

SKILLED FUTURES IN ENERGY

PLAN A ROADTRIP

You're living in Yarmouth attending the Nova Scotia Community College Burridge Campus. You have one week left of summer break and want to plan a visit to Ingonish Beach. You want to make the most out of your time, so want to drive there in the shortest time possible.

Being a student, you also have a limited budget. You've budgeted \$100 (one way) to refuel. You also have a friend joining you, to switch off driving duties.

You visit a nearby car rental lot and they have 3 options available. Each is the same cost and has similar features, except for their fuel source. Each vehicle has full charge/tank. You must return the vehicle in Ingonish with a full charge/tank.

Plan your route, including required refueling/charging stops. Use the listed resources to determine the cost to refuel/recharge at each stop.



INDIVIDUAL OPTION

Plan your route with each vehicle.

- Which vehicle do you choose? Why?
- Are you able to reach your destination?
- · What obstacles did you encounter?
- How long did the trip take?

GROUP OPTION

Break into groups. Each group is assigned a vehicle type and plans their route, utilizing the given budget.

- Which group spent the least money?
- Who spent the least amount of time?
- What obstacles did each group encounter?



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VEHICLE OPTIONS

Option 1

Electric

Option 2

Hybrid

2021 Toyota Prius

40kWh battery (range 240 km)

2021 Nissan Leaf

- Level 2 charge: 8 hours
- Quick charge: 60 minutes
- 4.4L/100 km
- 43L fuel capacity

Option 3

Traditional Fuel

2020 Ford Fusion

• 8.7 L/100km

• 62.5 fuel capacity





LEARN MORE

Electric Vehicle

Electric vehicles store electricity in an energy storage device, such as a battery. The electricity powers the vehicle's wheels via an electric motor. Electic Vehicles energy storage must be replenished by plugging into an electrical source.

Hybrid Vehicle

Hybrid vehicles have a small fuel-efficient gas engine combined with an electric motor that assists the engine when accelerating. The electric motor is powered by batteries that recharge automatically while you drive.

Traditional Fuel Vehicle

Most vehicles on the road today are powered by an internal combustion engine (ICE.) These vehicles use energy-dense fuels such as gasoline or diesel fuel; liquids derived from fossil fuels.

DIRECTIONS

Step One:

- · Open Google Maps
- Select Directions
- Enter your starting point (Yarmouth, NS)
- Enter your destination (Ingonish Beach)
- Choose Your Route

Step Two:

Based on your vehicle choice, determine how far you can go before refueling/charging.

- For Electric Vehicles: use the range identified in the vehicle description.
- For Hybrid and Traditional Fuel Consumption Vehicles: determine the Fuel Mileage from the information provided in the vehicle description. Visit <u>CalculateMe.com</u> to assist in calculating the Gas Mileage.

Step Three:

Locate Gas/Charging Stations along your route, within your vehicle's range.

- For Electric Vehicles: Visit <u>https://www.plugshare.com/</u>
- For Hybrid and Traditional Fuel Consumption Vehicles: Use Google Maps to locate Gas Stations

Step Four:

Determine the cost and time associated with refueling/charging your vehicle at each location.

- For Electric Vehicles: Use <u>https://www.plugshare.com/</u>. Take note of the availability, cost, and times required for L2 (Level 2) and Fast Charging.
- For Hybrid and Traditional Fuel Consumption Vehicles: Find current gasoline prices in Nova Scotia by region at: <u>https://nsuarb.novascotia.ca/mandates/gasoline-diesel-pricing/gasoline-prices-zone-map</u>

Take note that there are price differences by region. Ensure you are choosing the correct region when determining the cost.

Repeat Step Four each time you must stop to refuel/recharge along your route.

Don't forget that you must return your vehicle in Ingonish Beach with a full charge/tank.

Step Five:

Add up the total cost to refuel/recharge for your trip.

Add up the total length of time it took to reach your destination.

- For Electric Vehicles: This will be the travel time estimated by Google Maps, along with the time to recharge the vehicle at each stop.
- For Hybrid and Traditional Fuel Consumption Vehicles: Add 10 minutes each time you stopped to refuel.



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RESOURCES

Google Maps www.google.ca > maps

PlugShare - EV Charging Station Map - Find a place to charge <u>www.plugshare.com</u>

Gasoline & Diesel Prices & Zone Map | Nova Scotia Utility and ... https://nsuarb.novascotia.ca/mandates/gasoline-diesel-pricing/gasoline-prices-zone-map

2021 Nissan Leaf - Range and Charge https://www.nissan.ca/vehicles/electric-cars/leaf/features/range-charging-battery.html

2021 Prius - Electric Hybrid Car - Toyota Canada https://www.toyota.ca/toyota/en/vehicles/prius/overview

2020 Ford® Fusion Sedan | Fuel-Efficient Midsize Sedan ... <u>https://www.ford.ca/cars/fusion/models/fusion-se/</u>

CalculateMe.com - Comprehensive Conversion Utility https://www.calculateme.com/gas-mileage/

CURRICULUM OUTCOME CONNECTIONS

The Skilled Futures Virtual Experience has been confirmed with representatives from the Department of Education & Early Childhood Development to connect with the following curriculum outcomes:

Exploring Technology 10

• 2.2: Examine the consequences of technology in domestic use and consumption of energy

Geography 10

- 2.2: Select an appropriate map style (topographic, geologic, thematic, etc.) and use it to gather, organize, and display information in sketch or model form
- 2.3: Organize and interpret quantitative data in graph, chart, and table form

Mathematics 10

• FM03: Students will be expected to investigate personal budgets

Mathematics Essentials 10

- A4: Identify and explain the advantages and disadvantages of various plans to make purchases
- F6: Identify various incentives to make purchases