Part 1: Introduction

This document will help you build a snapshot of your school's greenhouse gas production. It will also help you identify areas where savings could be made.

In small groups, you'll audit several different areas of your school for:

- ENERGY USE — because the main producer of greenhouse gas is burning coal (carbon) to generate electricity (producing carbon dioxide);
- WATER USE — because it takes energy to get water to your school; and
- WASTE PRODUCTION — because landfill creates greenhouse gases, and wastes resources that required energy to be made and transported.

Your audit is for a period of one hour.

Assume any electrical items you find turned on are on for the whole hour.

For some data you'll need to: find and question school staff members, such as grounds staff; or access areas normally out of bounds, to read meters.

To calculate greenhouse gas amounts, look up appliances' wattage. This may be found on a sticker on the appliance, online, or using average power figures.

fluorescent light	117 W
radiator	2000 W
fan	80 W
air conditioner (reverse cycle)	3500 W
air conditioner (evaporative)	500 W
computer	150 W (running) or 7 W (standby)

Part 2: Data collection

Divide the class into three groups to collect data.

The table below identifies areas around your school that you may survey. You may use the following forms to collect data, or you may design your own.

	GROUP 1 ENERGY USE	GROUP 2 WATER USE	GROUP 3 WASTE PRODUCTION and METERS
areas to audit	standard classroom science classroom specialist classroom (e g manual arts) computer lab library gym administration area	toilet changing room science lab art room swimming pool oval grounds	classrooms recess areas canteen electricity meter gas meter water meter

Part 3: Interpretation and Actions

Combine your findings, as a class.

Discuss where and how savings of greenhouse gas emissions can be made.

ENERGY USE (ELECTRICITY)

Date: ..... Team: ..... Area/Room: .....

ELECTRICAL APPLIANCE	DESCRIPTION type and number turned on	POWER USE (W) look for sticker on appliance or use average figures	ENERGY USED IN ONE HOUR (kW h) (wattage / 1000) x number turned on
lights			
heaters			
fans			
air conditioning			
computers			
Add other appliances below, e g televisions, interactive whiteboards, fridges, freezers, cookers, microwaves, food processors, lathes, kilns, power tools, aquaria …			
Total electricity used in one hour (add up last column):			kW h
Total tonnes of greenhouse gas produced per hour (total kW h x 0.936):			t

An average of 0.936 t of greenhouse gas is generated per kW h of conventionally generated electricity (non-renewable sources) used in Perth.

ENERGY USE (BUILDING CHARACTERISTICS)

Date: ..... Team: ..... Area/Room: .....

This section gathers information that affects the amount of energy used to cool and heat buildings.

Room temperature: ..... (23 °C is ideal)

Outside temperature: .....

Today's weather: .....

Draw a sketch of the room or area to show its approximate size, orientation, position of windows, and any type of shade (blinds, eaves, trees …).

Are there any other passive cooling or heating mechanisms?

Are there any open windows and/or doors?

WATER USE

Date: ..... Team: ..... Area/Room: .....

ROOM bathrooms, classrooms and general areas	NUMBER OF TAPS	NUMBER OF LEAKING TAPS	TIME TAPS ARE RUN in audit period	ESTIMATED VOLUME OF WATER USED

Hot water use

ROOM bathrooms, classrooms and general areas	DOES ROOM NEED HOT WATER?	IS HOT WATER ON DEMAND OR STORED?	SIZE OF STORAGE TANK	

Water fountains

Flow rate: high / low Is water wasted because flow rate's too high?

Other water use

What other rooms in the school use water or have a water supply? How is it used?

Grounds water use

Where is water used in the school grounds?

Grounds water method3

sprinklers or hoses? manual or automatic reticulation? drip feed watering, or spray?

What is the reticulation schedule? How long and how often is water run for?

Swimming pools

How often and how much water is used when pool is topped up?

Calculate water loss rate, per day, from pool (top up amount / number of days between top ups).

WASTE PRODUCTION

Date: ..... Team: ..... Area/Room: .....

Please note: DO NOT put your hand into a bin where you cannot see what you are touching.

LOCATION & TYPE general waste, recycling etc	DESCRIPTION OF CONTENTS	HOW FULL IS BIN?	WHAT % OF CONTENTS COULD BE REUSED?	WHAT % OF CONTENTS COULD BE RECYCLED?	WHAT % OF CONTENTS COULD BE COMPOSTED?

METER READINGS

Date: ..... Team: ..... Area/Room: .....

ELECTRICITY METER	
A. First reading Time: ..... Date:	
B. Second reading Time: Date:	
interval between readings (hours, days …)	
amount of electricity used per day (units)	
cost of electricity used at 30c per unit	
WATER METER	
A. First reading Time: Date:	
B. Second reading Time: Date:	
interval between readings (hours, days …)	
amount of water used per day (kL)	
cost of water used at $1.80 per kL	
GAS METER	
A. First reading Time: Date:	
B. Second reading Time: Date:	
interval between readings (hours, days …)	
amount of gas used per day (units)	
cost of gas used at 12c per unit	

DATA COMPILATION

A. Total power use for ordinary classrooms Exclude computer labs and other technology filled rooms.	kW h
B. Number of ordinary classrooms audited	
C. Average power use for a classroom (A / B)	kW h
D. Number of classrooms in school	
E. Total classroom energy use (C x D)	kW h
F. Total classroom greenhouse gas emissions (0.936 x E)	t

Highest water use areas:

Highest waste production areas:

Other parts of school, not audited, that use energy, water or generate waste (e g lawn mowers, ovens, pool pump …):

ACTIONS

Areas/rooms identified where action could reduce energy, water consumption or waste production.

(e g passive cooling or heating mechanisms such as shading windows or walls, insulation, sustainable electricity production, solar hot water, toilets fitted with dual flush, heaters to be replaced, timer controlled switches for downtime, reduction in grassed areas, low water use planting, LED lights …)

1.
2.
3.
4.
5.
6.
7.

Best action ideas that require little or no cost to carry out:

1.
2.
3.
4.

Best action ideas that require a considerable outlay ($1000s):

1.
2.
3.
4.

Potential sources of money to fund projects

1. Government grants, any available now?
2. Partner with local businesses such as:
3.
4.