

Climate change and waste



Did you know?

- By sending organic waste (food scraps and garden trimmings) to landfill we are burying matter that will potentially decompose without oxygen to produce methane.
- Methane is a greenhouse gas (GHG) over 20 times more powerful than carbon dioxide.
- In 2006, Australia produced 16.6 million tonnes of carbon dioxide equivalent GHG from solid waste alone, which was 3 per cent of the total GHG emissions recorded.
- If we practice a 'reduce, reuse, recycle' philosophy, we can decrease the greenhouse gas emissions from material extraction, transport, manufacturing, distribution and disposal.
- Each year in Australia, recycling saves the equivalent GHG emissions as taking 1.8 million passenger cars off the road.

About climate change

Article 1 of the UN Framework Convention on Climate Change (UNFCCC) defines climate change as: "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods". In simpler terms, climate change is a change in the world's climate.

What causes climate change?

The earth is surrounded by a blanket of gases called the atmosphere which enables life on earth by trapping the sun's energy and heat reflected from the earth. This keeps our climate at a liveable temperature. The fine balance of gases allows heat to be slowly released while additional heat is absorbed. This is called the greenhouse effect.

Scientists link the increase of greenhouse gases (GHG) in our atmosphere to the sudden increases in temperature in our environment, which we call global warming.

Methane

When organic waste is sent to landfill, often it is placed in an anaerobic environment (without oxygen) because the waste is buried with dirt and/or clay. When waste breaks down in these anaerobic environments, with the help of specialized micro organisms, it produces methane gas. Methane is a potent greenhouse gas that is over 20 times more powerful than CO₂ – that is to say, it is 20 times more able to retain heat in the atmosphere, and will stay in the atmosphere for 100 to 150 years.

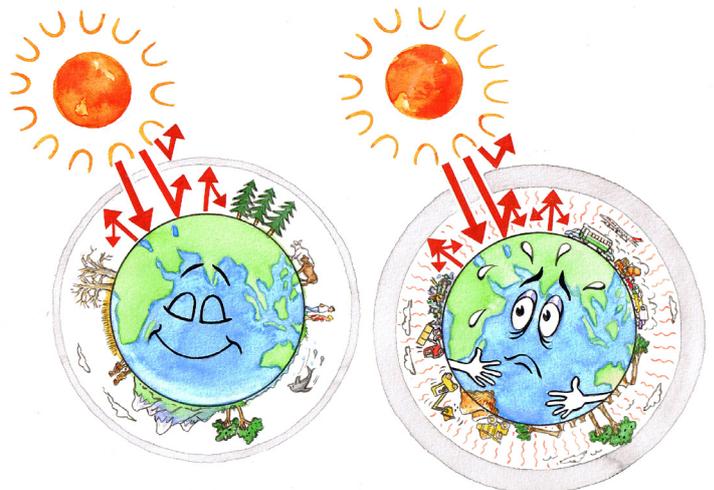
Methane can be generated and released from a landfill over many years due to the fact that organic waste will break down at different rates in the landfill. For example, in landfill sites excavated in America, scientists have found 40 year old readable newspapers, 15 year

old steaks with meat and fat still on the bone, and 60 year old carrot tops. Since not all organic waste breaks down immediately after disposal, methane can be emitted from a landfill site for many years.

CO₂ and consumption

For thousands of years carbon dioxide (CO₂) levels in the atmosphere were consistently between 260 and 280 parts per million (ppm). During the industrial revolution human activity accelerated, therefore releasing the stored carbon from the earth by cutting down trees, burning coal and producing excessive amounts of CO₂, with levels of 380ppm.

Our consumption of resources has continued to accelerate through the increased use of transportation, and the manufacturing and distribution of materials. Therefore CO₂ has built up in the atmosphere and caused an imbalance in heat absorption and release from the atmosphere. As a result more heat is trapped and the global temperature has increased by 0.8 degrees over the past century.



Green House Effect

Enhanced Green House Effect

Being Waste Wise about climate change — how waste habits affect climate change

Consumption

We live in a world where we are regularly encouraged to consume. We see shopping as 'retail therapy' and we often buy more than we need. By discouraging the belief that owning the newest products is necessary to make us happy we can stop buying things we don't need and make a big difference to how much waste we produce and reduce our contribution to GHG emissions.

Reduce

By reducing what we buy, we directly reduce our waste production and greenhouse gas emissions because less transport, industrial processes, agriculture and land-use are needed. In schools you can reduce the amount of paper and cardboard ending up in landfill by using class sets of books, mini whiteboards, outdoor classrooms, electronic newsletters and encouraging frugality of use. You can also reduce the amount of waste by holding a Zero Waste Lunch. <http://www.wastewise.wa.gov.au/resources/index.html>

Reuse

By reusing items instead of throwing them out, we prevent waste going to landfill and avoid any greenhouse gas production from transport and

recycling. In your classroom you can reuse paper by making notebooks with scrap paper or even making your own paper. You can also reuse organic waste in the form of mulch on the school garden. Schools can also reuse items and involve members of the community by collecting them for charities, fundraising, or create a reuse collection point for art projects.

Recycle

Although the recycling process includes transport and processing which still requires energy, by setting up a school recycling program you can prevent waste going to landfill and therefore reducing greenhouse gases. You can organise a paper recycling company to collect paper and cardboard once it had been used on both sides or use it for setting up and feeding your worm farm. A worm farm is also an excellent way to recycle organic waste by chopping it up into small pieces for food for the worms. Organic waste can also be fed to chickens, or used in compost.

There are many other things we can do as individuals and in our schools to reduce our greenhouse gas emissions such as conserving energy, water and other natural resources. You can find out more on the Australian Greenhouse Office Website www.greenhouse.gov.au

Sources

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Websites

Statistics for Greenhouse gas emissions see the Australian Greenhouse Office website:
www.greenhouse.gov.au
Mind maps explaining the science and possible solutions of climate change:
www.live-the-solution.com/mindmaps/
National State of the Environment Report 2006:
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