

# Car Care

*“I worked on my own race cars with my dad, who taught me that to be a driver, you have to know your cars.”*

—Jennifer Jo Cobb,  
NASCAR driver

**D**riving is an exciting step toward independence, a chance to have fun going new places—and a big responsibility. In this badge, you’ll master maintenance tips that keep a car in top form and driving skills that will help you rule the road safely.

## **Steps**

1. Get a handle on basic car maintenance
2. Investigate vehicle safety
3. Research safe driving practices
4. Find out what to do in case of emergency
5. Drive for a greener world

## **Purpose**

When I’ve earned this badge, I’ll know tips for driving safely and how to take care of a car.



Every step has three choices. Do **ONE** choice to complete each step. Inspired? Do more!

## STEP 1 Get a handle on basic car maintenance

Find out about basic maintenance procedures—check the list below for ideas. While you're working around cars, tie back loose hair, don't wear loose clothes or jewelry, and put on safety goggles and gloves when necessary.

### CHOICES – DO ONE:

- ☐ **Talk to a pro.** Ask a mechanic, driving teacher, or someone you know with knowledge of cars to show you three basic care techniques.

OR

- ☐ **Spend two hours at a local car-repair shop.** Take notes on the various repairs. Find out what the most common repair is and how to perform it.

OR

- ☐ **Watch instructional car-care videos to learn three maintenance techniques.** Find the videos online or ask a driving teacher or mechanic for recommendations.

### More to Explore

**Check out computerized care.** From ignitions to navigation systems, cars are becoming more computerized. Ask an auto-service technician if you can watch a computerized diagnostic. What is a microprocessor, and how is it used? Do computers make cars easier to service? What kind of training do technicians need?

### Basic Maintenance Skills

- Changing a flat tire
- Checking tire pressure and wear
- Changing windshield wiper blades
- Using jumper cables to restart a car with a dead battery
- Checking levels and replacing fluids (brake, radiator, oil, transmission, power steering, windshield wiper)
- Putting on tire chains
- Changing air filters



## STEP 2 Investigate vehicle safety

The National Highway Traffic Safety Administration is a great resource for gathering accident statistics and learning about features that make cars safer. Once you've completed your choice, share your knowledge with your peers.

### CHOICES – DO ONE:

- ☐ **Determine which cars are safest.** Find data on handling characteristics and safety features, and ask local dealerships which five car models they consider safest, and why. Areas with driving challenges such as severe weather or mountainous roads may have a different top-five list than somewhere sunny and flat.

OR

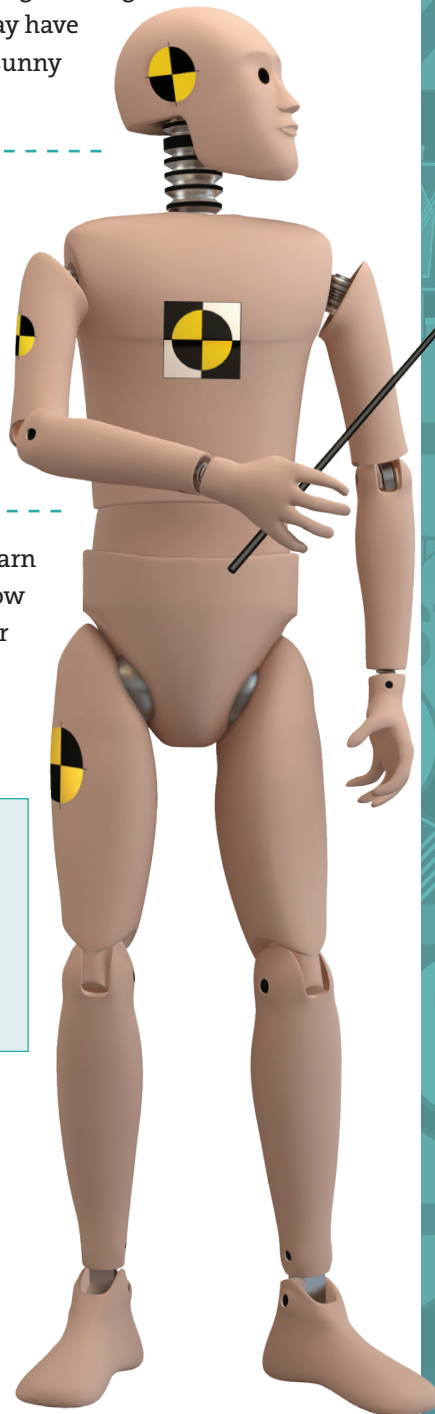
- ☐ **Learn which factors affect insurance cost.** The safety features a car has can affect how much it costs to insure it. So can the local geography and the ages and genders of the drivers. Find out what safety features are required and which are preferred by two different insurance agencies.

OR

- ☐ **Let crash-test dummies teach you.** Learn how crash-test dummies are used, and how to read and understand crash and rollover ratings. Then, find the safety ratings of three different cars that interest you.

### More to Explore

**Be a safety innovator.** Based on your research in one of the choices, sketch a design or make a prototype of a new car-safety feature or an improvement on an existing one.



### Recommended Safety Technologies



Electronic stability control



Forward collision warning



Lane departure warning



## Distracted-Driving Statistics

Of nearly 2,000 drivers ages 16 to 19 surveyed by AAA and *Seventeen* magazine, 86% admitted to driving while distracted, even though most knew it was dangerous.

### The dangerous and distracting activities included:

Adjusting radio/CD/MP3 player



(73%)

Eating food



(61%)

Talking on a cell phone



(60%)

Texting



(51.4%)

## Passenger alert:

38% of the teens were afraid they were going to get hurt because they were the passengers of a distracted driver.

## STEP 3 Research safe driving practices

Pay extra attention to how people in your community drive. How can they drive more safely? If you drive, keep your own driving practices in mind as you do one of these choices. And remember—you're learning about driving safety not only to ensure that you are safe, but also to help keep the roads safe for other drivers.

### CHOICES – DO ONE:

- ☐ **Create a top ten list of safe-driving tips.** Get information from your DMV, a driver's ed teacher, or a safe-driving seminar. Share your tips with others.

**FOR MORE FUN:** Take a practice driver's ed test online or in a sample test booklet from the DMV.

OR

- ☐ **Interview a highway patrol officer to get safe-driving tips and stories about what drivers do right (and wrong).** What are the most common safety issues among teens in your area?

**FOR MORE FUN:** Film the interview and create an informational video.

OR

- ☐ **Observe a traffic intersection.** Pick a safe place to watch traffic for 30 minutes three different times during the day. Count the vehicles that pass, and keep track of safety violations. What percentage of drivers made violations, and which violation was the most common? (Could your stats help you think of a Take Action project?)

### Stat:

It takes just two seconds of taking your eyes off the road to double your risk of getting into an accident. Instead, take two seconds to turn off your phone before starting your car.



## STEP 4 Find out what to do in case of emergency

**What should you do in case of an accident? A little forethought goes a long way toward providing the safest journey possible.**

### CHOICES – DO ONE:

- ☐ **Compile an emergency kit.** Research roadside-emergency kits, collect the items and tools they typically include, and learn how to use them.

OR

- ☐ **Interview a roadside service person.** Perhaps this is someone who works at a local service station or for one of the many roadside-service organizations. What are the most common emergencies in your area? How do they suggest preparing for and preventing such emergencies?

OR

- ☐ **Research how to handle five common driving hazards or automotive breakdowns.** Examples: slippery roads, flat tires, an overheated engine, and foggy conditions.

**Tip:** Stuck in mud, ice, or snow? Try putting floor mats under the front edges of the tires to give them traction.

### Color My Car Safe

A car's color can make a difference in comfort—and in safety.

- Cars painted light colors, such as silver or yellow, are easier to see at night.
- White cars are harder to see in winter weather.

- At night, red cars look black and are difficult to see.
- Cars painted dark colors, such as black or dark blue, get especially hot in the summer sun.
- Windows that are tinted darker

than rules allow are unsafe because other drivers can't see you. You may need to use hand signals, for instance, to communicate with another driver at a four-way stop.

## CAREERS TO EXPLORE

Mechanic

Service-garage manager

Driving instructor

Automobile designer

Highway patrol officer

Engineer

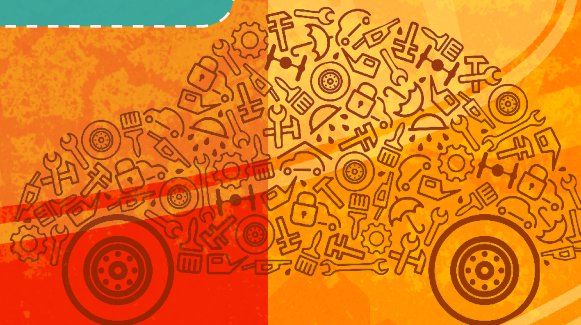
Automobile dealer or salesperson

Air-quality expert

Environmental scientist

Car reviewer for magazines and websites

Government traffic-safety analyst







## Energy-Efficient-Driving Tips

- Empty your car of unnecessary stuff. Lighter cars use less fuel
- Check your tires. Are they inflated to the correct pressure? Are they worn?
- Check your air filters. Clogged filters will make your car run less efficiently
- Drive at a steady pace. Anticipate traffic flows. Avoid sudden stops and accelerations
- Don't speed. Cars run most efficiently between 30 and 60 mph
- Make sure your gas cap is on tightly
- Use air-conditioning sparingly in city driving. On the highway, roll up the windows, and use the AC if needed
- Avoid rush-hour traffic



## STEP 5 Drive for a greener world

**You can boost the fuel efficiency of a car by as much as 30 percent through simple vehicle maintenance and attention to your driving style.**

### CHOICES – DO ONE:

- ☐ **Compare car efficiencies.** Choose three cars with high fuel efficiency ratings, including one hybrid or electric vehicle. If you were going to recommend purchasing one of the cars, what are the top three selling points you'd tell the potential buyer?
- OR** -----
- ☐ **Practice energy-efficient driving, or help an adult family member do so.** For one week, drive as you normally do, recording your car's fuel efficiency (in miles per gallon) for the week. During week two, practice the methods in the "Energy-Efficient-Driving Tips" sidebar. Did you get better mileage?
- OR** -----
- ☐ **Drive less.** Almost half the trips we make are to locations within three miles of our homes. On a map, draw a three-mile radius around your home. Come up with at least three ways to cut your number of car trips by half.



### Gold Award Project Starter?

- Teen Research Unlimited studied more than 1,000 teens. They found:
- Girls are more likely than boys to drive 10 mph over the speed limit
  - Girls are more likely than boys to text while driving



1

**FILL** the gas tank completely, and write down the odometer reading.

(In this example, let's say your odometer reads 32,645.1 miles.)

# Calculate Your Gas Mileage

The miles per gallon (mpg) your car gets can be calculated in four easy steps.

2

**DRIVE** until the tank is nearly empty, then refill the tank completely. Record the number of gallons it took to fill the tank and the new odometer reading.

(Let's say it took 13.5 gallons to fill the tank, and the new odometer reading is 33,001.3.)

4

**DIVIDE** the number of miles driven by the number of gallons it took to fill the tank.

(356.2 miles ÷ 13.5 gallons = about 26.4 miles per gallon.)

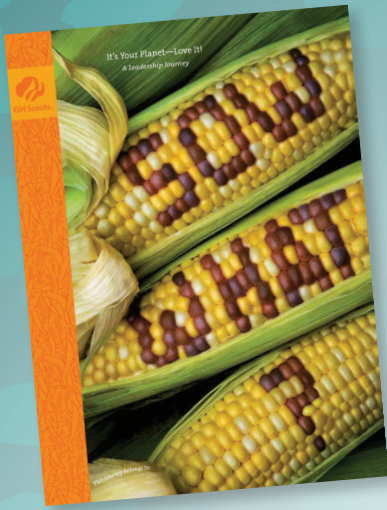
The mpg for that driving period is 26.4.

3

**CALCULATE** the distance driven by subtracting the first odometer reading from the second.

(33,001.3 - 32,645.1 = 356.2 miles.)





### ***Add the Badge to Your Journey***

For step 5, help your family figure out how to make fewer driving trips for groceries. How much fun can you have planning menus in advance, growing some of your own veggies, making a feast out of whatever's already in the fridge, or doing some errands on foot—all while saving gas and helping the planet, too? If this really inspires you, turn it into a full-fledged Take Action project.

### **Now that I've earned this badge, I'm prepared to give service by:**

- Helping my family and friends maintain their vehicles
- Organizing a how-to car repair day for other teens in my area
- Educating others about safe driving and demonstrating it when I'm on the road



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### ***I'm inspired to:***