**Calculating the carbon footprint of a road trip Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Almost everything we do, including driving around, requires energy. Most cars rely on gasoline or diesel to get from place to place and emit carbon dioxide as they convert the fuel to energy. In Canada, the transportation sector (including all modes of transport) accounted for about ¼ of greenhouse gas emissions in 2014.

Plan a four day road trip vacation. Where would you go? What stops would you make along the way?

1. Select a vehicle make and model for your trip (no fully electric vehicles), then find its fuel economy ratings at

<http://oee.nrcan.gc.ca/fcr-rcf/public/index-e.cfm>

Fill in the information below.

Vehicle Make and Model: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Fuel Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Fuel Economy (L/100km): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

CO2 emissions: (g/km):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. In the chart’s left hand column, plan out each segment of your trip. Find the distance using google maps. Complete the other calculations as follows for each segment of your trip:

L of fuel used = (distance in km/100)\*(fuel economy)

Total CO2 emissions = (distance in km)\*(CO2 emissions)

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| --- | --- | --- | --- | --- |
| **From** | **To** | **Distance** | **L of fuel used** | **Total CO2 emissions** |
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**Answer the Following Questions on a separate piece of paper**

1. Why did you choose the vehicle you chose?

2. What is the total amount of CO2 emissions associated with your trip?

3. What is the price of fuel in your area? How much will fuel for the entire trip cost?

4. Are there ways you can reduce your fuel consumption on this trip?

5. Are there some portions of your trip where you can use public transportation? Why or why not?

6. How would using public transportation compare to driving your own personal vehicle?

7. Can you find a less expensive, less carbon intensive vehicle than your first vehicle choice? Find at least two alternatives and explain how they compare to your original vehicle.

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**Follow up questions**

1. What is the fuel economy (L/100km) for your family’s vehicle (look it up)?
2. How many grams of carbon dioxide would be emitted per km while traveling in your family vehicle (look it up)?
3. How many km do you travel to school?
4. Calculate how much carbon dioxide you are emitting as you travel to school.
5. How many km do you travel on the average day? Think about everywhere you go.
6. Calculate how much carbon dioxide you are emitting as you travel on an average day.
7. Multiply this number by 365 to calculate the mass of carbon dioxide your family vehicle emits in a year. This number might be very large. Divide it by 1000 to get kilograms – if this number is still large, divide it by 1000 to find tonnes of CO2.

 **Conclusions**

1. What are challenges in decreasing carbon dioxide emitted from our vehicles?
2. What might be some options for reducing the amount of carbon dioxide emitted from the transportation sector?