste bin that is used for landfill. These items include

- Food scraps
 - Plastic bags
 - Polystyrene – cups, takeaway containers, packaging around items
 - Nappies
 - Crockery
 - Syringes
 - Ceramics
 - Glass cookware
- Only 40 per cent of the glass recycled in Australia is reusable for glass recycling. We can help by keeping the waste glass uncontaminated. It also helps to rinse and dry glass jars and bottles. Toughened glass that melts at higher temperatures can't be recycled through the kerbside collection. This includes windowpanes, Pyrex, wine glasses and ceramics such as crockery. Contaminants like these can cause weakness in products such as glass bottles, which might crack under pressure. For this reason the quality controls used by glass recycling companies can specify that as little as 25 grams of ceramic is enough to reject a million grams of recycled glass!
 - Manufacturers now provide identification codes for recyclable plastics. Not every council collects all the plastics, so check with your local provider. Plastics with codes 1 (PET), 2 (HDPE) and 3 (Vinyl) and anything with an R for 'recyclable' on it are most likely to be collected from the kerbside recycling bins. It is best not to mix unwanted with wanted plastics because this increases the expense of sorting by the council. Use the table on the following page as a guide to what can be recycled.



Source: Recycling versus Landfill. <http://www.Treehugger.com>

PLASTIC IDENTIFICATION CODES					
NUMBER	TYPE OF PLASTIC (POLYMER)	COMMONLY USED FOR	COMMONLY RECYCLED INTO	TONNES CONSUMED IN 2007 (% USED IN PACKAGING)	RECYCLING RATE
 PET	PET (polyethylene terephthalate)	Clear beverage, sauce and detergent bottles, plus hinged and two-piece containers for fresh produce	PET bottles, clothing, geo-textiles (such as fleecy jackets), furniture, carpet	139,508 (80%)	42%
 HDPE	HDPE (high density polyethylene)	Milk, juice bottles, oil and vinegar bottles, ice cream tubs, shampoo and detergent bottles	Garbage, recycling and compost bins, pipes, crates, detergent bottles, outdoor furniture	321,907 (50%)	19%
 V	V (vinyl) or PVC (polyvinyl chloride) (figures are for PVC only)	Plumbing pipe, garden hoses, blister packs	Pipe, floor coverings, shoes, bags	256,499 (3%)	5%
 LDPE	LDPE (low density polyethylene)	Garbage and recycling bins	Film, bags, tubing, fence posts	377,948 (58%)	15%
 PP	PP (polypropylene)	Microwave ovenware, hinged lunch boxes, containers for dairy products (cottage cheese, yoghurt, margarine)	Crates, boxes, plant pots, furniture, automotive parts	239,893 (32%)	16%
 PS	PS (polystyrene) (clear, transparent)	Drinking glasses, yoghurt containers, hinged and two-piece containers for produce, bakery and deli	Bar stools, industrial spools, office accessories, glasses, coat hangers	37,409 (75%)	17%
 PS	EPS (expanded polystyrene) (foamed)	Produce boxes, hot drink cups	Materials for the building industry, synthetic timber products	36,232 (26%)	6%
 OTHER	Other (all other resins and multi-blend plastic materials)	Dependent on the material	Dependent on the material	300,690	9%

(Source: [Choice online](#))

USING THE TABLE

Commonly used for If your council accepts this type of plastic in kerbside collections, these are the most common container types you can put out for recycling.

Commonly recycled into Many industries use recycled plastics in the manufacture of new products; these are the most common consumer goods that contain recycled plastics.

Consumed in 2007 This includes plastics packaging and durables.

The percentage in brackets is for plastics packaging products, which generally have a much shorter life-span than durables (such as pipes).

Recycling rate This is the percentage of total plastics waste that is collected for recycling. Almost half is packaging discarded in household kerbside collections and public place recycling; the rest comes from the commercial, industrial and building sectors.

TABLE NOTES

The table is based on data from various sources, primarily from the 2008 National Plastics Recycling Survey, undertaken by Hyder Consulting for the Plastics and Chemicals Industries Association (PACIA) and based on data from 2007.



Energy

Lighting

In recent years energy use for household lighting in Australia has rapidly increased. This is due to the construction of larger homes and the installation of more light fittings per home.

Most homes could reduce the amount of energy they use for lighting by 50 per cent or more by making smarter lighting choices and moving to more efficient

technologies.

In Australia traditional but inefficient types of lighting (incandescent) are being [phased out](#). There are other more efficient types of lighting available, including compact fluorescent lamps (CFLs), light emitting diodes (LEDs) and fluorescent lights. LEDs and CFLs are the most energy efficient of these options. Light tubes which capture daylight and pipe it into dark corners of your home is another effective option to consider and can reduce your need for other forms of lighting ([Department of Industry](#)). The more inefficient lamps are being phased out in Australia.

Lamp Type	Sales restriction from
Tungsten filament incandescent general lighting service (GLS) light bulbs Extra low voltage (ELV) halogen non-reflectors Self-ballasted compact fluorescent lamps (CFLs)	1 November 2009
>40W candle, fancy round and decorative lamps ELV halogen reflectors*	October 2010
Mains voltage halogen non-reflectors**	1 January 2011
>25W candle fancy round and decorative lamps	October 2012
Mains voltage reflector lamps, including halogen (PAR, ER, R, etc)***	October 2013 Date to be reviewed and determined dependent on availability of efficient replacement products
Pilot lamps 25W and below	To be determined dependent on the availability of efficient replacement products

Tips for lighting efficiency

- Switch lights off every time you leave a room and keep light bulbs and shades clean.
- Make good use of natural lighting and remember that light coloured rooms reflect light better.
- Use low-wattage or compact fluorescent bulbs where possible.

- Don't leave outdoor lights on all night and turn sensor lights off during the day.
- Use solar lights in the garden.
- Don't have several lights activated by one switch.
- Downlights are best used in a small area that need specific pools of light.
- Avoid using multiple globe light fittings.

Tips for heating efficiency

- Make sure your house is insulated and minimise heat loss by sealing all gaps in doors, laying rugs on bare floors and closing unused fireplaces and pet doors. Air leaks can account for up to 25% of heat loss and create drafts that will chill you further.
- Zone your home – keep areas not in use closed off.
- Don't vary the thermostat temperature too often; put on warmer clothing instead of turning up the heat and reduce the temperature at night before you go to sleep.
- Clean air conditioners and heaters regularly.
- Open curtains in north facing windows on sunny winter days to allow in the natural heat and open windows for short periods during the day for ventilation; this will prevent mould and pollutants building up.
- Use ceiling fans to move the hot air from the ceiling down to the floor.
- Use timers to automatically turn the heating off and on at preselected times when you will and won't be home.
- Shut off gas heaters completely after winter.

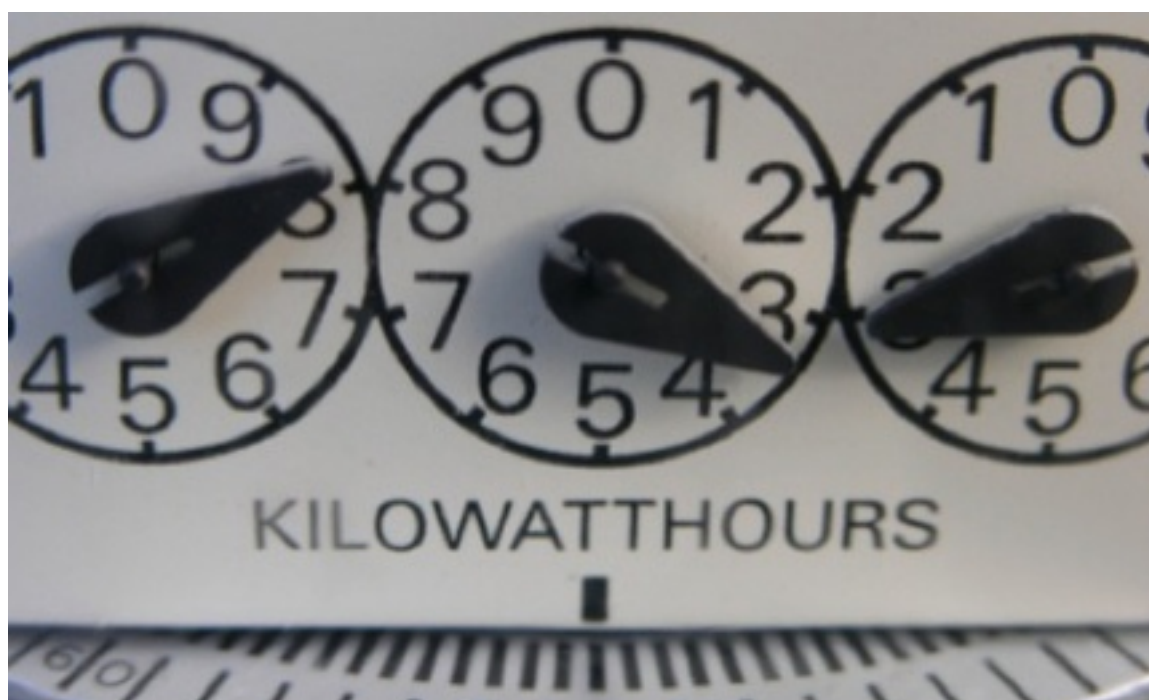
Tips for cooling efficiency

- Go for the maximum energy rating on air conditioners. Larger units have COP (co-efficient of performance) rather than energy ratings. This measures the amount of heat or coolness the unit can produce for each unit of electricity. The higher the Cop, the lower the running costs.
- Clean filters regularly
- Ensure the outside component is in a shady spot to reduce its workload
- Purchase the correct size air conditioner for your needs and use the economy cycle if possible.
- Close all windows, doors and gaps during the day, but open them at night when cooler.
- Adjusting thermostat by one degree can save up to 10% on your bill.
- When expecting a hot day turn the air conditioner on early so it doesn't have to work as hard.
- If using a portable or split system unit, make sure there are no leaks where the exhaust duct exits the house.
- When cooling, direct air upwards. When heating, direct air to the floor.

ACTION SUMMARY – THE GREENHOUSE GAS YOU AVOID**Moving from a three to a five star air conditioner**

Air Conditioner capacity kW	Garbage bags of CO ₂ .e per year
Small split – 2.5	600
Medium split – 6	1600
Medium to Large ducted – 12	3300

(Source: The CSIRO Home Energy Saving Handbook. 2009, p. 97)



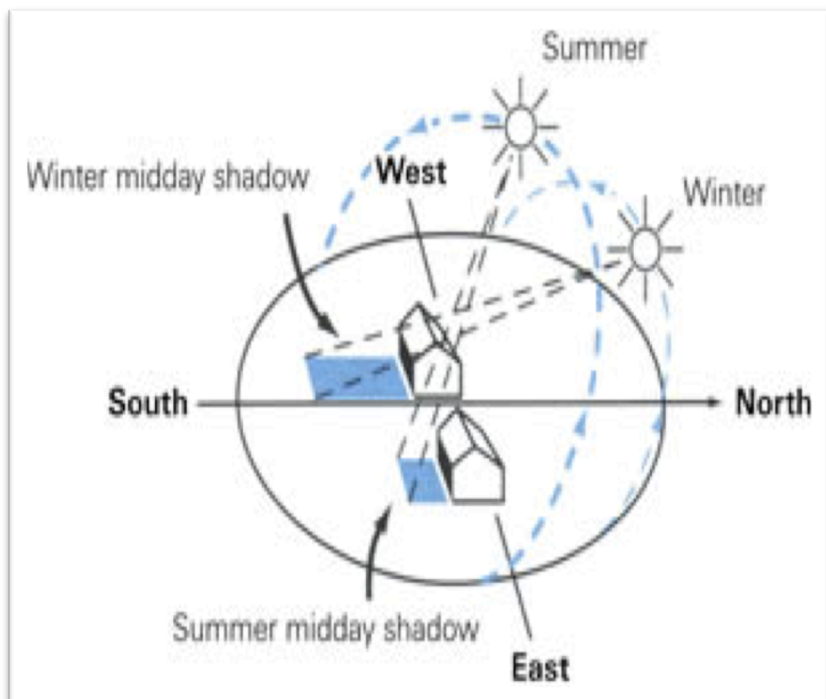
Beth Buczynski photoshare. [Care2](#)

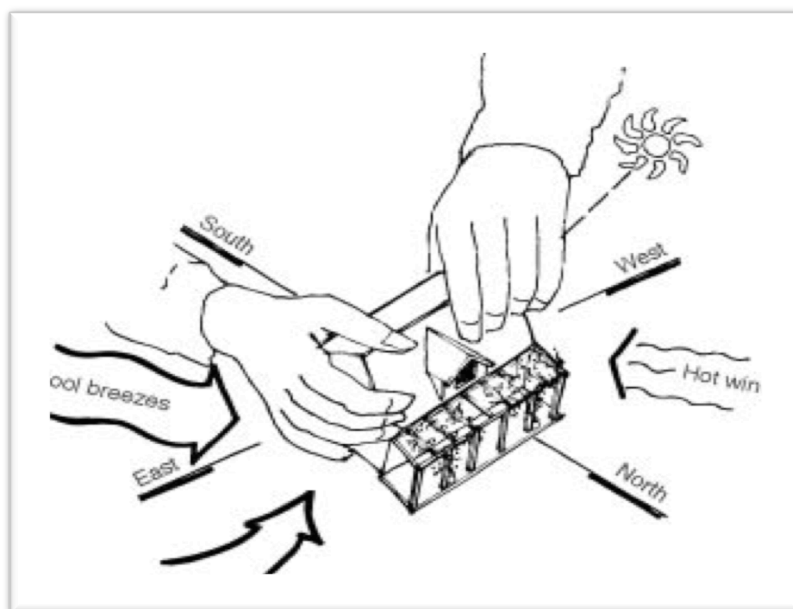
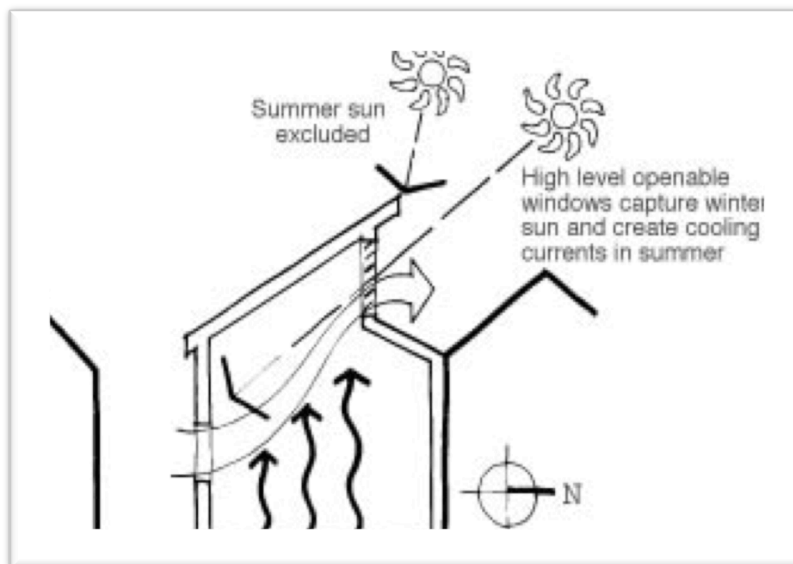
Building and Renovating

There is much to learn when you are building and/or renovating. The points below are only a small portion of what you need to know.

- –Your Home—<http://www.yourhome.gov.au/>— contains a wealth of information and is well worth visiting.
- Ecodirectory Australia—<http://ecodirectory.com.au/sustainable-building-renovation>—is well worth joining/surfing to gain information for your area.-
- The Australian Government's Department of the Environment, <http://www.environment.gov.au/resource/living-sustainably-australian-governments-national-action-plan-education-sustainability>, will give you up-to-date information about policies and recommendations.
- The Department of Housing and Public Works site—<http://www.hpw.qld.gov.au/construction/sustainability/smartsustainablehomes/Pages/Default.aspx> another example of information on building ecologically sustainable homes. Each State will have such a website.

Above all consider the benefits of passive heating and cooling. You want summer shade and winter sun. So eaves, awnings and pergolas provide shade and reduce the need for air conditioning. The further south you live, the narrower your eaves should be so more of the sun enters the house during winter. Orientation for passive heating involves letting winter sun in and keeping summer sun out. The ideal orientation for living areas is within the range 15°W–20°E of true or 'solar' north. (20°W– 30°E of true north is considered acceptable).





Figures: Sun exposure and air flow in a house designed for passive heating and cooling

Tips to maximize the use of the Sun

- Maximise the use of the sun by facing solar panels and rooms that will be used most to the north or north-west.
- Deciduous trees in front of windows will provide shade in summer and allow light in during winter.

Climate

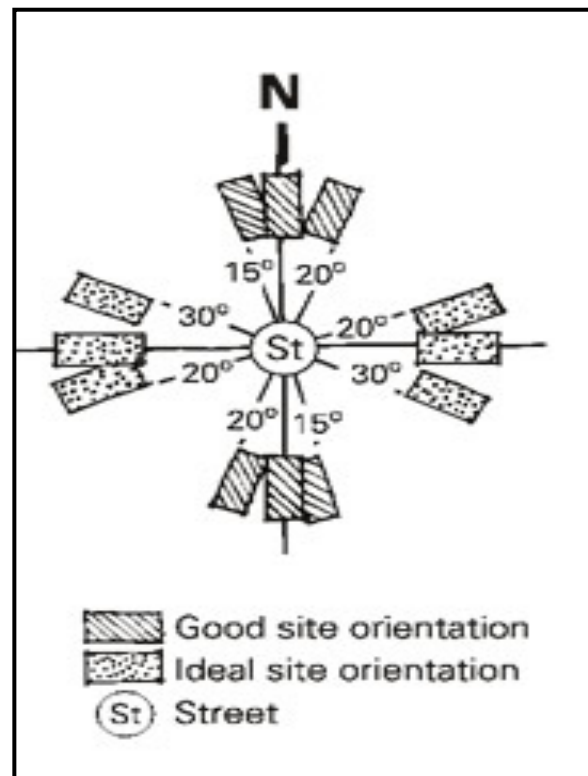
- Consider rainfall, strength of light during different times of year, the directional flow of cooling breezes and quality of the soil.

Choose a good site

- Ideally, a block sloping down to the north that can provide at least a 5.5m area to the north for a single story building, or 10m from a two storey building, to allow unimpeded access to the sun.

Room zoning

- Zone areas of similar use together so they can be closed off for efficient heating and cooling. Keep rooms that need hot water (bathroom, laundry, and kitchen) close together.
- Large open plan living area and high ceiling may look great, but can be costly in terms of heating and cooling.
- Try to ensure that long hallways can be closed off to minimize the heating bill and left open for ventilation in summer.



Flooring and walls

- Concrete and masonry walls provide thermal mass to absorb heat; they then release the heat slowly.
- Tiles on a concrete slab floor also enable the floor to store heat from windows in the winter.
- Timber-floored homes need less glass to heat the home in winter and carpet on the timber floors will provide extra insulation.
- Lightweight materials (timber, plasterboard) can help internally to allow rooms to heat up or cool down quickly, which is beneficial in tropical climates
- Ensure timber flooring is recycled or plantation timber.

Windows

- Largest windows on the north side of the house to maximise sunlight, but external shading for summer will be needed – trees, pergolas, eaves over the windows, internal curtains or blinds.
- Cross-ventilation is important for cooling.

- Windows on the east and west sides should be fairly small and shaded during summer.
- South-facing windows should also be kept reasonably small as they receive little winter sun.
- Window frames should maximise insulation - timber, vinyl and aluminium reduce heat loss.
- Specialised or double glazing on the glass will reduce heat transfer, minimise noise from outside and help insulate the house.

Skylights

- Can let in three times as much light as a vertical window of the same size.
- Double glazing and blinds can maximise insulation.
- Beneficial to have a vent to allow trapped heat to escape in summer.

Insulation

- In the roof, ceiling, walls and suspended floors can keep you up to seven degrees cooler in summer and ten degrees warmer in winter.

Lighting

- Make the most of natural lighting so you won't need as much internal lighting.
- Light coloured walls and ceilings reflect and maximise light.
- Use separate switches for lights so you can turn off those not needed.
- Use fluorescent tubes and compact fluorescent bulbs as much as possible.

Water

- Install rainwater tanks and recycle your water.
- Solar hot water systems produce no greenhouse gas emissions.

Energy

- Choose Green power or photovoltaic panels (solar panels).

Building materials

It is important to consider the impact of the material beyond its use in the home. Look at the energy required to extract, process and transport the material to the site, as well as the waste created. Embodied energy is the energy consumed in all the processes involved in taking the material from its natural state, processing it and getting it to the building site.

- *Wood* – beeswax polish, linseed oil or shellac.
- *Brickwork* – clay or lime plaster for walls, and lime mortar.
- *Flooring* – natural linoleum, cork or bamboo.
- *Countertops, floors and other surfaces* – stone, marble, slate or granite.

- *Paints and finishes* – plant-based rather than petroleum-based paints, and water-based rather than oil-based finishes.

Reducing embodied energy

- Design a house for long life and the ability to adapt easily.
- Use an energy efficient design that maximises passive solar features and minimises material usage.
- Use durable, low maintenance, recycled or locally sourced materials.
- Avoid wastage and recycle excess material by re-selling or selling to a recycler
- Choose materials made from renewable energy and ask suppliers about embodied energy in their products.

Garden design

- Consider fruit trees and garden patches when designing your home.
- Gardens soak up carbon dioxide and slow the effect of global warming, provide shade, allow rainwater to seep in to the soil and reduce stormwater run-off.
- Permaculture creates sustainable ecosystems that provide biodiversity and give back to the soil what is taken out.



Appliances and Household Goods

When buying new white goods, choose ones that have an energy ratings of at least three or four stars. A five or six star rating is best. All energy and greenhouse gas savings are worthwhile but the biggest savings you can make are in heating your home and hot water. There is plenty of heat out there already in the sun and the air, and modern technology is making it easier for you to harness it.

What information is on the label?

- Stars - the greater the number of stars, the more efficient the television is compared to other competitive models of the same screen size.
- Kilowatt hours (kWh) per year - (this is the appliance's estimated total electricity use over one year) the smaller the number; the more efficient the appliance is compared to other competitive models of the same size.
- Running cost - to calculate a rough cost of operating the appliance, multiply the energy consumption figure by 15 cents per kWh (note, actual electricity prices vary).
- Greenhouse gas emissions - to calculate a rough estimate of the emissions from your appliance, you can assume each kWh equates to 1kg of greenhouse gas emissions (note this varies according to where you live and your electricity supply contract).

Table 4. The following table is a comparison of greenhouse gases produced for major household services. (Source: CSIRO Home Energy Saving Handbook, 2009, p. 113)

		Bags of CO ₂ -e per year		
Cooking				
	Electric oven	3000		
	Gas oven	1000		
	Gas oven with pilot	2000		
	Electric cooktop	2500		
	Gas cooktop	1000		
	Gas cooktop with pilot	2500		
Home heating		Cool temperate	Warm temperate	Subtropical
	High efficiency wood stove	2000	500	100
	Open fireplace	17,000	4000	700
	Gas heater	29,000	6000	1000
	Reverse cycle air conditioner	36,000	6000	1000
	Electrical heating	110,000	18,000	3000
Home cooling				
	Reverse cycle air conditioners	1500	4000	9000
Hot water				

		Bags of CO ₂ -e per year		
	Electricity	44,000	29,000	22,000
	Gas	10,000	9000	7000
	Heat pump	14,000	9000	6000
	Solar with electricity boost	14,000	9000	3000
	Solar with gas boost	3400	2900	1000

Tips to improve sustainable living

Refrigerators and freezers

- Turn second fridge off when not needed
- Keep fridge in a cool position so it doesn't have to work as hard.
- Make sure there is plenty of air flow at the back (8cm gap) as well as air flow to the top and sides. Poor ventilation can add 15% to your energy costs
- Defrost whenever frost builds to 5mm thick in your freezer as ice provides insulation making the unit less efficient
- Don't open fridge door longer than you need to and make sure seals are clean and tight.



- Don't set the internal temperature too low; one degree change in temperature can consume more than 5% of extra energy. It should be at the middle setting most of the time.

- If you are going on holidays for more than a week, consider emptying and turning off the fridge to save electricity. Prop the door open so air can circulate.

Dishwashing

- Use dishwashers only when full and use economy cycle.
- Don't let it sit in standby mode; turn off main switch when the load is done.
- Scrape food off plates and clean the filter between each wash
- Use white vinegar as a rinse aid.
- Run the dishwasher at off peak times; it can lessen your electricity bill.

Clothes washing

- Wash full loads and use cold water as much as possible, rather than warm or hot.
- Adjust water level if doing small loads or use the 'suds saver' option.
- Use biodegradable detergents.
- Washing during off peak hours may reduce electricity bills.

Clothes drying

- Use clothes lines whenever possible, so avoid doing large loads on rainy days
- If you must use a dryer put a dry towel in with the load. It will soak up a lot of the water in the other clothes.
- Make sure clothes have been spun dried at top speed in the clothes washer to get all excess water before putting them in the dryer.
- Clean lint filter each use.
- Dry fabrics of the same weight together.
- If you dry one load after another it will make use of the heat already generated in the machine.
- Use cool-down and permanent press cycle, which uses residual heat in the dryer to finish off the load.
- Externally vent the dryer if possible, or open doors and windows so that moist air is removed and isn't recirculating in the dryer.

Home entertainment

- Choose those with energy stars and save up to 30% on your yearly household energy bills.
- Consider your use of Plasma screen televisions as they are huge greenhouse gas emitters.
- Get into the habit of turning electronics off at the power point.

One in four Australians buys a new television each year, and televisions are now the fourth largest electricity user in our homes after water heating, refrigeration and lighting. In the extreme, a large wide-screen TV can use more energy than a family-sized fridge each day or more energy than used by your dishwasher, clothes washer and dryer combined.

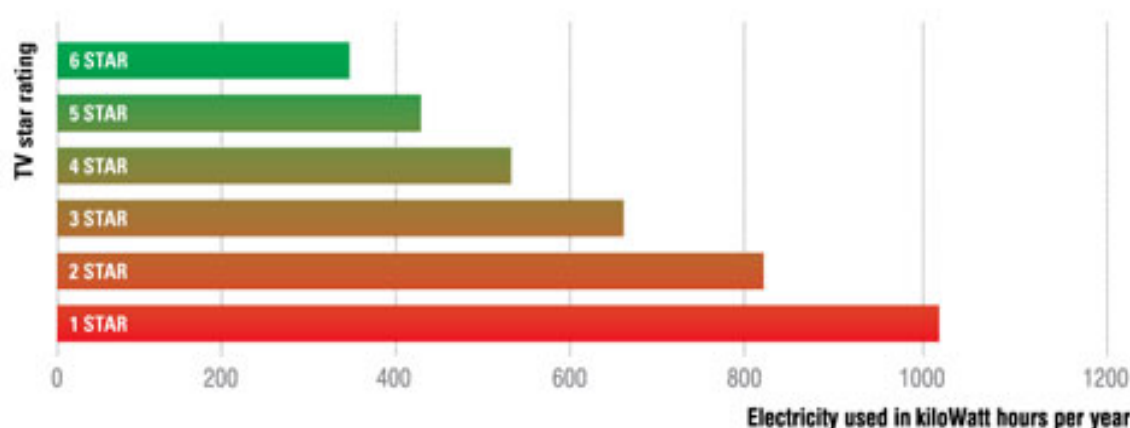
If these recent trends were to continue, television energy use will be more than double that of refrigerators by 2020. The Australian Government is introducing performance standards and energy rating labels for TVs and this will reverse that trend. In the future, televisions will use less energy while still delivering high overall performance with all the features we all value.

Most Australians are not aware of the large amount of energy consumed by wide-screen TVs and little reliable information is available to potential purchasers. Energy rating labels will change this situation by providing highly visible and reliable information on the energy efficiency of different TVs. This will allow us to choose more efficient TVs and provide an incentive to manufacturers to strive for energy performance improvements.

Minimum energy performance standards will set a fair benchmark for TVs and will lift the base performance of the whole market. TVs that do not meet the minimum standard will no longer be sold in Australia. This minimum standard does not remain static and will be increased in 2012, to take account of technology improvements in that time.

Minimum energy performance standards are already in place for home appliances such as fridges, freezers and air conditioners. They have been proven to improve the energy efficiency of these appliances over the long term, saving purchasers money through lower operating costs ([Department of Industry](#)).

An example of energy savings on 106cm/42inch TVs



Home office equipment

- Adjust sleep mode on your computer to about 5 minutes and shut down the computer when not in use. If it needs to stay on at least switch off the monitor.
- Consider buying a laptop as it is far more energy efficient and consumes less materials.
- LCD flat screen is more energy efficient than a standard cathode ray tube monitor.
- Reduce paper consumption by opting for recycled paper and using both sides of each sheet. Store documents electronically rather than printing.
- Turn off printer when not in use.
- Reduce fonts and margins of large documents to get more print per page.

Wooden furniture

- When purchasing new, ask about the source and whether it was sustainably forested.
- Choose products certified by the Forest Stewardship Council, or buy recycled or second hand.
- Design your own furniture and get it made by local craftsman.
- Beware of chemical toxic finishes; linseed oil and beeswax are better options.

For more information read: <http://www.care2.com/greenliving/top-5-household-tips-for-earth-day.html?page=2> . See also: http://www.rainforestrelief.org/What_to_Avoid_and_Alternatives/Rainforest_Wood.html

Harmful furniture

It's not always easy to enjoy a comfortable couch knowing that some of the stuff in it that makes it comfortable and safe may actually be harmful to me. There is growing evidence that halogenated flame retardants such as polybrominated diphenyl ethers (PBDE) often found in foam cushioning are harmful to humans and animals.

Take action for future furniture purchases

Ask the distributor or manufacturer what chemicals the furniture contains. Don't limit this to couches. It applies to mattresses, carpet padding and anything with polyurethane foam. If the distributor or manufacturer can't or won't provide this information, don't buy from them.

Shop around for "safer" furniture. PBDEs have been banned from furniture made in North America and Europe since 2004 so places which sell furniture from these areas should be free of most PDBEs (decaBDE, one of the PDBEs, is just beginning to be banned).

Favor solid wood products. Pressed wood and particleboard products can contain adhesives like formaldehyde (a known human carcinogen).

Favor products that use natural flame retardants like all-wool linings. If these are not available try products that use less toxic chemicals for flame retardants like phosphates.

Look for upholstered furniture with the foam cushion thickly covered or wrapped inside the upholstery. This will minimize the amount of dust that can escape from the foam.

Favor products with polyester, down, wool or cotton fill. See also:

http://www.craftaustralia.org.au/library/review.php?id=rodney_hayward_is_wood_important. The closest green guide to furniture shopping that Australia has is <http://ecodirectory.com.au/>. This site also has some useful information:

<http://www.homelife.com.au/shopping/buyers+guides/buyers+guide+to+sofas,6393>

But you could check out the UK site:

<http://www.ethicalconsumer.org/buyersguides/homegarden/furnitureshops.aspx>

Take action with existing furniture

Ask the furniture distributor or manufacturer about existing furniture you are concerned about. They may have answers to your questions.

Clean frequently. Over time, PBDEs are released from the products containing them which then tend to accumulate in dust in the surrounding environment.

Use a vacuum with a "HEPA" filter for carpets or a wet mop for hardwood and solid floors.

Increase ventilation as much as possible. Open doors and windows weather permitting.



What can you do?

You can find a wide range of styles of furniture on the market (and in flea markets and auctions), so avoiding furniture that causes environmental pollution during its production or that damages indoor air quality does not mean a limited choice or having to settle for “rustic” styles.

As with so much else today, you have the option of following older traditions that have little impact on the environment or choosing items made by new, clean production methods. Available furniture includes traditional handcrafted furniture, recycled furniture and that made with waste materials, new materials, aluminum and metal furniture, air-filled furniture, mass-produced panel furniture, and fireproofed furniture.

Furniture to look for

- Well-made, long-lasting furniture from local materials that can be repaired if necessary.
- Furniture made with naturally occurring materials that biodegrade safely.
- Furniture made from certified woods.
- Furniture made with wood or metal (aluminum) frames, which is fairly easy to repair.
- Materials that are solid rather than veneered, finished with traditional oils and waxes that can be renewed at home and improve with age and use.
- Used furniture or furniture made from recycled materials.
- Organic fabrics and natural padding and fillings.
- Soft furnishings that can be removed for washing.



Furniture to avoid

- Laminated finishes that are supersmooth; these will become damaged and look worse over time.
- Particleboard made with urea or formaldehyde glues.
- Furniture made from tropical hardwoods.
- Finishes that are high in VOCs* and other chemicals. (*volatile organic chemicals)
- Furniture made from PVC, nylon, and other petroleum-based plastics.
- Foam- and plastic-filled furniture.
- Upholstered furniture.
- Fireproofing that contains bromines, halogens, or formaldehyde.
- Stain-resistance treatments containing fluorocarbons, PFOs, or formaldehyde.

Read more: <http://www.care2.com/greenliving/eco-friendly-furniture.html#ixzz2QgZfWvcy> and at <http://www.care2.com/greenliving/protecting-yourself-from-your-furniture.html#ixzz2PTNhyGn7>

Personal care



Choose cruelty free

Seek out products that aren't tested on animals. A non-profit Australian group associated with Animal Liberation, called Choose Cruelty Free - <http://www.choosecrueltyfree.org.au/> - has surveyed all the main brands and provides a comprehensive list of those that they have verified do not test on animals. The list, which is regularly updated, can be downloaded from their website. It is not easy to determine what is 'organic' and what isn't because the regulations vary worldwide. If you are interested in Australia see also:

<http://aco.net.au/index.php/cosmetics> or [Saffron Rouge](#) or the Ecocert certification body for Australia: [http://www.ecocert.com/en/natural-and-organic-](http://www.ecocert.com/en/natural-and-organic-cosmetics)

[cosmetics](#) or see [New Directions Australia](#). Here you will find lists of certified organic ingredients. Some organisations will label something as organic if it contains only 10 percent organic products; others demand at least 95 percent.

Cosmetics and bathroom products

Almost all commercial bathroom products use ingredients that come from oil and other petrochemicals, which are by products of fossil fuel mining and are non-renewable. Some products also use small amounts of ingredients that are known to be carcinogenic and highly toxic in large doses.

The big baddie List

The following ingredients are commonly used in commercial skin and hair products and cosmetics. All of these big baddies are known as toxins, so be aware of them on ingredient lists and try to avoid those products and the companies that use them.

- **Sodium lauryl sulphate (SLS):**–
 - is a detergent with an effective foaming and degreasing action
 - it dries the skin, can cause rashes, hair loss and eye damage
 - watch out for sodium laureth sulphate (SLES) which has gone through a chemical process to make it less of an irritant
 - it can be found in shampoo, toothpaste, etc.
- **Formaldehyde**
 - Present in many cosmetics as a preservative

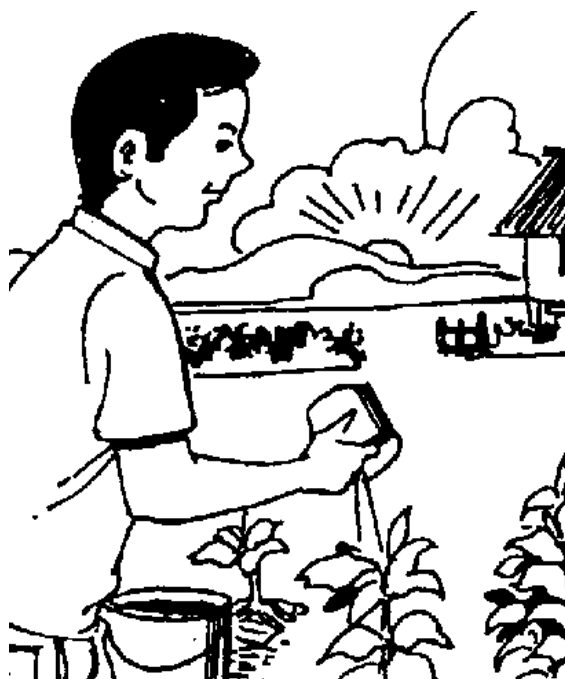
- It is a known human carcinogen and skin irritant
- Can be hard to recognise as it comes under a variety of names, including imidazolidinyl urea, diazolidinyl urea, 2-bromo-2-nitropropane-1, 3-diol, DMDM hydantoin, and quarternium 15.
- **Petrochemical products**
 - Often used because they are cheaper than natural products
 - Mineral oil is found in numerous cheap moisturisers and skin care products including baby oil, which is 100% mineral oil. It cannot be absorbed by the skin and actually forms a coating over the surface blocking the skin's natural function.
 - Petrolatum may cause drying and premature aging of the skin
 - Propylene glycol is known to cause cancer in rats and is a possible human carcinogen.
- **DEA, TEA and MEA**
 - These letters all stand for chemical compounds that are wetting agents in many creams and shampoos.
 - Known to cause allergic reactions, irritate skin and eyes, also linked to research with stomach, bladder and liver cancers
- **Artificial colours**
 - Many colouring agents are potential carcinogens, particularly D&C blue 6, D&C Green 1, D&C Reds 1 & 3, all of which are banned in many parts of the world. These dyes are derived from coal tar.
- **Aluminium**
 - Prevalent in commercial deodorants and cosmetics because it is effective at blocking pores and preventing the body from releasing toxins.
 - It may make you smell better, but it's not natural or healthy
 - Easily absorbed into the bloodstream and has a potential link with Alzheimer's and breast cancer.
 - Aluminium-free deodorants are just as effective and a much better alternative.
- **Synthetic fragrances**
 - Fragrances in commercial cosmetics don't need to be labelled separately and can simply be referred to as 'fragrance'. That one word may conceal up to 200 ingredients, many of which are petroleum-based.
 - Often cause allergic reactions, skin irritation and hyperpigmentation from cosmetics
 - 'Fragrance-free' may just mean chemicals have been added to mask the smell of the other chemicals.
 - Best option is to purchase products scented with essential oils.
- **Talc**
 - Comes from the same mineral group as asbestos
 - Blocks perspiration and doesn't allow the body to release toxins

- Linked to ovarian and testicular cancer
- Use alternatives such as cornstarch or arrowroot
- **Natural skin protectors**
 - Chamomile – a soothing herb that helps skin heal
 - Borage oil – good source of fatty acids, helps plump skin cells by improving their ability to absorb moisture
 - Calendula – natural anti-inflammatory that helps skin heal
 - Lecithin – soy bean extract that is a good natural moisturiser, though make sure it is organic and not derived from genetically engineered soy
 - Oatmeal – moisturises and soothes skin
 - Vitamin A – improves skin elasticity and thickness, helpful for acne-prone skin.
 - Vitamin C – good wound healer that fights free radicals that can damage skin, also promotes skin elasticity.
 - Vitamin E – antioxidant that helps fight sun and pollution damage, may also be called d-alpha tocopherol
- **Sustainable clothing shopping**
 - Do you really need, or just desire, that new piece of clothing?
 - Look for the 'Made in Australia' label or choose Fairtrade when purchasing products made overseas.
 - Choose organic cotton, hemp or wool when you can.
 - Opportunity shops, recycle shops and garage sales are great for guilt-free shopping.
 - Mend clothes instead of throwing them out or buying new ones.
 - Question sales people and companies regarding where and under what conditions their products were made.
 - Try to avoid the ubiquitous 'Made in China' label at least some of the time.



Gardening

There are many websites and books that will help you do some sustainable gardening and use pest control measures that use natural ingredients. For example, you can visit [The Gardening Australia Website](#). Or there are many other sites that you can search, some of which are supplied in the references at the end of this book. The following examples come from [Home Help 4U](#). Other sites you might enjoy are [The Reflective Gardener](#) and [Temperate Permaculture](#).



Common Australian garden pests & pest control

Aphids

Aphids are small (usually 1 – 4mm), soft-bodied insects that can be found on a wide range of garden plants, including roses, hibiscus, all citrus, impatiens and vegetables. Species range from yellow, to green to black. Aphids can stunt the growth of the plant, distort or wilt leaves, cause buds to drop, and can result in a poor flower and fruit yield. They are sap suckers, and will digest the plants' sap to create a sweet residue called honeydew. This sweet substance attracts ants, and ants will "farm" aphids in order to harvest the honeydew produced by these insects. They will "colonise" the plants' stems and leaves, growing in number. The ants will give the aphids protection, and will literally pick up and carry the aphids all over the plant. The honeydew residue the aphids produce can also be detrimental to the plant, as this encourages Sooty Mould (a dusty dark mould) to spread all over the plant. Eliminating the aphids from your plant will also get rid of the Sooty Mould.

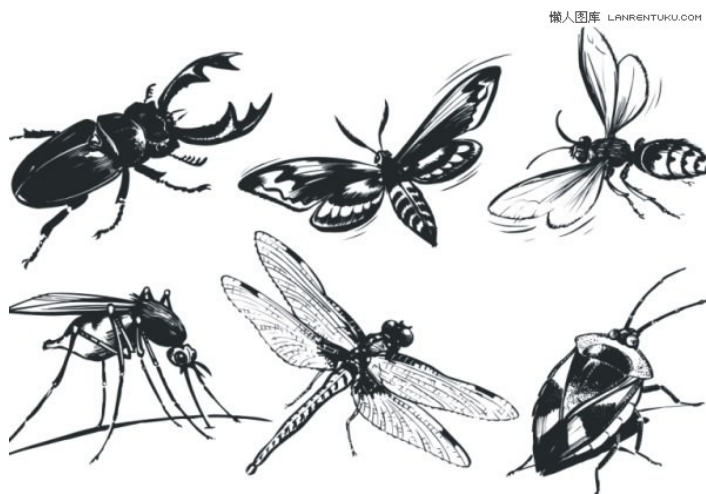
Control: There is a range of chemical treatments that you can get from your local garden centre or hardware store. Homemade remedies include a spray made from 100g of fresh garlic and/or chilli, crushed and fermented for 2 days in 2 tablespoons vegetable oil and 2 tablespoons of liquid soap or soap powder. Strain into a garden sprayer and dilute 1 part to 50 parts water. Garlic acts as a repellent to further aphid attack.

Blasting aphids with a jet of water from your garden hose also works; however this is only a temporary solution and needs to be repeated every 2-3 days.

Black Scale

Black Scale can usually be found on citrus plants, olive trees and vines. These small black insects cover the plants' leaves and stems. This can reach a level where they can stunt the growth of the plant, as the plant is denied the necessary sunlight it requires to grow. In addition to this, Black Scale will sap the nutrients from the plant, excreting the residue honeydew. Like the aphids, these sap suckers create honeydew, which attracts ants and Sooty Mould.

Control: For small amounts of Black Scale, you can get rid of this simply by brushing it off the stem or leaf with a toothbrush or knife. For larger infestations, spray the plant with a special treatment for this pest, or alternatively, you can spray oil on the plant which will suffocate the Black Scale within a few days. You can mix regular vegetable oil with liquid soap, dilute this with water and spray on your plants; however be sure not to spray oil during hot sunny weather, as this could end up burning the plants' leaves.



Mealy Bug

The Mealy Bug is another common garden pest, and favouring shade, can be found in sheltered spots in your garden, patio areas and even on indoor plants. Like the aphids and Black Scale, the Mealy Bug sucks the sap from the plant, causing it damage to health and growth. The plants' leaves will usually wilt and distort. Also like the other sap suckers, the Mealy Bug produces honeydew, which leads to the same conditions of ants harvesting from them, and Sooty Mould fungus. Again, eliminating the producer of the honeydew will help control the Sooty Mould.

Control: One sure way to eliminate this pest is to dab methylated spirits on them. This will dissolve their waxy coating, and they will dry out and die.

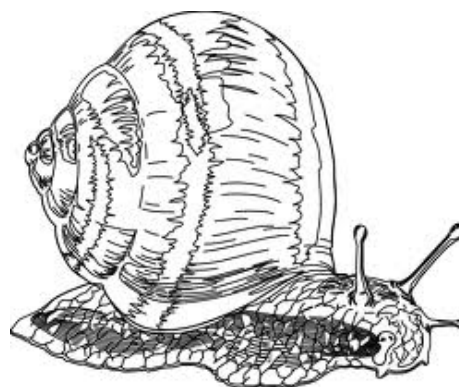
Citrus Leaf Miner

This pest targets all citrus plants (as the name suggests). The larvae burrow into the leaf, leaving silvery paths. Once grown, the larvae will curl the edges of the leaf together to help form the cocoon. Inside the cocoon, it will pupate into its final form as a small moth (roughly 5mm long). This pest distorts the leaves of the plant, which can stunt growth and reduce yield. It can be especially damaging to the tender new growth of the plant.

Control: Remove any leaves that are affected and show the silvery paths of Citrus Leaf Miner. You can also protect new growth by spraying the new growth with oil (again mixing vegetable oil with liquid soap will do the trick). As Citrus Leaf Miner prefers hot, sunny weather, you can avoid attacks to your new growth by planting your citrus plants during the autumn months.

Slugs and snails

These common garden pests can cause damage to young plants, seedlings, and vegetables. While they can be numerous (especially in damp areas of the garden), these pests are quite easy to handle.



Control: Slug pellets scattered beneath the plant will help keep slugs and snails at bay; however these pellets might be harmful for pets or children. You can also try the method of spraying salt-water on the plant (be careful not to overspray, as this could dry your plant out!), the salt will dehydrate the slug or snail, and they will die. Also, another clever way to eliminate this pest is to use a coffee spray. Mix one part espresso coffee (very strong - the stronger the better) to 10 parts water, and spray the plant and surrounding soil. This again will dehydrate and kill the pest.

Other solutions are:

1. Ammonia and water. Mix equal parts non-sudsing ammonia and water in a spray bottle. Visit the garden on a rainy morning or cool evening and spray the slugs as they feed. This technique is most effective on baby slugs, which thrive in the crowns of hostas and daylilies. As an added bonus, the ammonia converts to nitrogen and acts as a foliar food for the plants. (Note: Some ferns and seedlings may suffer leaf burn from this spray. Test on a single leaf first.)
2. Vinegar and water. Mix two parts vinegar and one part water in a spray bottle. Spray the mixture directly on slugs you see or as you find them under boards or in the crevices of rock gardens. Be careful not to let the spray come in contact with plant foliage.
3. Wood ashes. A ring of wood ashes from your fireplace will discourage slugs from climbing up the stems of plants. Sprinkle the ashes in a band a few inches wide, but don't let them actually touch the stem of the plant. Caution: If your soil is alkaline, as it is in many parts of the West and Southwest, avoid putting ashes on your soil or in your compost heap. They can raise the pH even higher.
4. A window screen. Cut an old window screen into long strips at least 6 inches wide. Sink the strips 3 inches into the soil so that a fence surrounds your most vulnerable plants.
5. Clay pots. Lure slugs away from your plants to where you can find and destroy them. Set out small clay flowerpots turned upside down and propped up on one side with a flat rock. These traps are attractive enough to use in container plantings.
6. Damp cardboard, rolled-up newspaper, grapefruit rinds or damp burlap. Position these materials around your garden to collect slugs. Gather the items each morning and destroy the slugs. Or move the slugs, "hotels" and all, to your compost pile.

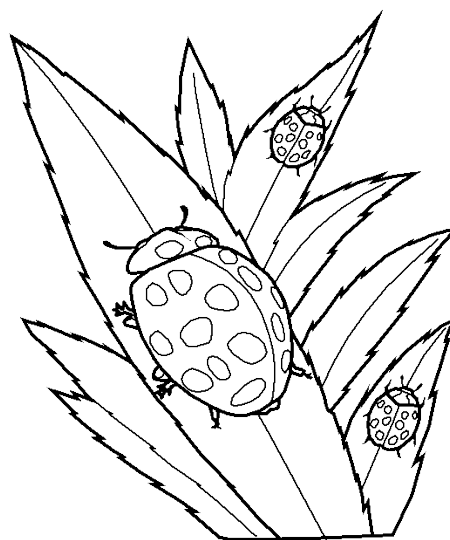
Read more: <http://www.care2.com/greenliving/6-ways-to-thwart-snails-and-slugs.html#ixzz2PTQ4iWxm>

For chronic pest problems, you can contact a professional gardener in your local area. They will be able to give your garden treatment against pests and mites, and allow your garden to recover.

Tips for non-toxic solutions in the garden

So often the home garden pest control remedies work as well or better than the chemical counterparts, and with the added bonus that with these formulas made of kitchen cupboard ingredients, you don't need to worry about poisoning yourself, your pets, or your garden!

[Care 2](#) has provided five standby remedies for yard and garden, including a natural fungicide for mildew and black spot. See also the [factsheets](#) provided by ABC's Gardening Australia.



Simple soap solution

2 Tbs. soap flakes

2 litre warm water

Dissolve soap flakes in water and apply directly to infested areas every 5-7 days. Note: Too much soap can cause burning on plants.

Pests affected: aphids, spider mites, and whiteflies.

Garlic oil spray

10-15 cloves of minced garlic

2 tsp. mineral oil

600 ml water

1 tsp. liquid dish soap

Soak garlic in mineral oil for 24 hours. Strain garlic out and add 600 ml water and 1 tsp. liquid dish soap. Mix thoroughly. Spray plants with this solution.

Pests affected: Aphids, spider mites, and whiteflies

Fungicide for mildew and black spot

1 tsp. baking soda

1 litre water

1 tsp. soap flakes

Dissolve baking soda in 1 litre of warm water.

Add soap flakes to help solution cling to leaves. Remove infected leaves from plant, then spray top and bottom of remaining leaf surfaces to control spread of the disease.

Sticky traps

1-2 Tbsp. Vaseline or preferably, Unpetroleum Jelly

4"x8" plastic cards or cardboard

Waterproof yellow paint

Apply paint onto both sides of the card and let it dry. Once the paint is dry, apply Unpetroleum Jelly liberally over both sides of the card. Place the card just above the plant canopy.

Pests controlled: Flying pests, such as fungus gnats, and whiteflies.

Note: if ants are carrying pests throughout your trees and shrubs you can place a ring of petroleum jelly around the trunk to prevent the ants climbing higher.

Nutrient deficiencies in plants

Nutritional deficiency in plants is common in Australia in a dry summer. One common nutrient deficiency is boron, and you can see it on a mangelwurzel by the splitting of its roots. Two other common nutritional deficiencies are magnesium and potassium.

Boron's role in plant nutrition is mysterious, but it aids the use of carbohydrates and the movement of water and nutrients. Boron is a micronutrient, otherwise known as a trace element, and only small amounts are needed for plant health. It's an Australia wide problem, but it's particularly bad in south eastern Queensland and especially bad where vegetables are intensively grown on compost starved soils.

To make a simple boron solution get some borax powder - and 4 grams, a pinch, in 4.5 litres of water is all you need. Mix it in. That will treat 4 square metres of garden bed. It will last for three years. Never use any more than that, because too much can be as bad as too little.

Mottling on the leaves of plants is an indication of magnesium deficiency, which is really common in Australia. It affects a range of plants including gardenias, rhododendrons, azaleas, camellias, roses and citrus. The solution is to get some Epsom salts. Take half a litre of water, and put in half a teaspoon of Epsom salts, then shake and stir. Either water it on plants or you can foliar spray it.

The importance of adding magnesium is that it's chlorophyll food. Chlorophyll is necessary for plants to produce energy, so it's a simple solution to a common problem.

A potassium deficiency will show up as yellowing leaves. Potassium deficiency can affect just about anything, anywhere during the warm seasons. The effects are very widespread. It affects the metabolism of the plant's sap flow, the formation and the flavour of fruit. Potassium is sold as potash, in a soluble form. Use half a teaspoonful in 4.5 litres of water, stir that thoroughly and apply it at the roots. Do this during the warm seasons - so three times a year for this tree, such as a lemon tree.

Environmental escaping our

It is often surprising to people garden plants are starting to environmental weeds. As a contact your local Landcare more about the garden plants environment and causing

The following table provides a of plants that you may have in possible alternatives to use.



weeds – gardens

that many of our favourite cause concern as responsible gardener, Association to find out that are escaping into the problems.

brief example of the sorts your garden and the

Table 5. Plants to use and plants to avoid in your garden

Growth form	Plants to avoid	Suggested alternatives – local native (LN) or native (N)	Chatacteristics
Trees	Chinese celtis <i>Celtis sinensis</i>	Red cedar (N) <i>Toona australis</i>	Large spreading deciduous tree to 20m (frost-tender when young); coppery new foliage.
	Jacaranda <i>Jacaranda mimosaeifolia</i>	White cedar (N) <i>Melia azedarach</i>	Attractive deciduous tree (10m) with lilac flowers and yellow berries.
Shrubs	Cotoneaster <i>Cotoneaster spp.</i>	Willow myrtle (N) <i>Agonis flexuosa</i>	A small (to 8m) weeping tree with fine willowy foliage and small white flowers clustered along stems.
	Plumbago	Hovea (LN) <i>Hovea lanceolata</i>	Small to medium shrub with olive-green foliage and purple pea flowers.
Vines	Cat's claw creeper <i>Macfadyena unguis-cati</i>	Wonga vine (N) <i>Pandorea pandorana</i>	Fast-growing climber with shiny green foliage and creamy-white flowers often with reddish throats.
	Morning glory <i>Ipomea indica</i>	Native sarsaparilla (LN) <i>Hardenbergia violacea</i>	Hardy twining plants, useful as ground cover; clusters of purple pea flowers.
Groundcover	Blue periwinkle <i>Vinca major</i>	Native violet (N) <i>Viola hederacea</i>	An excellent spreading ground cover for moist shady spots; small round leaves, white and purple flowers.
	Lippia <i>Phyla canescens</i>	Native pennyroyal (LN) <i>Mentha saturoides</i>	Low growing herb, lovely to walk on as crushed leaves smell fresh and minty.

Source: Cambooya Landcare Group <http://cambooya.darling-downs-landcare.org.au/cambooya/>

Composting

Hot composting

By creating conditions where microorganisms thrive, hot composting generates significant amounts of heat—enough, in fact, to warm a shower with compost or even cook on your compost heap.

Hot composting is not rocket science, and it doesn't require expensive equipment or capital outlay. But it does need some careful attention, and the ability to gather significant amounts of the right kinds of biomass.

You need to mix significantly more carbon-rich, woody “brown” materials with smaller amounts of nitrogen rich “greens” (kitchen scraps, lawn clippings etc). How exact you want to be is up to you, but the correct ratio is about 25 parts carbon to 1 part nitrogen. (For the truly geeky, a friend of mine has even created an iPhone app to help you maintain compost ratios!)

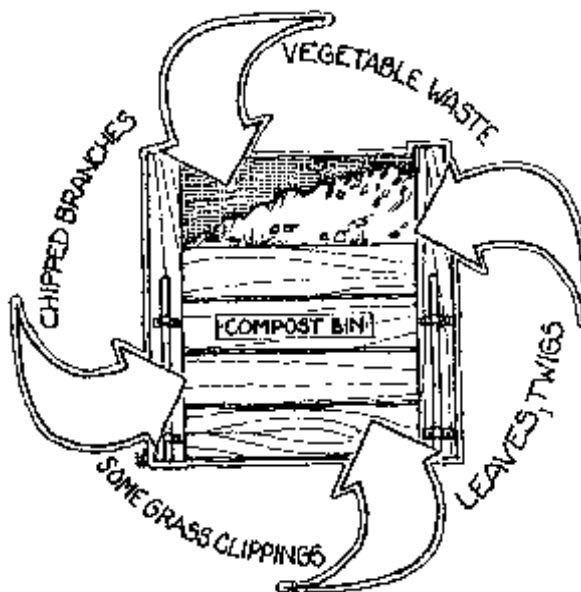
You will also need to spend some time turning the heap every few weeks.

While managing these hot compost bins in his community garden, fellow TreeHugger Chris Tackett found that communication is as important as building the heap itself:

“The challenge with composting in a community garden smack dab in the middle of a neighborhood is getting everyone informed about the process and where things like food scraps and grass clippings should go.

“With the “hot” bins, I wanted to layer them with the right mix of browns and greens and then let them process and break down before adding loads of new material, so we're trying some signage to explain which bins are ‘active’ and where extra browns and vegetable peelings should go.”

With a really hot heap, in the right conditions, you may achieve usable results in just a few months. (Source: [Care 2](#)) See also the [factsheet](#) from Gardening Australia.



Cold Composting

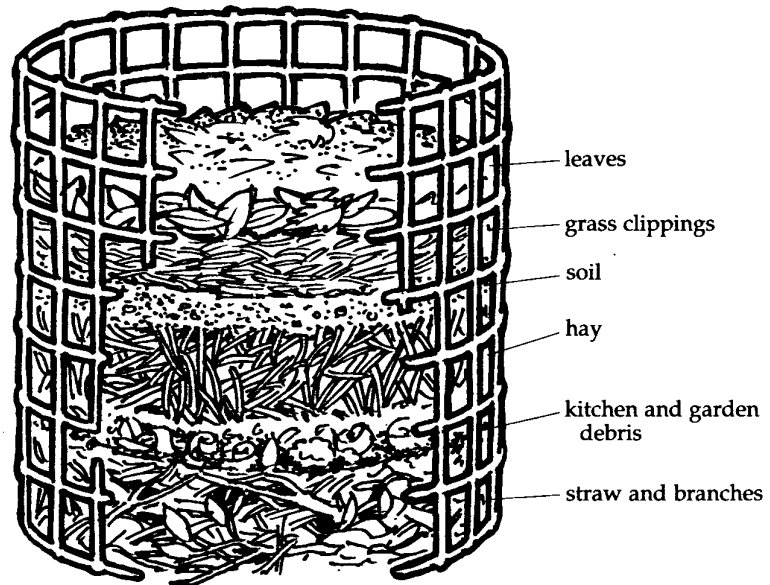
Cold composting is much less-labor intensive, but considerably slower than hot composting methods. Composting bins, or piles, are simply filled up as compostable materials become available. Compost can be harvested gradually as it becomes ready by digging from the bottom of the heap. (This is much easier with a commercial composter like the one pictured here, or a custom-built one that also allows access to the base.)

Alternatively, you can build up one cold compost heap or bin over a season, and then let it sit while you start filling up the next. In my experience it can take up to a year, using this method, to achieve good, usable compost.

It's worth noting that cold composting will be unlikely to kill weed seeds or plant diseases, so it is worth being careful about what you put in your bin. On the other hand, however, I have heard some permaculture enthusiasts argue that a cold heap will have more beneficial microorganisms that can actually live outside of the composting environment. (I am skeptical about this claim. Even hot heaps cool down and go through a secondary, cooler decomposition.)

Because cold composting doesn't involve turning the pile, getting enough oxygen to avoid anaerobic decomposition (and the slime and smell that goes with it) can be tricky. One of the best methods is to simply add plenty of scrunched up newspaper, cardboard and other high-fiber, carbon-rich materials in with your kitchen scraps and other waste.

Cold composting is great for folks who may not generate huge amounts of organic waste at any one time, or those who simply don't have the time, energy or interest for more involved methods. But be prepared to wait if you want to use the end result.



Compost pile

(Source: [Care 2](#)) Read more from Gardening Australia:

<http://www.abc.net.au/gardening/stories/s2102513.htm> Read more:

<http://www.care2.com/greenliving/8-ways-to-compost.html#ixzz2PTCaB8af>

Indoor composting

Yes, composting is awesome, and everyone says we should do it. What almost no one talks about is the fact that compost stinks (literally), making it an unwelcome addition to the close quarters of most apartment and/or city dwellers. Not willing to be "that guy" in the building with the buckets of rotting food on the porch, we resign ourselves to trashing our organic waste.

But wait! A big pile of leaves, eggshells and decomposing food isn't the only way to compost. That kind of composting is best suited for the outdoors, preferably far from the domicile so you don't have to smell it aging in the breeze. In fact, there are lots of handy little containers and gadgets specifically designed for those living in a small, urban environment. Here are two examples:

The compost pail is as simple as it gets. A compost bin that can sit on (or under) your counter until the contents can be transferred to an outdoor pile or composter. PRO: it has a snap-lock lid and easy-to-replace carbon filters to eliminate food odors. CON: The actual composting has to happen somewhere else. But if you have a friend with an active compost pile, or a municipal compost collection service, this is the perfect temporary storage bin. There are many varieties available for about \$20.

Countertop Compost Pail



Indoor composter

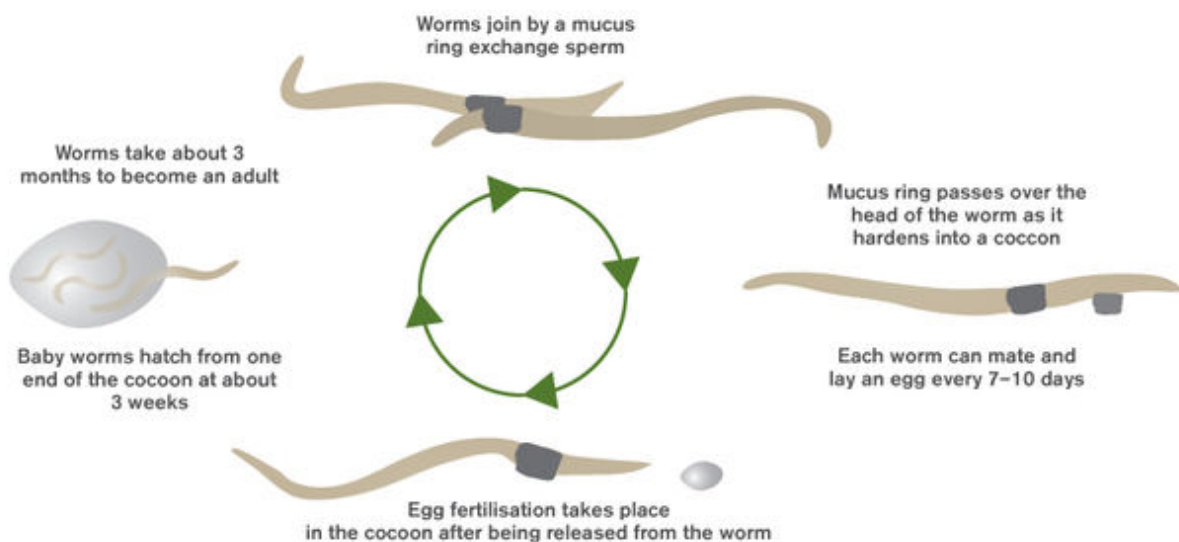


The All seasons indoor composter is the first non-electric system designed to be used indoors. This composter ferments and pickles your food waste in less than half the time of conventional composting methods without nasty odors thanks to anaerobic digestion. The SCD Probiotics' composter (pictured above) includes All Seasons Bokashi, a naturally fermented bran that is essential for successful for composting. The system uses beneficial microbes in the bokashi to ferment organic waste (even cheese and meat!) as it accumulates in the composting bucket. PRO: The bucket fits easily under most kitchen sinks, so it is convenient to access – right when you need it. The lid seals in odors and keeps pests out. A built in spigot allows you to drain off the nutrient rich leachate. CON: You have to maintain it and it requires a constant supply of bokashi. Costs about \$40.

Read more: <http://www.care2.com/causes/3-gadgets-for-easy-less-stinky-indoor-composting.html#ixzz2PTHZWcNL>

Worms

See the [Gardening Australia](#) Fact sheet on building a worm farm. Worms are a welcome addition to the garden.



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