

Zero-Emission Vehicles & Low-Carbon Driving

Activity: Plan a Zero-Emission Vehicle Trip

Activity: Plan a Zero-Emission Vehicle Trip

The following activity will explore the characteristics and variables of different zero-emission vehicles by engaging in a thought experiment. This activity walks through the steps required to plan two different zero-emission vehicle trips: a trip around town with a plug-in hybrid electric vehicle (Trip 1) and a road trip with a battery electric vehicle (Trip 2).

Get Started

Students can work in small groups to plan the two following trips using the associated information and worksheets (Pages 2-5).

Tip!

Use the following websites to find locations to recharge your electric vehicle:

- [Charge Hub](#)
- [Electric Charging and Alternative Fuelling](#)



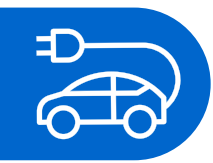
Reflect and share the learning

After completing the activities, compare and contrast different trips based on the vehicles chosen and routes taken. Reflect as a group and/or individually - the following questions are possible discussion prompts:

- Was there anything that could have made the trip easier?
- Did you learn anything new about zero-emission vehicles that you didn't know before? If so, what?
- What do you want to learn more about, and why?

Extend the learning

Swap the vehicle used for each route (e.g., try planning an around-town route with the battery electric vehicle and a road trip with the plug-in hybrid electric vehicle). Reflect on whether one vehicle is better suited for a certain route, and why this might be.



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Trip 1: Around Town with a Plug-in Hybrid Electric Vehicle (PHEV)

Starting and ending at your school, map out your journey and make sure you visit the following four places:

- a) Get groceries
- b) Go for a walk in the park
- c) Visit a museum or local historic site
- d) Check out one local business.

Use the Worksheet: Around Town with a Plug-in Hybrid Electric Vehicle on the following page to track your trip.

Notes:

- The stops do not need to be taken in the above order.
- If your school is not located in a town/city, choose the nearest town/city and start your trip at a central location.

Plug-in Hybrid Electric Vehicle: Specifications	
Electric Range (km)	30 km
Gasoline Range (km)	600 km
Charging Time	30 minutes = full battery charge (30 km range) 15 minutes = partial battery charge (15 km range)

Key Considerations:

- Based on the electric range (30 km), is there a route that can be taken without going into gasoline mode?
- Does this route require the battery to be re-charged? If so, how long would it take to re-charge?
- Is there any way that the distance travelled on battery can be maximized without lengthening the duration of the trip by too much (*HINT*: more public charging stations are being added to grocery store parking lots and main streets, so errands can be done while the car is charging).

Created with support from Natural Resources Canada.



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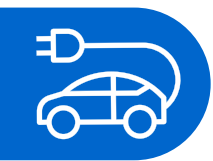
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Worksheet: Around Town with a Plug-in Hybrid Electric Vehicle

- Distance Travelled can be found by using Google Maps
- Electric Range Remaining = Electric Range Remaining at Previous Location - Distance Travelled
- If there is not a charging station within walking distance of one of the stops, make sure you have enough electric range remaining to drive to the nearest charging station.

Location		Distance travelled (km)	Electric Range Remaining (km)
Starting Point	Address:	0 km	30 km
Stop 1	Address:		
Charging Stop (optional)	Address: Electric Range Added (Max 30 km): Time Spent:		
Stop 2	Address:		
Charging Stop (optional)	Address: Electric Range Added (Max 30 km): Time Spent:		
Stop 3	Address:		
Charging Stop (optional)	Address: Electric Range Added (Max 30 km): Time Spent:		
Stop 4	Address:		
Charging Stop (optional)	Address: Electric Range Added (Max 30 km): Time Spent:		
End Point (same as starting point)	Address:		

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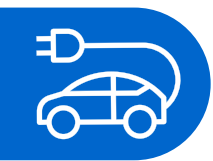
Trip 2: Road Trip with a Battery Electric Vehicle (BEV)

Today you are travelling between two different cities/towns in Canada that are at least 400 km apart (e.g., Toronto to Ottawa, Halifax to Saint John, Medicine Hat to Red Deer, Vancouver to Kelowna). Use the Worksheet: *Road Trip with a Battery Electric Vehicle* on the following page to track your trip.

Battery Electric Vehicle: Specifications	
Electric Range (km)	300 km
Charging Options	60 minutes = full battery charge (300 km range) 30 minutes = partial battery charge (150 km range)

Key Considerations:

- When and where will you charge your car? How long will it take? What will you do while you wait?
- Are there particular regions in Canada that are more suitable for a zero-emissions vehicle trip (e.g., more charging stations along the highway)?
- Are there regions in Canada that cannot support a battery electric vehicle trip? Why might this be the case and what are the potential barriers to having charging stations in those locations?



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Worksheet: Road Trip with a Battery Electric Vehicle

- Distance travelled can be found by using Google Maps
- Electric range remaining = electric range remaining at previous stop - distance travelled

Location		Distance travelled (km)	Electric Range Remaining (km)
Starting Point	City / Town:	0 km	300 km
Charging Stop 1	Address: Electric Range Added (Max 300 km): Time Spent:		
Charging Stop 2 (optional)	Address: Electric Range Added (Max 300 km): Time Spent:		
Charging Stop 3 (optional)	Address: Electric Range Added (Max 30 km): Time Spent:		
End Point	City / Town:		