girl scouts of central texas

Patch Program

Pedal Power

Discover the joy of cycling as you learn bike safety, maintenance, and how bikes work. **Connect** with your community and the open road while building skills and exploring how riding helps keep Texas skies clear. **Take action** by passing on what you've learned – inspiring others to ride – as Girl Scouts "wheel" their way around Texas!

Grade level requirements:

- **Daisies (grades K-1).** Choose one activity from each category.
- **Brownies (grades 2-3).** Choose two activities from each category.
- **Juniors (grades 4-5).** Choose two activities from each category.
- **Cadettes (grades 6-8).** Choose three activities from each category.
- **Seniors (grades 9-10).** Choose three activities from each category.
- **Ambassadors (grades 11-12).** Choose three activities from each category.

When you're done, **submit photos** and a story to inspire other Girl Scouts to earn this patch, too. **Purchase patch** by June 30, 2026.

Discover

Learn the "how" and the "why" behind the wheels as you dive into the STEM secrets of gears, physics, and safety. By uncovering the history and mechanics of your bike, you'll discover you have the power to master your ride and start making a real difference in how your community moves.

- **Get to know a bike!** Before you hop on, spend time observing how a bike stays upright. Try walking alongside your bike and turning the handlebars. Notice how the bike leans. Use a magnifying glass to look at the chain links and the tread on the tire. How does the texture of the tire help you stay on the road? What else do you observe about your bike?

- **Bicycle body scan.** Gather around a bicycle to identify the main parts: frame, saddle, handlebars, chain, and spokes. Then, practice the ABC Quick Check:
    - **A**ir (squeeze tires to see if they're firm),
    - **B**rakes (squeeze levers to make sure the brakes stop the wheel), and
    - **C**hain (ensure it's clean and on the track)

- **Wheelie cool rides.** Bikes come in all shapes and sizes. Some are heavier – built for commuting. Others are light and fast – for racing. Some have wide tires – for off-road riding. Others have skinny tires – for pavement. Newer e-bikes have a motor to help you go faster and climb hills easily. How do traditional bikes differ from e-bikes?

- **Electric edge:** As more people use e-bikes for commuting to work and school, safety awareness must shift. E-bikes are heavier and move faster than traditional bikes. Riders must react more quickly to obstacles. It is important for e-bike riders to use their bells and lights even during the day to be more visible to cars. What else do e-bike riders need to be aware of as they move through traffic? Discuss with an adult why kids need to be extra careful on e-bikes. What are the risks? **Learn about the Texas law** and the age requirements for certain "classes" of electric bikes.

- **The great brain guard.** Your brain is your most important tool! Before your next ride, flip over your helmet. Look for a sticker with a date. If it's more than five years old, the helmet is "expired." The sun and heat can make the foam brittle over time. Next, **practice a proper helmet fit** using the Eyes, Ears, Mouth test: the helmet should sit level (two fingers above your eyes), straps should form a "V" under the ears, and it should feel snug when you open your mouth. Do a safety check with your friends or family members before your next ride – and then every ride after that!

- **Inclusive wheels.** Research adaptive cycling. Learn about handcycles and tandems that allow people with different physical abilities to experience the joy of riding. Check out how organizations like **Texas Regional Para Sport** support athletes with disabilities.

- **Texas two-wheeling history.** Texas has a Texas-sized bike culture! Research a famous Texas bike event, like the **MS150** – a 150-mile ride from Houston to Austin, or look up bike-friendly cities like Austin. What makes a city "bike friendly"? Look in your community for protected bike lanes, plenty of bike racks, and trails that connect neighborhoods to parks. If you live in a smaller community, how do bikes travel safely in your area?

- **Gonna be "golden."** Find out about the "Golden Age of Bicycles" in the 1890s and how it led to the building of better roads long before cars were popular. How did the early bicycle industry pave the way for the invention of the airplane and the automobile?

- **Bicycle clothing.** Research how the invention of the "Safety Bicycle" in the late 1800s gave women more freedom. It changed the way women dressed (bye-bye, heavy skirts!) and where they were allowed to go. Discuss how something as simple as a bike can be a tool for **independence and social change**.

- **Environmental impact.** Learn about how bikes help reduce pollution. Research how much carbon dioxide a typical car emits per mile – and then compare it to a bicycle. How does or how could riding a bicycle reduce traffic congestion and noise in your neighborhood?

Connect

Connect your love of riding with the planet and your community by exploring how bicycles reduce pollution and bring people together across the Lone Star State. See how your choice to pedal leads to a cleaner world and healthier neighbors, proving your wheels are a vital link in a global chain.

- **The learn-to-ride launchpad.** Find a flat, grassy area. Practice the "glider" method by lowering the seat so your feet touch the ground. Practice "scooting" to find your balance. How far can you balance and roll along? Practice squeezing your brakes to come to a smooth, controlled stop. How long can you roll?

- **Silent signals and street smarts.** A bicycle isn't a toy—it's a vehicle! And cyclists are vehicle drivers! Learn and practice the three hand signals below to communicate with other drivers and vehicles on the road. To stay safe on your bike, you need to be visible and predictable. One way to do this is by signaling before you make a turn—just like a car does! Practice signaling right turns, left turns, and "slow down" while riding your bike. Get a bell for your bike to help you communicate with pedestrians who might cross your path. Play a game of "Signal Simon Says" to master these signals:

    - Left turn – left arm straight out
    - Right turn – left arm bent up
    - Slowing/stopping – left arm bend down

- **Flat tire fixer challenge.** Don't let a flat tire end your ride! Learn how to use tire levers to remove a tire from the wheel find a "pinch flat" or a thorn, and either patch the tube or replace it. Race a fellow Girl Scout to see who can get their tire back on the quickest and the safest! Make a list of the items you can carry with you on longer bike rides to fix flats on the go.

- **Bicycle fit.** A bike that is too big or too small can be hard to control. Check your "stand-over height" by straddling the top tube of the bike with both feet on the ground. There should be at least an inch of space between you and the tube. Learn how to adjust your saddle (seat) height so that when you sit on it, your leg has just a slight bend when the pedal is at the bottom. Learn what the correct tool is for this important job – and how to adjust your seat.

- **Bicycle budgeting.** Think about your future, older Girl Scouts! Compare the cost of owning a bike versus owning a car for one year. Include costs like gas, insurance, and maintenance. How much money could you save by being "bike reliant" for a year after high school?

- **Let's talk shop.** Visit a local bike shop. Interview a mechanic about the most common repairs they complete. Ask them why they love cycling and what tools they use every day to keep the bike community rolling safely.

- **What makes it roll?** Explore the physics of movement. Flip a bike upside down and watch how the gears work as you pedal by hand. Learn how brakes use friction to stop the rims and how a rider's center of gravity helps them maintain balance.

- **Fill your tires with air.** After lots of riding, your tires will need some extra air. This is the easiest and most common bike maintenance you will need to do. Borrow a bike pump from an adult, neighbor, friend, or bike shop, and learn how to pump up those tires! For more FUN: Learn how to fix a flat tire on your bicycle. Put together your own Fix-a-Flat Toolkit to bring with you on longer rides.

- **Squeaky clean and oiled.** A clean bike is a safe bike. Use a bucket of soapy water and a sponge to wash the bike's frame. Learn how to apply a small amount of bike lube to the chain and wipe off the excess to keep your bike shifting smoothly.

- **Wayfinding wizards.** Put your navigation skills to the test! Plan a three-mile bike route through your neighborhood using a map or a navigation tool. Find the safest path to a local landmark. Identify potential hazards like busy intersections or steep hills. Use a tool like **Google Maps Cycling Layer** to find dedicated bike paths.

- **Texas trailblazers.** Texas is full of amazing places to ride, from the iconic urban boardwalks of Austin's Lady Bird Lake to the historic, wildflower-lined Mission Reach in San Antonio. In Bryan-College Station, riders can transition from the shaded paths of Lick Creek to rolling gravel country cruises, while Brownwood provides a quiet retreat through the rugged brush of Lake Brownwood State Park. Further west, San Angelo State Park serves as a premier destination for high-adventure enthusiasts, offering over 50 miles of multi-use desert trails perfect for building technical skills. Research a trail near your home!

- **Two wheels in Texas State Parks.** Many Texas State Parks have world-class mountain bike trails. Research the trails at Palo Duro Canyon State Park or Cedar Hill State Park. **Investigate trail ratings and biking Wildlife Management Areas**. What special gear do you need for trail riding versus street riding? What are the essentials a cyclist needs to carry when biking in remote areas?

- **Helmet tech challenge**. Become a "helmet engineer" by identifying the hidden technology inside bike helmets. Step one: Grab your helmet and look closely at the inside. Most helmets use EPS foam (it looks like a hard cooler). That foam is designed to crush during a crash. When it crushes, it absorbs the energy, so your head doesn't have to! Step two: Look for a thin plastic yellow layer or little rubber anchors inside. This is often MIPS (multi-directional impact protection system) technology. MIPS technology lets the

helmet slide slightly during a hit, which protects your brain. Step three: Connect to the tech! Engineers are constantly inventing new ways to keep us safe, using ideas inspired by honeycombs and even physics! You can learn how different helmets use *crumple zones* and *low-friction layers* to protect your brain by scrolling down to the "Choices in Helmet Protection" section of this **guide to bike helmets**.

- **Gears & STEM.** Dive deep into the math of cycling. Learn how gear ratios work. How many times does the rear wheel spin for every one rotation of the pedals? Experiment with shifting through different gears while riding on a flat surface versus a hill.

Take Action

As a Girl Scout, you can make the world a better place! Use your skills to spark change by advocating for safer streets and mentoring the next generation of riders. When you share your knowledge and care for local trails, you transform from a cyclist into a community leader with the power to make the world a more bike-friendly place for everyone!

- **Helmet hero station.** Be a safety leader! Set up a booth at a school fair or troop meeting to teach others the "Eyes, Ears, Mouth" fit test. You could even create stickers to hand out to friends you see wearing their helmets correctly!

- **Bike to school day.** Plan a "Bike Train" where a group of students and parents ride to school together on a set route. Check out **Walk & Bike to School Day** to see if your school is already registered—or start your own event in May! What school organizations, such as the PTA, could support and promote your event?

- **Maintenance masterclass.** Now that you know how to do an ABC Quick Check, teach it to someone else! Help a younger troop or a friend perform a safety check on their bike. Show them how to use a pump to fill their tires.

- **Learn the rules of the road.** Every state has different bicycle laws. Research Texas bicycle laws. Are you required to ride in a bike lane? Can you ride side-by-side with a friend? Create a "Know Your Rights" flyer to share with your troop and friends.

- **Lobby for lanes.** Is there a place in your community that might feel a little safer with bike lanes? Write a letter to your city council or attend a community meeting to advocate for better bike infrastructure. Maybe your public library or local supermarket needs more bike racks? Or does the street by your school need a painted bike lane? Use your voice!

- **Trail TLC.** Give back to the bike trails or bike lanes you use. Research a local bicycling organization to learn more about trail maintenance days. Help clear brush from bike trails or litter from bike lanes. Help repair erosion to keep trails safe for everyone.

- **Tell you story.** Create a "Pedal Power" digital story or photo collage. Share it with your troop or service unit to show other Girl Scouts how they can gain independence and help the environment through cycling?

- **The fix-it factor.** A flat tire or a loose bolt shouldn't end a great ride. A bike "fix-it station" is a permanent public kiosk equipped with an air pump and basic tools like wrenches and tire levers attached by stainless steel cables. Put on your urban planner hat and identify a "bike tool desert" in your community. This might be an area with high bike traffic like your school's sidewalks or a trailhead. Identify who to partner with on such an endeavor – such as your school's PTA or the city council. What are the steps to make a permanent change for cyclists in your community?