

2008 Year 8 Aussie Biodiversity Test (1)



Class size 30 students, representing 19 different schools around Sydney.

What is biodiversity ?

A – Variability among living organisms and the ecological environment of which they are a part. 15 Correct, 15 Incorrect

How can bio-diversity be preserved ?

A – Conserve, or maintain the environment which sustains the original variability of living organisms. Keeping indigenous plants is the basis for sustaining indigenous animals. 9 Correct, 21 Incorrect

Students were then asked to identify indigenous plants from representative samples of bark, leaves, fruit, flowers, seed, or photographs. Actual species are noted in *italics*. These plant families are (or were) significant species in the Homebush-Strathfield area, prior to white settlement in 1788. These 20 species chosen are samples of our 2,000 indigenous Sydney plant species.

Herb/Flower - Can identify Warrigul Spinach ? (<i>Tetragonia Tetragonioides</i>)	0 Yes	30 No
Creeper - Can identify Wonga-wonga vine ? (<i>Pandorea pandorana</i>)	0 Yes	30 No
Creeper - Can identify Hardenbergia ? (<i>Hardenbergia volacea</i>)	0 Yes	30 No
Sedge - Can identify Juncus ? (<i>Juncus usitatus</i>)	0 Yes	30 No
Sedge - Can identify Isolepsis ? (<i>Isolepsis Nodosa</i>)	0 Yes	30 No
Grass - Can identify Kangaroo Grass ? (<i>Themeda australis</i>)	0 Yes	30 No
Grass - Can identify Poa ? (<i>Poa laberladerie</i>)	0 Yes	30 No
Shrub - Can identify Tick Bush ? (<i>Kunzea ambigua</i>)	0 Yes	30 No
Shrub - Can identify Indigofera ? (<i>Indigofera australis</i>)	0 Yes	30 No
Bush - Can identify a Dodonea ? (<i>Dodonea triquetra</i>)	0 Yes	30 No
Bush - Can identify Blackthorn ? (<i>Bursaria spinosa</i>)	0 Yes	30 No
Shrub - Can identify Kerrawang (<i>Rulingia dasyphylla</i>)	0 Yes	30 No
Bush - Can identify a tea-tree ? (<i>Leptospermum polygalifolium</i>)	0 Yes	30 No
Tree - Can identify a Bottle-brush ? (<i>Callistemon rigidus</i>)	0 Yes	30 No
Tree - Can identify a Grevillea ? (<i>Grevillea longifolia</i>)	0 Yes	30 No
Tree - Can identify a Paperbark ? (<i>Melaleuca thymifolia</i>)	0 Yes	30 No
Tree - Can identify a Paperbark ? (<i>Melaleuca linearfolia</i>)	0 Yes	30 No
Tree - Can identify a Wattle ? (<i>Acacia decurrens</i>)	0 Yes	30 No
Tree - Can identify a Wattle ? (<i>Acacia falcata</i>)	0 Yes	30 No
Tree - Can identify a Wattle ? (<i>Acacia longifolia</i>)	0 Yes	30 No
Tree - Can identify a Eucalypt ? (<i>Eucalyptus Sideroxylon</i>)	17 Yes	13 No

Score 17 / 630

Food - How many plants mentioned above can provide food for humans ?

A – Kangaroo Grass, Warrigul Spinach, Dodonea, Acacia, Grevillea, Bottlebrush, Leptospermum

0 Correct 30 Incorrect

Water - What is the annual rainfall of the Homebush – Lidcombe area and its wettest season ?

A – About 900mm, wettest season is autumn, driest is winter.

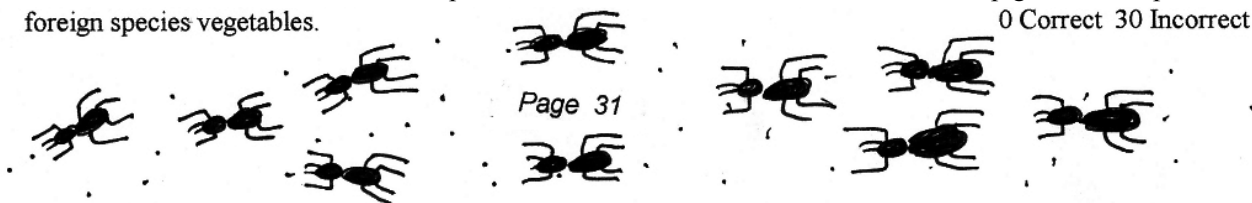
7 Correct 23 Incorrect

Soils - What is the soil type of the Homebush - Lidcombe area ?

A – Clay, Wianamatta Shale (soft rock formed by clays), and sandstone outcrops

4 Correct 26 Incorrect

Worms or Ants ? - Which animal helps propagate and promote native plant growth more, and is also indicative of a healthy native plant environment ? A – Ants ! Ants help pollinate Australian plants, and take seeds from many plants into their underground nests. After a bushfire, these underground seeds will sprout. Worms are more common in the wetter Northern Hemisphere soils, but have been cultivated here to help grow our important foreign species vegetables. 0 Correct 30 Incorrect



2008 Year 8 Aussie Biodiversity Test (2)

What are the names of your favourite plants ?

INDIGENOUS :	FOREIGN	NO ANSWER
6 Eucalypt	7 Roses	5
1 Wattle	4 Lavendar	
1 Diannella longifolia	2 Orchids	Score 10 / 30
1 Waratah	2 Daisies	
1 Bottlebrush		

Results :

Bio-diversity x Local plant x Enthusiasm for => Future Aussie
 Understanding knowledge local plants Bio-diversity

$$\frac{15}{30} \times \frac{17}{630} \times \frac{10}{30} \Rightarrow$$

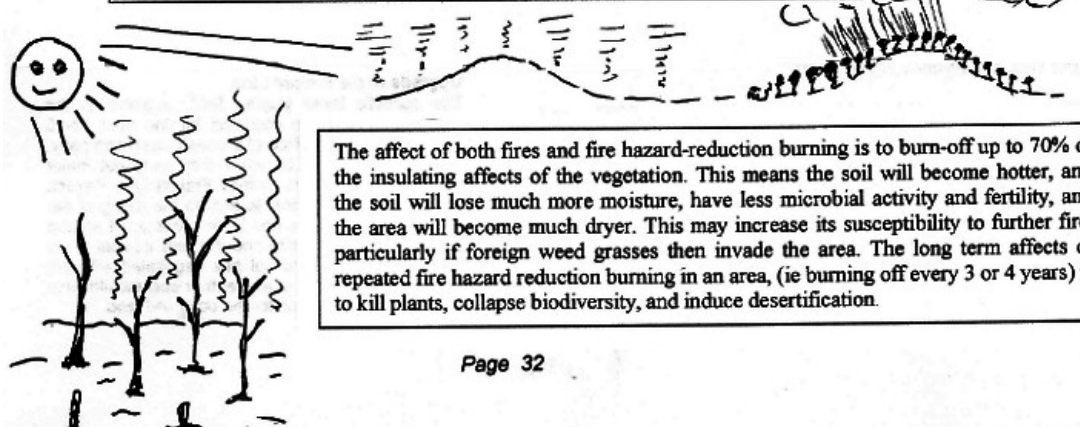


Sydney has about 2,000 plant species, while the whole of the United Kingdom has only 1,600 species. What business opportunities might abound for those students that might investigate and research our native species that grow so well here, without the need for any fertilizers or additional watering ?

What seven worthwhile actions can students do, to reduce Global Warming ?

1. Educate your parents and others, about the causes of Global Warming, and how it is resulting in rising temperatures, adversely affecting our rainfall distribution, and agricultural production.
2. Turn off your computer, TV, air-conditioning, and lights and other appliances, when you are not using them. Avoid using or buying products that require excessive amounts of coal-fired electricity or clean water, in (1) their manufacture, (2) their use, or (3) their disposal.
3. If your hot water service is powered by coal-generated electricity, minimize your time having a hot water shower ! Suggest to your parents (or strata) that a solar hot water heater be installed.
4. If your house has coal-generated electricity, minimize your use of air-conditioning. Use fans rather than energy intensive air-conditioners. Try planting trees near your house or unit. The shade of a tree can provide a 12^o C cooling factor in the hot summer months !
5. Need to go somewhere ? Tell your parents you can walk, cycle, or take public transport.
6. Where appropriate, why not help revegetate your neighbourhood, preferably with some of Sydney's 2,000 indigenous plants ? Vegetation produces oxygen, and absorbs carbon dioxide.
7. The problem of global warming is the result of too many humans requiring the use of polluting energy sources, polluting manufacturing processes, and land-clearing for agricultural crops and human housing. Students should try to work out and promote a "sustainable" population target.

Vegetation is a key regulator of the earth's climate. The temperature and micro climate under tree and scrub cover can be as much as 12^o C less than direct sunlight. This provides a huge insulation affect to the soil, which enables the soil to retain more moisture, and therefore microbial activity, and fertility. Vegetation cover also reduces the wind speed, which further reduces moisture loss from the soil. By being insulated and cooler, vegetated areas tend to attract low pressure weather systems, and increased local rainfall, in comparison to cleared areas.



The affect of both fires and fire hazard-reduction burning is to burn-off up to 70% of the insulating affects of the vegetation. This means the soil will become hotter, and the soil will lose much more moisture, have less microbial activity and fertility, and the area will become much dryer. This may increase its susceptibility to further fire, particularly if foreign weed grasses then invade the area. The long term affects of repeated fire hazard reduction burning in an area, (ie burning off every 3 or 4 years) is to kill plants, collapse biodiversity, and induce desertification.