



CARBON FOOTPRINT

Name: _____

School: _____

Tour: _____



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Studies show that human activity is causing major changes to Earth's climate. Leaders in environmentalism share a sense of responsibility towards preventing further global climate change and improving the overall state of the environment. These leaders are innovative thinkers who dedicate themselves to preserving the planet. The lessons and activities in this worksheet are designed to encourage your development as an environmental leader.

Step 1: Understanding

On your journey to become a responsible global citizen, you should consider the opportunity to make a difference in the world, no matter how big or small. You may think the actions of one person will not make an impact, so you aren't motivated to change. If you have thought this at one time or another, you are not alone. Many people decide not to worry about the consequences of their actions because they are convinced that it wouldn't make a difference anyway. Imagine if every individual in every country thought this way. What are the effects of this perspective? How would our world be different?

As you ponder these questions, consider one important topic: the emission of carbon dioxide and its effect on our planet. Carbon dioxide is one of the most important greenhouse gases. Greenhouse gases are so named because they contribute to the "greenhouse effect," a natural phenomenon whereby energy from the sun is trapped in the earth's atmosphere as heat. The greenhouse effect plays an important role in regulating the earth's temperature; however, as the concentration of greenhouse gases in our atmosphere continues to rise, the greenhouse effect will cause excess heat to be retained. This will inevitably alter the earth's fragile climate. In fact, we can already see evidence of climate change in the melting of glaciers and polar ice, the rising of the mean sea level,

and the increase in frequency of extreme weather and natural disasters. If the global climate change trend continues, these changes in the environment may alter the Earth forever.

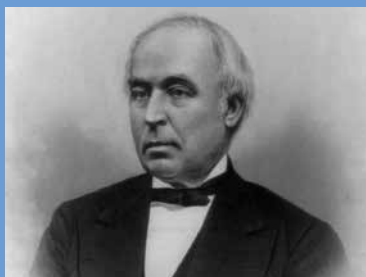
One way to help fight this trend is to be aware of your own carbon footprint. Your carbon footprint is the impact your activities have on the environment, particularly the climate change. This figure is usually expressed in equivalent tons of carbon dioxide (CO₂). Whether you realise it or not, you are constantly engaged in activities throughout the day that contribute to your carbon footprint.





Step 2: Awareness

Producing some level of CO₂ is inevitable, but as a responsible world citizen you should make a conscious effort to reduce your own carbon footprint. You can do this by taking part in activities and making decisions that require less carbon dioxide. A simple choice like using cold water instead of hot water to wash clothes reduces your carbon footprint which, in turn, decreases the greenhouse gas effect on global climate change. If everyone made minor adjustments to their daily life, there would be a measurable difference in the global climate change trend.



“Nobody made a greater mistake than he who did nothing because he could only do a little.”

– Edmund Burke



Calculate an estimate of your carbon footprint. You may need to ask for help with some general information.

Calculation:

- ___ A = Average monthly electric bill x 105
- ___ B = Average monthly gas bill x 105
- ___ C = Average monthly oil bill x 113
- ___ D = Total yearly gas mileage x 0.79
(AAA estimates the average American travels 12,000 miles per year)
- ___ E = Number of flights per year that are 4 hours or less x 1,100
- ___ F = Number of flights per year that are 4 hours or more x 4,400
- ___ G = Do you recycle newspaper?
Yes = 0, No = 184
- ___ H = Do you recycle aluminum and tin?
Yes = 0, No = 166

Equation:

A + B + C + D + E + F + G + H = _____ Your Carbon Footprint

My carbon footprint is: (circle one)	
Below 6000	Excellent
Between 6000 - 15,999	Great
Between 16,000 - 21,999	Average
Over 22,000	Needs Work

Notes:



Step 3: Action

Now that you have estimated your carbon footprint, you have been charged with the responsibility of reducing it. Take a look at the several suggestions below to help you. Highlight or circle at least three actions that you can try to implement in your daily routine for at least two weeks. All these actions, multiplied by everyone's efforts, can really add up!

ACTION	HOW TO DO IT	WHY IT HELPS
Avoid using air conditioner	Go without air conditioning in the car. Stay cooler by finding a shady parking spot, opening the windows, or using sun shades. At home, open windows to let in natural air instead of turning on the AC.	Air conditioning puts enormous demands on the electrical system. In Australia, most electricity is produced by burning coal. Air conditioning contributes to dirty air, acid rain, and global climate change.
Carpool	Take turns driving with your neighbors and friends. Carpooling makes a lot of sense when you're going to and from school, after-school practices, or out-of-town tournaments.	Vehicles are responsible for one-third of the carbon dioxide emitted into the atmosphere, contributing to global climate change.
Buy local or at a farmers market	At the grocery store, read the signs to see where your fruits and vegetables come from. If they're coming from halfway across the world, try shopping at a farmers market instead.	Most of our food is carried on large hauling trucks that release a lot of carbon dioxide. It's better for the environment to eat foods grown nearby that require no long distance shipping.
Eat organic	Choose to eat organic food during one meal of the day.	Organic agriculture uses less energy than other farming methods and reduces carbon dioxide emissions.
Drink fewer carbonated drinks	Choose to drink water, tea, or juice instead of soft drinks.	Carbonated drinks aren't great for the environment. They contain high amounts of sugar which requires a lot of water to make.
Wash clothes in cold water	Instead of washing your laundry in hot or warm water, use cold water.	Heating water takes energy, and a top-loading washing machine uses about 160 liters (42 gallons) of water per load.
Turn off your television and unplug other electronics	Unplug things like your television, mobile phone charger, computer, DVD player, or anything else that has a transformer (a black box around the plug or on the cord). Turn off your computer monitor or get a black screensaver.	This will save energy since electronics still use a small amount of power even when you switch them off.
Switch to a Vegetarian Diet	Choose one day a week to forgo meat entirely, electing for healthy vegetarian options instead.	Cutting out meat from your diet has significant environmental consequences. Livestock farming is a huge source of greenhouse gas emissions, accounting for nearly 20% of all emissions related to human activity.
Drink tap water instead of bottled water	Buy a reusable water bottle that you can take with you when you need water on-the-go. Fill it up with tap water at home or at a public water fountain.	Plastic bottles are needlessly wasteful. Bottled water is often no different in quality from publicly available tap water, and the cost of transporting and cooling the bottles requires burning fossil fuels. *Fun fact: in 2009, the Australian town of Bundanoon became famous for being the first community to ban bottled water from all of its stores!



Write down the actions you implemented in your daily life over a two-week period. Don't forget to record dates so you don't skip a day.

WEEK ONE	DESCRIPTION	WEEK TWO	DESCRIPTION
MONDAY		MONDAY	
TUESDAY		TUESDAY	
WEDNESDAY		WEDNESDAY	
THURSDAY		THURSDAY	
FRIDAY		FRIDAY	
SATURDAY		SATURDAY	
SUNDAY		SUNDAY	



Are you curious about national carbon footprints? Check out this information!

2013 Data

Rank	Country	Annual CO ₂ emissions (in thousands of metric tons)	Percentage of global total
	World	29,321,302	100%
1	China	6,583,367	22.30%
2	United States	5,838,381	19.91%
3	India	1,612,362	5.50%
4	Russia	1,537,357	5.24%
5	Japan	1,254,543	4.28%
6	Germany	787,936	2.69%
7	Canada	557,340	1.90%
8	UK	539,617	1.84%
9	South Korea	503,321	1.72%
10	Iran	495,987	1.69%
11	Mexico	471,459	1.61%
12	Italy	456,428	1.56%
13	South Africa	433,527	1.48%
14	Saudi Arabia	402,450	1.37%
15	Indonesia	397,143	1.35%
16	Australia	374,045	1.28%
17	France	371,757	1.27%
18	Brazil	368,317	1.26%
19	Spain	359,260	1.23%
20	Ukraine	317,537	1.08%



Given the information provided here, make a prediction: where do you think Australia currently ranks? (Hint, it's in the top 20!) Now go online and search for a report that reflects Australia's current CO₂ emission levels. How close were you? How does Australia compare to the country you are visiting?



2016 Data

Rank	Country	Percentage of global total
1	China	28.21%
2	United States	15.99%
3	India	6.24%
4	Russia	4.53%
5	Japan	3.67%
6	Germany	2.23%
7	Korea	1.75%
8	Iran	1.72%
9	Canada	1.71%
10	Saudi Arabia	1.56%

Step 4: Comparison

The chart on the left shows the largest producers of CO₂ emissions worldwide in 2016, based on their share of global CO₂ emissions. As we can see, the emissions of the world's top-10 carbon emitting countries account for nearly 70% of total emissions in 2016.

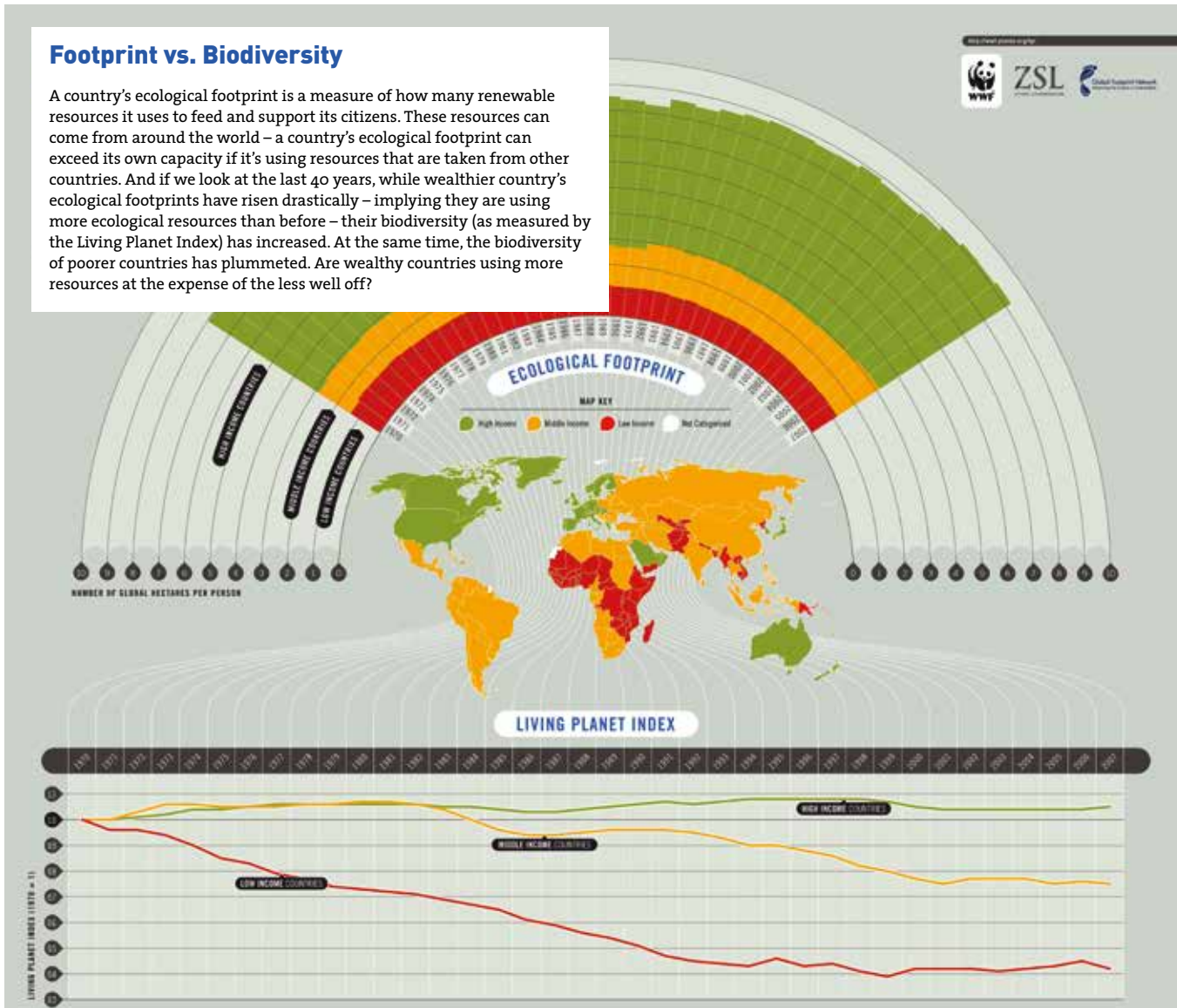


Why should we care about our country's level of CO₂ emission?
What will happen in 5, 10, 20, or 100 years if we continue at the present rate?



Footprint vs. Biodiversity

A country's ecological footprint is a measure of how many renewable resources it uses to feed and support its citizens. These resources can come from around the world – a country's ecological footprint can exceed its own capacity if it's using resources that are taken from other countries. And if we look at the last 40 years, while wealthier country's ecological footprints have risen drastically – implying they are using more ecological resources than before – their biodiversity (as measured by the Living Planet Index) has increased. At the same time, the biodiversity of poorer countries has plummeted. Are wealthy countries using more resources at the expense of the less well off?



Country Categorisation

High Income: Andorra, Antigua and Barbuda, Australia, Austria, Bahamas, Bahrain, Barbados, Belgium, Bermuda, Brunei Darussalam, Canada, Cayman Islands, Channel Islands, Cyprus, Denmark, Equatorial Guinea, Finland, French Polynesia, Germany, Greece, Guam, Hungary, Iceland, Ireland, Isle of Man, Israel, Italy, Japan, Republic of Korea, Kuwait, Liechtenstein, Luxembourg, Malta, Monaco, Netherlands, Netherlands Antilles, New Caledonia, New Zealand, Norway, Oman, Portugal, Puerto Rico, Qatar, San Marino, Saudi Arabia, Singapore, Spain, Sweden, Switzerland, Trinidad and Tobago, United Kingdom, United States, US Virgin Islands.

Middle Income: Albania, Algeria, American Samoa, Angola, Argentina, Belize, Bhutan, Bolivia, Brazil, Bulgaria, Cameroon, Cape Verde, Chile, China, Colombia, Congo, Costa Rica, Cuba, Djibouti, Dominica, Dominican Republic, Ecuador, El Salvador, Gabon, Grenada, Guatemala, Guyana, Honduras, India, Indonesia, Islamic Republic of Iran, Iraq, Jamaica, Jordan, Kiribati, Lebanon, Libyan Arab Jamahiriya, Malaysia, Maldives, Mauritius, Mayotte, Mexico, Mongolia, Morocco, Namibia, Nicaragua, Panama, Paraguay, Peru, Philippines, Poland, Romania, Saint Lucia, Saint Vincent and Grenadines, Samoa, Seychelles, South Africa, Sri Lanka, Sudan, Suriname, Syrian Arab Republic, Thailand, Timor-Leste, Tonga, Tunisia, Turkey, Uruguay, Vanuatu, Bolivarian Republic of Venezuela.

Low Income: Afghanistan, Benin, Burkina Faso, Burundi, Côte d'Ivoire, Cambodia, Central African Republic, Chad, Comoros, Democratic Republic of Congo, Gambia, Ghana, Guinea, Guinea-Bissau, Haiti, Kenya, Democratic People's Republic of Korea, Liberia, Madagascar, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Nigeria, Pakistan, Papua New Guinea, Senegal, Sierra Leone, Solomon Islands, Somalia, Togo, Uganda, Vietnam, Yemen, Zimbabwe.



Step 5: Challenge

Ranking 16th out of the world’s top 20 carbon-emitting nations, Australia has recognised the need to make a renewed commitment to curbing nationwide CO2 emissions. To aid in this effort, the government has selected you to be the head of the CO2 emission level reduction team. You must devise an effective six-word motto that will show that Australia is engaged with worldwide efforts

to reduce CO2 emissions. Use the information graphics on the left page to research what an ecological footprint is and view the comparison between different nations.

Step 6: Make a Motto

Australia is only one country. Let’s think globally. See what other countries’ efforts have been, and think about what specific measures all are taking to fight this global dilemma. What are our governments doing differently to monitor

emission levels and control the ecological footprints of our countries?

Now, create a six-word motto that captures the goal to reduce the carbon footprint in this moment. Your goal is to solicit “statements of value” for a place in need of renewed focus. The fate of the world rests in your hands and we need a motto that will unite and bring us together for this one goal: to reduce the world’s carbon footprint.



Notes:

As global citizens, it is important that we remain informed about the environmental policies being implemented both at home and around the world. This issue is inherently global: after all, the environmental behaviours of even one country can have worldwide consequences. In the landmark Paris Agreement of 2015, 195 nations (including Australia) signed their commitment to curb greenhouse gas emissions. It is imperative that this spirit of cooperation continue if we are to adequately address the environmental challenges facing our nation and our world.