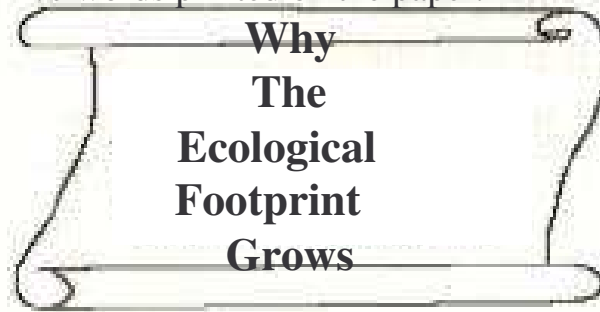


Making Our Way

The parchment had broken into two pieces. Kieran held the larger of the two, the smaller rested on the ground at his feet. Heather and Piper peeked over Kieran's shoulder and read the five words printed on the paper.



"Great! More confusing clues! As if we weren't confused enough already," Heather sighed. "Anybody got any ideas on this one? I thought Chronos said there were five tasks on this page, but this is just a meaningless sentence."

"I don't see five tasks," Kieran agreed, nodding his head slowly.

"No, I don't either. Kieran, give me a piece of paper from your journal. I want to play with the words a little bit. Maybe seeing them in front of me will help me think better."

Heather thanked Kieran as he handed her his book. Piper and Kieran stood silently thinking as she sketched. Heather drew footprints, more footprints and still more footprints—larger and larger on the page, but it didn't seem to help.

Piper tossed pebble after pebble into the creek, watching the ripples spread from the middle to the bank, trying to count the circles as they grew. The sun rose higher in the sky and the wind waved through the tall grass as they puzzled over the strange words. Terian licked his paws, his eyes shut. Arial appeared to be made of stone.

Only her bright eyes showed that she remained alert. Marina crawled slowly from the cool water of the creek to bask on the shore.

"Let's look at it again." Heather held the paper tightly. "Why the Ecological Footprint Grows . . . Well, I think it grows because more and more people are living on Earth, so we are using up more and more of the Earth's resources. So then, more land, water and energy are necessary to keep our lives the same."

"Sure, that's true, but that's not a task, Heather," Piper answered her. "Maybe we need to look at the clue differently. Remember how we looked at our footprints differently? Not as real footprints but as Ecological Footprints. Maybe it's something like that. Maybe there is a clue in the words themselves. Like a word puzzle. What do you call them? An anagram. . . no, a cryptogram . . . Oh, I always get them confused." Her voice trailed off into silence.

"Bingo! You've done it again, Piper!" burst out Kieran.

"Look! The first letter of each word is capitalized and I think I know what it means. Here, let's spread out the scroll again. I want to compare the scroll and this clue. That's right, get a few pebbles and small sticks to help hold the pages down."

"W, T, E, F, G. That doesn't make any sense to me. It's not a word, Kieran," Heather frowned.

W  T  E  F  G 

"No, Heather, but look at the scroll. Of course! It's so easy when you know what to look for! The W stands for water. The T stands for transportation, the E for energy, the F for food and the G for garbage." Kieran pointed excitedly to the labelled branches of the tree on the scroll. Ariel called out suddenly and Terian opened his eyes and stretched.

"I'll take that as a sign that we are on the right track again. Chronos must want us to complete a task about each of these things. Then we can learn more about our Ecological Footprint, and how to reduce it. That must be it! But what are the tasks?" The three friends stared at each other.

"Maybe the answer will be found in the third clue. Let's look around and see if we can find that other piece of parchment," suggested Piper.

The three friends began a careful search of the immediate area, hoping that the wind had left the third clue close to the second. This time it was Heather who found the missing parchment, almost totally hidden under last year's leaves. A muddy shoe print lay across the corner of it. "Look at this. We almost wiped out our clue with our shoes. Look, it's damp from lying on the ground."

"Here, Kieran, you read it. Be careful, it looks as though it's ready to fall apart!" The tiny scrap of paper contained the following words:



"I think I kind of understand the first part," Piper chimed in quickly. "First, we have to look at all the things that make up our footprint: water, transportation, energy, food and garbage. We must be observant, and check a variety of sources. Second, we have to listen—to information and people. Be a good listener, and determine what information is important. And then we will learn about all five things: water, transportation, energy, food and garbage. That's really what you do when you look and listen: you learn."

Heather and Kieran nodded their heads in agreement. Heather continued, "I think the other part of the clue means that we have to do something about what we learn, instead of just reacting to the problems. If we study our footprints we can make a better choice about the actions we should take. Think first. Like learning to buy stuff that isn't over packaged, instead of trying to recycle the package later on."

"That makes sense, Heather," added Piper, "but we forget about **DOING** the action part. We only **THINK** about it. You know, like when we were all going to help cut down on the paper going into the blue box at school. How many of us actually remembered to use the paper out of the blue box for rough work? My teacher always says you have to do more than just think about something; you have to get active and **DO IT!**"

S46 She paused and looked around.

"Oh, look! I think Arial, Terian and Marina agree with our ideas."

Arial was calling from the limb of the tree, while Terian growled his agreement and Marina was up from her slumber and moving towards the three friends.

"Yes, I can think of a lot of things we should learn to act on, instead of reacting to. Mom is always telling me to think about how much energy it uses when we drive the car to the store instead of walking. If I act now by walking more often, then we may have some fossil fuels left by the time I get my licence. Then we can all use my car to go to school," Heather enthused.

Piper couldn't help but giggle at this. "I think that your idea needs more of the 'Look, Listen and Learn' approach, Heather. Aren't we supposed to think about how we get to school in the first place? Like maybe biking or walking or taking a bus? Gee, Heather, maybe you won't need that licence after all. Think of the money you could save!"

"I think we should cut this conversation short and get to work! We don't have a lot of time left, and we've got to look at our footprints and figure out just how large they really are! Remember our voyage? Solana is waiting!" Kieran turned to a new page in his journal.

All right.
**LET'S DO
IT!**

QUESTIONS

EcoGuardians' 5th Chronicle

Making Our Way

Discuss the following questions and record your answers:

1. What are the five letters written on the parchment? What do they mean?

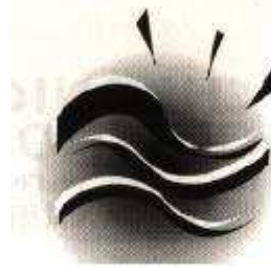
2. Consider the five areas that make up your student footprint. Under each of the areas, list things or items that you do every day that contribute to your Ecological Footprint.

3. With regard to the environment, explain what you think the clue "Look Listen and Learn, Then Act, Don't React" means.

4. Give your own environmental example of acting, not reacting.

Walking Lightly CORE ACTIVITIES

Water Activity



1. GRAPHING

Create a line graph or pictorial graph by plotting the following on a horizontal line: baths and showers, flushing toilet, washing face and hands, getting a drink and brushing your teeth. Estimate the amount of water you think you will use in one week. Fill in the line graph in red.



YOUR ESTIMATED INDIVIDUAL WATER USE

baths/showers • flushing toilet • washing face and hands • getting a drink • brushing teeth

2. SURVEY

Take the two water use surveys home, and hang them where everyone in the house can see them. Over one week, have everyone in the family (that's you too!) check off his or her water usage each time they use it. For example, if your brother had a shower on Saturday, he would place one mark under the first S on the Family Water Use Survey. You should also keep a record of your own water usage on the Individual Water Use Survey.

- a) Looking at how much water your family uses, where could water use be reduced?
- b) What items use the most water in your house?
- c) Looking at how much water you individually use, where could you reduce your personal water use?

3. GRAPHING

At the end of the week, complete the line graph of individual water use with the information from your Individual Water Use Survey. Do this in a different colour from your estimated water use (question #1)...



YOUR ACTUAL INDIVIDUAL WATER USE

baths/showers • flushing toilet • washing face and hands • getting a drink • brushing teeth



- a) How does your actual water use differ from your estimated use? Is it more or less?

CONCRETE CHART

Using the concept of water in a cylinder, create five cylinders measuring 500 L each, marking off intervals every 50 L. "Fill" your cylinders with the amount of water you consumed over the week.

Individual Water Use

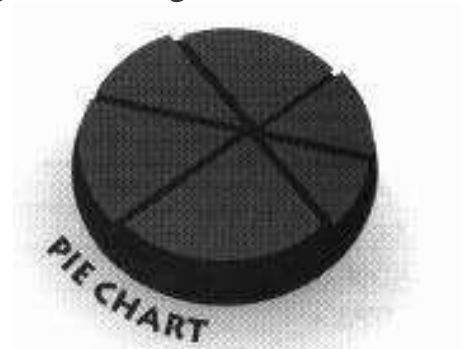


bath/shower • toilet • washing hands/face • drinking • brushing teeth

SYMBOLIC CHART

PIE CHART:

Create a pie chart of your family's water use.



- b) If the average Canadian consumes 335L of water a day in the household, how much is this per year? _____

- c) What percentage of your water does your family use in the kitchen? In the washroom?

- d) What other things use water that aren't on the list?

4. QUESTIONNAIRE

Listed below are suggestions for reducing your Water Footprint. Do you do these things? Write "Y" for Yes, "N" for No and "S" for Sometimes.

DO YOU ...



Washroom

- ___ 1. Have a dam or plastic bottle filled with water to reduce the amount of water used per flush? Efficient low-flush toilets also reduce water use.
- ___ 2. Turn the water off or use a cup filled with water when brushing your teeth?
- ___ 3. Turn off the water when brushing your teeth and washing hands?
- ___ 4. Take five-minute showers? They use less water than a bath.
- ___ 5. Have a low-flow shower head?
- ___ 6. Make sure your faucets are leak free?

Kitchen

- ___ 1. Make sure your faucets are leak free?
- ___ 2. Resist running the water until it's cold when getting a drink of water.
- ___ 3. Steam vegetables with a small amount of water in the pan?
- ___ 4. Recycle the water after steaming vegetables?
- ___ 5. Fill the sink only half-full when washing dishes by hand?
- ___ 6. Rinse the dishes in a half full sink when washing dishes by hand?
- ___ 7. Use the economy cycle when using the dishwasher?
- ___ 8. Fill the dishwasher completely before using it?
- ___ 9. Clean fruits and vegetables in a bowl of water, or partially filled sink?

Laundry

- 1. Make sure the washing machine is full when you use it?
- 2. Adjust the water level if you are washing a small load of clothes?
- 3. Use the lowest possible temperature setting when washing your clothes?
- 4. Rinse clothes in cold water?

Outside

- 1. Water the lawn less than twice a week?
- 2. Use a sprinkler instead of a garden hose to water the lawn?
- 3. Make sure your garden hose/sprinkler is leak free?
- 4. Water during the coolest parts of the day (early morning or evening)?
- 5. Refrain from watering on days that are windy?
- 6. Collect rainwater to use for watering plants?
- 7. Wash your car or bicycle with a bucket of water, instead of the garden hose?
- 8. Sweep the sidewalks, instead of using the hose to water them down?

Add suggestions of your own to this list. Post these ideas around your house. You could make a poster or fridge magnets, or tape index cards to walls. **BE CREATIVE and SPREAD THE WORD!**

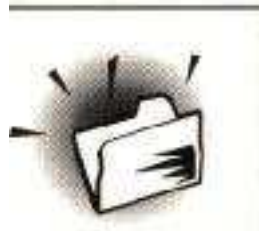
5. Watnorgs from the planet Plaqua have a water crisis and have no choice. They must siphon water reserves from the planet Earth. They estimate a 200 litre a day shortage for the average Canadian family of four. Being a friendly planet and good neighbour, Earth agrees to water rationing. Which means (if you have done your math correctly) that your family of four now has only **150 litres** of water a day.



Map out a plan of how you will use your precious share for a day. To find out how many litres of water are used by each item in your house refer to the **WATER section of the Tree of Life Posters.**

What country uses **150 litres** of water per household per day?

6. Make a list of suggestions of ways in which you can reduce your Water Footprint.



Individual Water Use Survey

	A. Canadian Average (Use in Litres)	Number of Times Used Per Week						B. Weekly Total	A X B Litres Used/Wk
		M	T	W	T	F	S		
Activity									
Taking a Bath									
Showering									
Flushing Toilet									
Washing Face/Hands									
Brushing Teeth									
Getting a drink									
Cooking a meal									
Handwashing Dishes									
Using Dishwasher									
Washing Clothes									
Washing car									
Watering lawn (per min.)									
Total									

*To find out how many litres of water are used for each activity, refer to the Tree of Life posters.

Family Water Use Survey

	*A. Canadian Average (Use in Litres)	Times Used Per Week							B. Weekly Total	(AXB) Litres Used/Wk
		M	T	W	T	F	S	S		
Activity										
Taking a bath										
Showering										
Flushing Toilet										
Washing Face/Hands										
Brushing Teeth										
Getting a drink										
Cooking a meal										
Handwashing Dishes										
Using Dishwasher										
Washing Clothes										
Washing car										
Watering lawn (per min.)										
Total										

*To find out how many litres of water are used for each activity, refer to the Tree of Life posters



Transportation Activity



Surprise! Although this activity is about transportation, you are not going to talk about cars, public transit and other ways of moving about. Instead you will start by thinking about why we need to move, or transport ourselves at all.

Transportation allows us to get people to things or have them get to us. Have you ever stopped to wonder how we could get to those things, whether they be friends, food, school or the dentist, without having to travel at all or without having to travel great distances?

Well, believe it or not, humans have come up with a brilliant idea for minimizing travel and still getting those things we need and want. This phenomenal idea is . . . a city (or town, community, neighbourhood)!

Cities and towns developed for the **B.E.S.T.** reason—to **Boost Exchange** and **Shrink Travel**. Whether you live in a city or a town, on a farm, or in a house or apartment, we all need to exchange things. We need to give and receive things like food, clothing and well, just about anything you can think of. We can also exchange friendship (with friends); knowledge (at school); health (with the doctor or at the hospital) . . . the exchanges go on and on!

1. MAPPING

Working in groups of four or five students, map out an area around your school within walking distance. Be as detailed as possible.

- a) In your group, make a list of all the exchanges your group typically makes in your community.
- b) Now look at each type of exchange on your group's list. Beside each, write the type of transportation your group used or typically would use, to make those exchanges.
- c) Assign a colour to each mode of transportation.
For example: bicycling = red, walking = blue
Create a legend of these modes of transportation and colours.



On the map your group has created, have every group member draw a line for each of their exchanges using the appropriate colour for the mode of transportation used. For example, if I bicycled from the school to a mall (and both were on the map), I would use a red line from the school to the mall. If a place you go to isn't on the map, draw a line in the appropriate colour as far as you can from a starting point.

d) When you have finished your map, discuss the following:

- i) Does there seem to be a lot of exchange lines on your group's map?

- ii) Are there many lines that continue off the map? What mode of transportation is used for most of the lines going off the map?

- iii) Looking at your group's map, what mode of transportation do you use the most?

- iv) Do you think this way of travelling leaves a large or small Transportation Footprint? Why?

- v) Look back at the list of exchanges your group makes. Can all the exchanges you wrote down happen in the area you mapped? Why or why not?

- vi) What exchanges can take place in the area you mapped?

- vii) What can't take place?

- viii) How far and what mode of transportation could you take to get to those exchanges that aren't on your map?

- ix) Does your map follow the B.E.S.T. way for a community? Why or why not?

- x) List some ways you can Boost Exchange or *give and receive* more things in the area you mapped.

- xi) List some ways you could Shrink Travel, or *use less* and *more ecologically friendly* transportation in the area you mapped.

2. CREATE THE B.E.S.T. NEIGHBOURHOOD!

Your group has been chosen by the city planning department to create a neighbourhood that follows the B.E.S.T. principal: Boost Exchange and Shrink Travel. You can present your neighbourhood in a two or three dimensional format. Remember to include all the exchanges your group thinks are needed or important in a community.

The city planning office also wants you to keep in mind these points when developing your neighbourhood:²

- **Define Your Neighbourhood**

Neighbourhoods need boundaries. This doesn't mean building fences or drawing boundary lines on a map. It simply means that your group should think about natural features of the area and other boundary markers.

- **Create a Neighbourhood Hangout**

This is the hot spot of the area and should have a gathering of shops, community facilities, local government offices and transit centre. This should be done before the residential area goes up.

- **The Neighbourhood should be as Self-sufficient as Possible**

You need to integrate shopping, living, recreation, social exchanges, work, and cultural activities so that you can shrink travel. The neighbourhood should also produce as many goods and services as possible (including food) and allow for the recycling of waste.

- **The Neighbourhood should be Efficient**

In order to shrink travel, the neighbourhood should have a central place where a lot of different things can be done. If the travel distances are shrunk then most travel could be done by foot or on bicycle, or using public transportation. This means making safe walk and cycle ways that lead to the neighbourhood hang out.

- **Build a Strong Sense of Identity**

Just as you might have strong school spirit or identity, a neighbourhood needs this, too. Create a list of things you could do in your neighbourhood to make people feel a sense of belonging.

- **Build a Strong Street Life**

Propose ways of making the street life or smaller areas in your neighbourhood great places to live.

- **Meet Everyone's Needs**

Your neighbourhood should be built for all its people: young, old, physically challenged, people with strollers, etc.

Draw in exchange lines on the B.E.S.T. map like you did for the school area map, using the same mode of transportation legend. Remember, these lines show exchanges you would make in your neighbourhood and the mode of transportation you would use.

3. DISCUSSION QUESTIONS

Discuss the following questions and record your answers.

a) Look at the exchange lines on each map. What is the mode of transportation used the most on the school area map? On the B.E.S.T. map?

b) In a B.E.S.T. neighbourhood, what mode or modes of transportation should be used the most? Why? Does your B.E.S.T. neighbourhood use this mode the most? _____

c) Do you think that your B.E.S.T. neighbourhood could be a real neighbourhood? Why or why not? _____

d) What challenges would you face in creating your B.E.S.T. neighbourhood? _____

e) Would you want to live in your B.E.S.T. neighbourhood?

f) If you lived in your B.E.S.T. neighbourhood, how would your lifestyle change? _____

g) How does the B.E.S.T. way of designing a neighbourhood reduce your Transportation Footprint? _____

4. SCORE YOUR NEIGHBOURHOOD

Grade your neighbourhood on the way it:

BOOSTs EXCHANGE	5	4	3	2	1
SHRINKs TRAVEL	5	4	3	2	1
Defines its boundary	5	4	3	2	1
Creates a sense of identity	5	4	3	2	1
Reduces the Transportation Footprint	5	4	3	2	1
Meets everyone's needs	5	4	3	2	1

Grade your neighbourhood's:

Hang out	5	4	3	2	1
Self-sufficiency	5	4	3	2	1
Efficiency	5	4	3	2	1
Street life	5	4	3	2	1

SCORE

5= Excellent
4= Very good
3= Good
2= Average
1= Below Average

TOTAL: /50