



Railroading

Scouts BSA · Hobbies

Name

Started

Completed

Railroads move people and goods across the country every day. You'll learn how trains work, how to stay safe around tracks, and explore model railroading or railfanning. It's a great badge for anyone who loves trains.

Requirements

Every official requirement, in plain language. Check the official wording when you sign off (scouting.org/merit-badges/railroading/). Tips and examples are ideas, not extra requirements.

1 Trains and locomotives: Choose 3 of 4

Tips for this section: Watch trains from a safe public spot or look at photos, and learn to name the kinds of freight cars and locomotives you see.

Example for this section: Three could be: name three kinds of freight trains and why a unit train of coal or grain beats mixed freight, pick out 10 kinds of cars from photos (boxcar, tank car, hopper, flatcar, autorack, and more) and say what each carries, and explain how a diesel engine runs a generator that powers the locomotive's traction motors.

- ☐ **1a** Name three kinds of modern freight trains, and explain what makes unit trains more efficient than mixed freight

- ☐ **1b** Name one Class I or regional railroad and explain the major cities it serves, where its main terminals, service facilities, and crew change points are, and the main goods it hauls

- ☐ **1c** Use models or pictures to identify 10 kinds of freight or passenger cars, and explain what each one is for

- ☐ **1d** Explain how a modern diesel or electric locomotive makes power, and explain dynamic braking and radial steering trucks

2 Passenger rail and transit

Tips for this section: Look at a map of Amtrak routes and the public transit options in your area.

- ☐ **2a** Explain why Amtrak was formed and what it does. Use a timetable to plan a rail trip between two cities 500 or more miles apart, listing departure and arrival times, train name and number, and type of service

- ☐ **2b** List and explain the different kinds of rail-based public or mass transit

3 Railroad jobs and industries: Choose 1 of 4

Tips for this section: Pick a railroad department or job that interests you and find out what it does.

Example for this section: Name four departments, like maintenance of way (the crews who repair track and bridges), mechanical, operations, and dispatching, and describe what each does: why track inspection matters, for example, or how dispatchers keep trains apart.

- ☐ **3a** Name four departments in a railroad company and describe what each one does

- ☐ **3b** Tell which railroading opportunities interest you most and why

- ☐ **3c** Name four industries that support railroads and describe what each one does

- ☐ **3d** With your parent's and counselor's OK, interview a rail industry worker about their job, how they got interested in railroading, and the schooling and training the job requires

4 Rail safety

Tips for this section: Learn the key safety rule: stay off tracks and only cross at marked crossings.

Example for this section: Explain Operation Lifesaver's mission, then build your lists of safety tips from ideas like these: cross only at marked crossings, never walk on or along tracks, and expect a train on any track at any time, because trains can't stop quickly and are quieter than you think.

- ☐ **4a** Explain what Operation Lifesaver is and its mission

- ☐ **4b** List 9 basic safety tips to remember around railroad tracks

- ☐ **4c** List 9 safety points to follow when walking near railroad tracks

- ☐ **4d** Tell your counselor how a driver can stay safe near railroad tracks

- ☐ **4e** Explain safety precautions for riding light rail or a commuter train

5 Crossing signs and signals

Tips for this section: Notice crossing signs and signals around your town and explain what each means.

- ☐ **5a** Explain what passive and active crossing signs look like and what they mean

- ☐ **5b** Explain what crossing devices look like and mean: flashing red lights (with bells or without), flashing lights with gates, and cantilever flashing lights

- ☐ **5c** Explain what road markings at crossings look like and mean: pavement markings and stop bars

- ☐ **5d** Explain the look and meaning of signs ahead of a crossing: advance warning, advance warning for side streets, no train horn, and low ground clearance

- ☐ **5e** Explain what signs along railroad property look like and mean, such as no trespassing signs

- ☐ **5f** Explain the look and meaning of signs at a crossing: crossbuck, emergency notification system, multiple track, stop, and yield

6 Railroad signals and devices

Tips for this section: Listen for train horns and learn what different patterns mean.

Example for this section: Learn the horn pattern for a public crossing, two long, one short, one long, and what a short blast or a series of short blasts can mean. Then explain what a red, yellow, or green signal tells an engineer.

- ☐ **6a** Explain how railroad signals work, and show two basic signal types by color or configuration

- ☐ **6b** Explain what three train horn signals mean

- ☐ **6c** Describe one way to signal a train to make an emergency stop

- ☐ **6d** Explain what the end-of-train device (EOTD, also called a FRED or flashing rear end device) does and how it's used at the rear of most freight trains

7 Special-interest option: Choose 1 of 2

Tips for this section: Build or help with a model layout, or go railfanning from a safe public spot with an adult.

Example for this section: For railfanning, you might ride a scenic or historic railroad with your family and photograph the equipment, then visit a railroad museum and sketch or photograph what interests you. Stay well back from the tracks.

7a Option A: model railroading (parent and counselor OK): Choose 2 of 8

- ☐ **7a1** Draw a model railroad layout (yours, or one that could fit in your home) with point-to-point track or a loop with different routes, plus a turnaround, terminal, yard, or siding

- ☐ **7a2** Build a kit for one model railroad car or one model locomotive

- ☐ **7a3** Name the scales of four popular model railroad gauges, and tell the scale of four model locomotives or cars

- ☐ **7a4** Find the websites of four model railroad manufacturers or magazine publishers, print information on their products and services, and discuss it with your counselor

- ☐ **7a5** Build a railroad structure from scratch or a kit, paint and weather it, mount it on your layout or a diorama, and add scenery around it

- ☐ **7a6** Alone or as part of a group, build a model railroad or modular layout with ballast and scenery, wire it, run a train, and describe what you liked most

- ☐ **7a7** Try a timed switching contest on a timesaver layout and write down your time

- ☐ **7a8** Explain how powering and controlling a model railroad with direct current differs from using digital command control (DCC)

7b Option B: railfanning (parent and counselor OK): Choose 2 of 4

- ☐ **7b1** Visit a railroad museum, historical display, or public event sponsored by a real railroad. With permission, photograph, video, or sketch things that interest you, then explain what you saw and describe your images

- ☐ **7b2** Buy tickets for and ride a scenic or historic railroad. With supervision, photograph the equipment, and discuss the operation's historic importance with your counselor

- ☐ **7b3** Find the websites of four rail history groups and learn each group's purpose and the history of its preservation work. Talk with a member of one group about how you could help

- ☐ **7b4** Plan a rail trip between two places. Using a schedule, explain when the train should reach two stops along the way. Buy tickets, take the trip, and tell your counselor what you saw