



SCIENCE, TECHNOLOGY AND THE ENVIRONMENT

# WHY THE FUSS ABOUT FRACKING?

## WEIGH THE PROS AND CONS

1. Using the information in the article and your own thinking, what are some of the reasons for and against natural gas hydraulic fracturing? Give specific details to back up each point.

Reasons for	Reasons against
<ul style="list-style-type: none"> <li>- natural gas...lower emissions than oil</li> <li>- horizontal well...more options</li> <li>- clean energy for next 100 years</li> <li>- hundreds of thousands of jobs</li> <li>- can be used for extracting oil</li> <li>- method occurs well below water table</li> <li>- chemicals used are deemed safe</li> <li>- abide by government regulations</li> <li>- cheaper fuels</li> <li>- less dependent on imported sources</li> </ul>	<ul style="list-style-type: none"> <li>- chemicals and high pressure...good?</li> <li>- escapement of methane gas...where?</li> <li>- impact on water supply,drinking water?</li> <li>- seep into ground water? lakes/rivers?</li> <li>- amount of water used? wastewater!</li> <li>- contain arsenic and radiation...health?</li> <li>- fumes and smell in community</li> <li>- regulated by provincial governments</li> <li>- small earthquakes</li> </ul>

2. After completing the organizer, answer the following: *Are you more in favour of or more opposed to natural gas fracking? Give reasons to support your response.*

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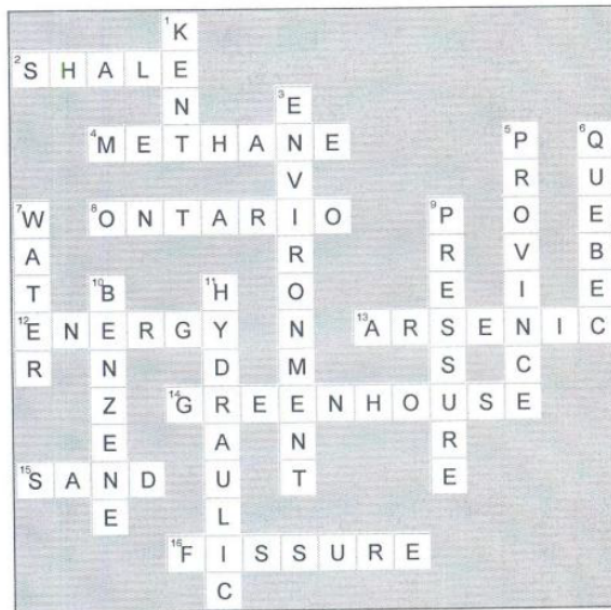
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## CROSSWORD PUZZLE SOLUTION...



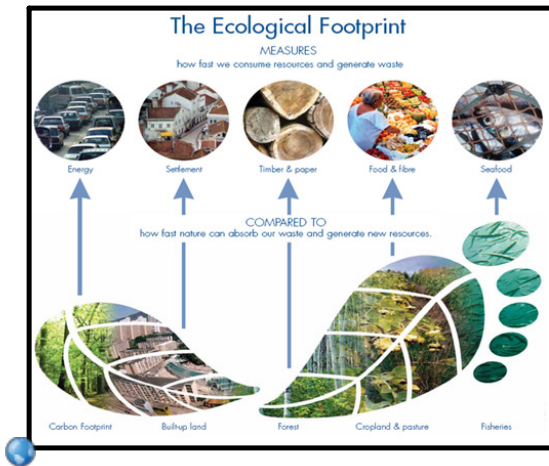
## *UNIT 1 - An Overview of Environmental Science*

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- *The Issues*
- *Population Growth and Resource Limitations*
- *Researching Current Environmental Issues*

## What is your ecological footprint?

How many planets would we need if everyone lived like you? An **ecological footprint** measures the total amount of land and resources used, it includes your **carbon footprint** but goes further. Find out your **ecological footprint** by answering questions about your lifestyle. See how your choices affect the environment and whether you are living beyond the capacity of the planet.



Ecological footprints allow people to visualize the impacts of their consumption patterns and activities on ecosystems.

An average world citizen has ecological footprint equivalent to 2.3 hectares or 5.6 acres while the biologically productive land available is only 1.9 hectares per person.

The average resident of the United States lives at a consumption level that requires 9.7 hectares of bioproductive land. If everyone in the world adopted a North American lifestyle, we'd need about four more planets to support us all.

# Our Class Footprint...

**YOUR ECOLOGICAL FOOTPRINT**

Many activities impact our Footprint. If everyone lived like you, we'd need **4.6** Planet Earths to provide enough resources.

An average person living in Ontario needs 3.58 Planet Earths.

Here is how your Ecological Footprint breaks down

**Food (22%)**

- Food
- Shelter
- Mobility
- Goods
- Services

To support your lifestyle, it takes **9.8** global hectares of the Earth's productive area.

(18.5 tons of CO<sub>2</sub>)

Category	Percentage
Energy land	51.2%
Crop land	16.9%
Grazing land	16.1%
Forest land	14.1%
Built-up land	0.8%
Fishing grounds	0.8%

Can you reduce your Ecological Footprint?

- edit your footprint** - go back and retake parts of the quiz
- explore scenarios** - explore simple actions to change your Footprint
- save and exit** - continue without exploring

# Determining your 'Ecological Footprint'

<http://www.footprintnetwork.org/en/index.php/GFN/page/calculators/>



Let's do one together...

**YOUR PERSONAL ECOLOGICAL FOOTPRINT** print results

Congratulations on completing the first step to reducing your Ecological Footprint.  
 Your Ecological Footprint is: **6.6** global hectares  
 Your current consumption requires an area of productive land equivalent to **8.1** Canadian football fields.

Category	Value (Global Hectares)
Your Footprint	6.6
Calgary Average	8.6
Canadian Average	5.8

The imagineCalgary objective is to reduce Calgary's Ecological Footprint 30% by 2036.  
 Your Ecological Footprint based upon your consumption: (hover over each section for additional information):

**Services (34%)**

- Food
- Shelter
- Mobility
- Goods
- Services

Some ideas to reduce your Footprint – follow the "take action" link below for detailed suggestions:

**Energy (70% of Calgary's Footprint):**

- Reduce your household energy use – turn down your thermostat when not occupied and at night, use energy efficient bulbs and replace appliances with Energy Star® rated models, add insulation and draft proofing.
- Use public transit, carpool, ride a bike or walk. Keep tires properly inflated, have your vehicle properly tuned and avoid idling.

**Local Foods:**

- In season, purchase locally grown foods that require less transportation and processing to get products to market.

**Goods:**

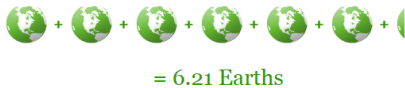
- Reduce consumption of one-time use products. Purchase re-usable products when possible. Avoid products that produce excess waste. Purchase goods that are made locally to reduce their transportation Footprint.

[edit footprint](#)    go back and retake parts of the quiz

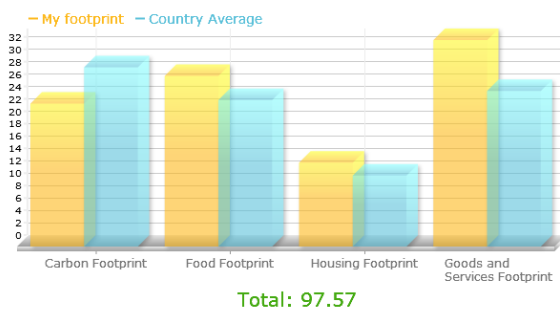
[take action](#)    Return to Calgary.ca/ footprint to find out what you can do to take action to reduce your footprint

## My Ecological Footprint - Quiz Results

If everyone on the planet lived my lifestyle, we would need:



## MY FOOTPRINT IN GLOBAL HECTARES BY CONSUMPTION CATEGORY



## MY FOOTPRINT SHARE BY BIOME

