



Objectives

After successfully completing activities associated with Go Electric!, Girl Scouts will be able to:

- Know the benefits of renewable energy
- Explore new transportation options
- Learn to inspire others to reduce their carbon footprint
- Be an environmental steward
- Discover, Connect and Take Action!

Background Information: For more information on Electric Vehicles please go to sdge.com/ev.

Age Level: This patch is intended for Daisies-Ambassador.

DISCOVER

STEP 1: How Do We Move Around The World?

What is Transportation?

The Transportation sector includes the movement of people and goods by cars, trucks, trains, ships, airplanes, and other vehicles.

Why should we study the impact of transportation in the US?

- What are the greenhouse gasses that contribute to climate change?
Carbon Dioxide, Methane, Nitrous Oxide
- How large is the contribution from transportation?
In San Diego, greenhouse gas emissions from transportation accounted for about 50% of total U.S. greenhouse gas emissions, making it the 2nd largest contributor of U.S.

How can we fix it?

Developing alternatives: reducing your car's carbon impact through diversification, such as, walking, biking, carpooling, using mass transit or just driving less
Improvement: increasing gas mileage, optimizing your vehicle and getting the most from the gas tank.

What does clean transportation mean?

We also generate electricity from natural gas in highly efficient power plants to minimize emissions, including smog-forming pollutants, pollutants harmful to human health, and greenhouse gases, primarily carbon dioxide, associated with climate change. If you look at the total carbon footprint, including emissions from power plants to generate electricity, vehicles in electric drive are cleaner than vehicles running on gasoline or diesel. With nearly 40% of California's greenhouse gas emissions coming from transportation, cleaner alternatives such as electric vehicles, plug-in hybrids or other alternative fuel vehicles are needed to achieve the state's goal of reducing transportation greenhouse gases by 13 million tons by 2020. By investing in system improvements and smart technology, SDG&E will be able to handle the growing need for electricity as more people plug in electric vehicles



Why is clean transportation important?

If every family became greener in their transportation use, we can reduce GHG immediately and make our planet better!

How do people move in your community? Have your troop break up into three groups ask each group to brainstorm as many examples as they can of individual, small group/family or large group transportation.

Individual	Small Group/Families	Large Groups
<ul style="list-style-type: none"> • Bicycle • Electric Powered Bike • Motorcycle • Scooter • Skateboard • Walking 	<ul style="list-style-type: none"> • Bio-diesel Cars • Diesel Cars • Electric Cars • Hybrid Cars • Internal Combustion Cars • Motorboats • Sailboats 	<ul style="list-style-type: none"> • Buses • Planes • Trains • Trolleys

Which Type of Transportation have you used?

Have girls create a list or draw pictures of transportation that they use in their lives.

Which is the most environmentally friendly? Rank the transportations from 1-5. 1 is the greenest, 5 is the most polluting. Give the girls the print out or create a poster.

Type	Rank	Type	Rank
Bicycle	1	Motorboat	4
Bio-diesel Car	2	Motorcycle	3
Bus	3	Planes	5
Diesel Car	4	Sailboat	1
Electric Powered Bicycle	1	Scooter	2
Electric Car	1	Skateboard	1
Foot Power – Walking	1	SUVs	4
Hybrid Car	2	Trains	3
Internal Combustion Car	4	Trolley	3



CONNECT

STEP 2: Learn about Electric Vehicles and Charging Stations.

What are the Benefits of Electric Vehicles? <http://www.sdge.com/electric-vehicles>

- **Low Fuel Costs** – Pay less than purchasing gas
- **Get incentives!** – Most EVs are eligible for a \$7,500 federal tax incentive, a \$2,500 state rebate and single occupant access to the carpool lane.
- **Clean Fuel** – San Diego's electricity is created locally and is from a variety of clean sources like natural gas and renewable sources including solar and wind.
- **Charge at Home** – Avoid the gas station and fuel at home. It's as easy as charging your cell phone.
- **Fun to Drive** – electric vehicles are often quieter and smoother, and they go fast!
- **Save the Planet!** – All electric cars have zero tailpipe emissions. Plug-in hybrids are much cleaner than gas burning vehicles.

Types of Electric Vehicles: all-electric and plug in hybrid

All-electric vehicles	Plug-in hybrid electric vehicles (PHEVs)
Run on electricity only	Plug into standard outlets or special charging units and use gasoline
Use electricity stored in large batteries	Equipped with a gasoline engine and an electric motor
Plug into standard outlets or special charging units	Electricity is stored in smaller batteries than in all-electric vehicles
Zero tail-pipe emissions	Lower tail pipe emissions than conventional gasoline-only vehicles

STEP 3: Create a Neighborhood map that has all of the charging stations located on it.

1. Go to <https://www.plugshare.com/> or <http://carstations.com/> and type in your location and find all of the public and high power stations that everyone has access to.
2. Create a map that has charger stations close to your locations.
 - Why do you think the charging stations are located at these locations?
 - Are there a lot of people that frequent those locations?
 - Have you noticed these stations before?
 - How big are the stations?
3. Add in at least 3 additional charging stations that you think would benefit your community
 - Why did you choose these locations?
 - How will it benefit your community?

STEP 4: Field Trip Opportunity!

- Visit an electric vehicle charging station in your neighborhood and see how it works
- Take a field trip to the Energy Innovation Center. Go to www.sdge.com/eic/tour to get the process started to set up your field trip



TAKE ACTION

STEP 5: Change Attitudes about Electric Vehicles!

Share this knowledge with their community and to educate others on the benefits of electric vehicles. Choose one of the following activities:

- 1. Interview a Family member:** Interview their parents, grandparents, and teachers to find out how they think attitudes. See attached for sample questions.
- 2. Give a presentation** to your family, class, school, troop about what you know about electric vehicles
- 3. Create a flyer or pamphlet about the importance of Electric Vehicles**
- 4. Talk to a local business** that you identified as a possible location for charging stations.

STEP 6: Complete one of the following Girl Scouts badges and Journeys.

Continue to empower yourself about clean energy! Through Girl Scout programming, girls get the opportunity to learn about environmental issues such as clean water and air, noise pollution, global warming, soil contamination, and agricultural processes. Each Journey and badge is packed with current environmental information and offers ways to interact on topics that affect everyone on the planet.

Daisies

- Daisies Between Earth and Sky Journey
- Daisies Clover Petal

Brownies

- *WOW! Wonders of Water* Journey:
- Household Elf Badge:
- Inventor Badge

Juniors

- GET MOVING! Journey
- Gardener Badge

Cadettes

- Cadettes Breathe! Journey
- Trees Badge

Senior

- Truth Seeker Badge:
- Social Innovator Badge
- *Sow What?* Journey

Ambassador

- *Justice* Journey
- Water Badge