

EXPLORE NORFOLK SOUTHERN

Twenty-four hours a day, seven days a week, Norfolk Southern Railway trains move freight across 19,500 route miles in 22 states and the District of Columbia. One of the nation's premiere transportation companies, Norfolk Southern serves every major container port in the eastern United States and provides efficient connections to other railroads. Norfolk Southern operates the most extensive intermodal network in the East and is a major transporter of coal and industrial products. The corporate vision of Norfolk Southern and its more than 29,450 employees is to be the safest, most customer-focused, and successful transportation company in the world.

By working toward and earning the Explore Norfolk Southern Patch, Girl Scouts will learn about railroad safety, the role railroads played in the economic and industrial development of America, and the environmental benefits of freight railroads. Plus, you'll have fun at the same time. Enjoy as you explore.

GUIDELINES

Girl Scout Daisies	1 activity from each Leadership Key
Girl Scout Brownies plus 1 from any key	1 activity from each Leadership Key
Girl Scout Juniors plus 2 from any keys	1 activity from each Leadership Key
Girl Scout Cadettes	1 activity from each Leadership Key plus 3 from any keys
Girl Scout Seniors and Ambassadors	1 activity from each Leadership Key plus 4 from any keys



DISCOVER

1. Identify three railroad signs and describe their purpose.
2. Pretend you could run your own freight railroad. Write a story answering these questions: What would it be called? Where would it be located and why? What goods would it carry?
3. Using a map of the United States, draw the Norfolk Southern system.
4. Write a song about Norfolk Southern to the tune of "Old MacDonald."
5. Create a poster that shows what types of products and materials are shipped by freight railroads.
6. Research and explain the difference between passenger, commuter, and freight railroads, and identify one company operating each type of service in North Carolina.
7. Research the railroad industry by visiting the key issues section of the AAR (Association of American Railroads) website (<https://www.aar.org/>) and finding the section about the Railroad and States. Answer the following questions:
 - a. How many freight railroads are in the United States? How many are in North Carolina?
 - b. How many freight railroad employees are there in the United States? How many in North Carolina?
 - c. What is the largest (most tons) commodity or product moved by rail in the United States? What is the largest in North Carolina?
8. Do the math:
 - a. How many boxes of Thin Mints can ship inside a 50' railroad boxcar? (The dimensions of a standard 50 foot boxcar are 9' 6" wide by 11' high by 50' 6" long)
 - b. How long is a train that has two locomotives and 100 coal hoppers (railroad cars that carry coal)? Note that an average coal hopper is 48 feet long and an average locomotive is 73 feet long. How many feet are in a mile?
9. Learn how a diesel train engine works. How does it take diesel gas and change it into motion? How much horsepower does a train engine have? How heavy is a diesel train engine?

10. Build a train! Using things (cardboard boxes, old Girl Scout cookie boxes, scrap wood, etc.) from around your house to build a model of a train. Ask each member of your troop to build two cars or an engine. Decide how big each car or engine should be. Make sure the gauge (distance between each wheel) is the same for each car. Put the train together at a troop meeting.

CONNECT

1. Create a brochure on the environmental benefits of shipping goods by Norfolk Southern.
2. Environmental awareness is important to the Girl Scouts and Norfolk Southern. What is a carbon footprint? Using Norfolk Southern's online Carbon Footprint Calculator (<http://www.nscorp.com/content/nscorp/en/about-ns/environment/green-machine.html>), estimate how much carbon emissions would be reduced by taking 1,000 trucks off the highway between Atlanta, Ga., and Chicago, IL.
3. You operate a Girl Scout cookie factory in Charlotte, N.C. You have ordered large quantities of sugar from Jacksonville, Fla., and wheat from Chicago, Il., to make your cookies. Go to the Norfolk Southern sustainability website and use The Green Machine (<http://www.nscorp.com/content/nscorp/en/about-ns/environment/green-machine.html>) to calculate the environmental savings of moving your 10 tons of product by rail instead of trucks.
4. Research the environmental benefits of railroads by visiting the Association of American Railroads website environment section and answering the following questions:
 - a. By how much does the EPA estimate that every ton-mile of freight that moves by rail instead of highway reduces greenhouse emissions?
 - b. Using the carbon calculator, for a train with 100 cars in it traveling between New Orleans, LA., and Savannah, GA., moving fresh and frozen foods, how many tons of carbon dioxide would be saved by transporting this freight by rail instead of by truck? How many tree seedlings would you have to plant to have the same effect?
 - c. How many miles can the average freight train move a ton of freight on a single gallon of fuel?
 - d. How many trucks are needed to carry the same amount of freight on the average freight train?
5. Visit the North Carolina Transportation Museum (or other local railroad museum) and:
 - a. Learn what the early forms of communication on the railroad were; and
 - b. Operate a telegraph and send messages in Morse Code.
6. Prepare a presentation highlighting five key innovations in the railroad industry.
7. Using the Internet or library, research information about Phoebe Snow, May Riggins, and Mary Walton, and create a poster explaining why each woman is important in railroad history.
8. Research Norfolk Southern's predecessor railroads and prepare a history timeline showing the different mergers and acquisitions.

TAKE ACTION

1. Color three pages of Operation Lifesaver's Sly Fox & Birdie material and tell your troop leader why you should be safe around trains and railroad tracks. Operation Lifesaver coloring pages can be found using this link from the organization's website: <https://oli.org/education-resources/for-kids>.
2. Visit and list five websites that talk about railroad safety and write a one page essay on why railroad safety is important to Norfolk Southern and the community.
3. Create a photo collage on railroad safety.
4. Visit the North Carolina Operation Lifesaver website (<http://ncols.weebly.com/>) and complete these two activities:
 - a. Find a poster that relates to school bus safety, print it out, and share it at a troop meeting; and,

- b. Find and identify the seven steps for safety at highway-rail grade crossings and prepare a PowerPoint presentation to inform others of what to do.
5. Invite an Operation Lifesaver speaker to your school, youth group, or troop meeting. Operation Lifesaver presenters can be requested using this link from the organization's website:
http://www.oli.org/presenters/request_a_presenter.htm.
6. Trains transport raw materials used to make things, and they deliver finished goods to customers or distribution centers. Research an industry such as paper or automotive and profile the variety of materials and products that they receive and ship by rail. Summarize in a report or a poster.
7. Prepare a presentation on the benefits of shipping by rail versus truck.