Railroading

Merit Badge Workbook

Merit badges are earned by doing: reading the pamphlet, practicing the skills, and showing your counselor what you have learned.
This workbook gives you a place to organize your notes and track your progress along the way.
Merit badge counselors may not require the use of this or any similar workbook.
You still must satisfy your counselor that you can demonstrate each skill and have learned the information.
Use the space under each requirement to note what you have done and what you want to talk about, not to write out full answers.
When a requirement says discuss, show, tell, explain, or demonstrate, that is what you must do.
No one may add to or subtract from the official requirements found on scouting.org (Guide to Advancement 7.0.4.8).
Scouting America last updated this badge's requirements page on December 15, 2025.
Requirements change from time to time. Double-check scouting.org before you start.

Scout's name: _____ Unit: _____ Date started: _____

Counselor's name: _____ Phone no.: _____ Email: _____

Links marked "Scouting America resources" are the ones Scouting America shares on its official badge page.
This workbook is unofficial and not endorsed by Scouting America.

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1. Do THREE of the following:

☐ **(a)** Name three types of modern freight trains. Explain why unit trains are more efficient than mixed freight trains.
Scouting America resources: Types of Freight Trains (video)

Three types of modern freight trains

Type of freight train	My notes

Why unit trains are more efficient than mixed freight trains

☐ **(b)** Name one Class I or regional railroad. Explain what major cities it serves, the locations of major terminals, service facilities, and crew change points, and the major commodities it carries.

Scouting America resources: Class I Railroads in USA: What Are They, History, and Why Do They Matter (website)
FRA Rail Network (website)

Class I or regional railroad I chose

What I found about it

Topic	What I found
Major cities it serves	
Major terminals	
Service facilities	
Crew change points	
Major commodities it carries	

☐ **(c)** Using models or pictures, identify 10 types of railroad freight or passenger cars. Explain the purpose of each type of car.

Scouting America resources: Every Type of Railcar Explained in 15 Minutes (video) · Virtual Train Tour (website)

10 types of railroad cars I identified

Type of car	Its purpose

☐ **(d)** Explain how a modern diesel or electric locomotive develops power. Explain the terms dynamic braking and radial steering trucks.

Scouting America resources: Why Locomotives Don't Have Tires (video)
Dynamic Braking | Diesel Electric Locomotives | Regenerative Braking (video)
[Rail Insights] Take a Closer Look at the Wheel-Rail-Interface (video)

How a modern diesel or electric locomotive develops power

Term	What it means
Dynamic braking	
Radial steering trucks	

Requirement 1 completed on _____ counselor initials _____

2. Do the following:

(a) Explain the purpose and formation of Amtrak. Explain, by the use of a timetable, a plan for making a trip by rail between two cities at least 500 miles apart. List the times of departure and arrival at your destination, the train number and name, and the type of service you want.

Scouting America resources: The History of Amtrak in 2 Minutes (video) · Amtrak Map USA: Understand America's Train Routes (video) Trip Planning Map (website) · Amtrak Schedules & Timetables (website)

The purpose and formation of Amtrak

From (city) _____ To (city) _____ Miles apart _____

My trip plan from the timetable

Train number and name	Departure time	Arrival time at my destination	Type of service I want

(b) List and explain the various forms of public/mass transit using rail.

Scouting America resources: Every Transit System That Works Explained in 9 Minutes (video)

Forms of public/mass transit using rail

Form of rail transit	My explanation

Requirement 2 completed on _____ counselor initials _____

3. Do ONE of the following:

☐ **(a)** Name four departments of a railroad company. Describe what each department does.

Scouting America resources: What Is Rail Operations Management (website) · MOW—Maintenance of Way (video) Departments—Pull Down Menu Under The Southern Pacific Story (website)

Four departments of a railroad company

Department	What it does

☐ **(b)** Tell about the opportunities in railroading that interest you most and why.

Scouting America resources: Why Work for a Short Line or Regional Railroad? (website) · Railroad Careers: Conductors (video) Metro Careers—Operations (video) · Union Pacific—Train Crew (video) · A Day in the Life of an Amtrak Conductor (video) Amtrak Police Department Careers (video) · Amtrak On Board Services Jobs (video)

The opportunities in railroading that interest me most, and why

☐ **(c)** Name four rail support industries. Describe the function of each one.

Scouting America resources: How Millions of Meters of Train Rails Are Made From Steel - Railroad Tracks Mass Production Line (video) · Inside the Massive Factory Where Siemens Builds Trains (video) Track Inspections: Keeping Railroads Safe in Under 5 Minutes (video) · Railway Freight Services (video) Why Chicago's Rail Hub Is So Vital to the National Economy | WSJ (video)

Four rail support industries

Rail support industry	Its function

☐ **(d)** With your parent or guardian's and counselor's approval, interview someone employed in the rail industry. Learn what that person does and how this person became interested in railroading. Find out what type of schooling and training is required for this position.

Scouting America resources: The Informational Interview: Researching a Career (video)

☐ Parent or guardian approved

☐ Counselor approved

Person I interviewed | Their job | Date

What I asked about	What I learned
What this person does	
How they became interested in railroading	
Schooling and training required	

Requirement 3 completed on | counselor initials

4. Do the following:

(a) Explain the purpose of Operation Lifesaver and its mission.

Scouting America resources: Be Safe—Always Expect a Train (video)

The purpose of Operation Lifesaver and its mission

(b) List 9 track basic safety tips to remember when you are around a railroad track.

Scouting America resources: Railroad Safety—Do's and Don'ts (video) · Track Safety Basics (website)
See Train Tracks Ahead? Know What To Do (PDF)

Nine basic track safety tips

#	Track safety tip
1	
2	
3	
4	
5	
6	
7	
8	
9	

(c) List 9 safety considerations that should be followed when walking near a railroad track.

Scouting America resources: Railroad Safety—9 Facts to Keep You Safe Near the Tracks and Avoid Train Accidents (website)
The Dangers of Taking Photos on Train Tracks (video)

Nine safety considerations when walking near a track

#	Safety consideration
1	
2	
3	
4	
5	
6	
7	
8	
9	

(d) Tell your counselor what a driver can do to safely operate near tracks.

Scouting America resources: Driving Safely Near Tracks (website)

What a driver can do to safely operate near tracks

(e) Explain safety precautions when using a light rail or commuter train.

Scouting America resources: Tracks and Transit—Safety in Passenger Rail Systems (video)
Safety Around Streetcars and Light Rail (video)

Safety precautions when using a light rail or commuter train

Requirement 4 completed on _____ counselor initials _____

5. Explain the appearance and meaning of the following rail signs and signals:

Scouting America resources: Rail Signs and Signals (website)

(a) Passive signs and active signs

Scouting America resources: The 2 Types of Railroad Crossing Signs (website)

Sign	What it looks like	What it means
Passive signs		
Active signs		

(b) Devices at the crossing (flashing red lights—with or without bells, flashing red lights and gates, and cantilever flashing lights)

Scouting America resources: Rail Crossing Types From Safety Perspectives (video) · Devices at the Crossing (website)

Device	What it looks like	What it means
Flashing red lights, with or without bells		
Flashing red lights and gates		
Cantilever flashing lights		

(c) Markings on the road (pavement markings and stop bars)

Scouting America resources: Markings on the Road (website)

Marking	What it looks like	What it means
Pavement markings		
Stop bars		

(d) Signs before the crossing (advance warning sign, advance warning sign for side streets, no train horn sign, and low ground clearance grade crossing sign)

Scouting America resources: Signs Before the Crossing (website)

Sign	What it looks like	What it means
Advance warning sign		
Advance warning sign for side streets		
No train horn sign		
Low ground clearance grade crossing sign		

(e) Signs along the railroad property (no trespassing sign)

Scouting America resources: Signs Along Railroad Property (website)

Sign	What it looks like	What it means
No trespassing sign		

(f) Signs at the crossing (crossbuck sign, emergency notification system sign, multiple track sign, stop sign, and yield sign)

Scouting America resources: Why Are There 2 Railroad Crossing Signs? (video)

Sign	What it looks like	What it means
Crossbuck sign		
Emergency notification system sign		
Multiple track sign		
Stop sign		
Yield sign		

Requirement 5 completed on _____ counselor initials _____

6. Do EACH of the following:

(a) Explain how railroad signals operate and show two basic signal types using color or configuration.

Scouting America resources: How Railroad Crossings Work (video) · How To Read Railroad Signals (video)

How railroad signals operate

Two basic signal types I showed

Signal type	Color or configuration	What it means

(b) Explain the meaning of three horn signals.

Scouting America resources: How Trains Talk to Each Other | Horn Sounds | Train Safety (video)
Railroad Safety: Train Horns and Grade Crossing Signals (website)

Three horn signals

Horn signal	What it means

(c) Describe a way to signal a train for an emergency stop.

Scouting America resources: How To Stop a Train in an Emergency (website)

A way to signal a train for an emergency stop

(d) Explain the use and function of the EOTD (end-of-train device), or FRED (flashing rear end device), used on the last car of most freight trains.

Scouting America resources: The End-of-Train Device (EOTD) and Its Impact on Railroading (website)
End of Train Device (EOTD) or Flashing Rear End Device (FRED) (video)

The use and function of the EOTD or FRED

Requirement 6 completed on _____ counselor initials _____

7. Do ONE of the following special-interest options:

☐ **(a)** Option A—Model Railroading. With your parent or guardian's and counselor's approval, do TWO of the following:

☐ Parent or guardian approved

☐ Counselor approved

☐ **(1)** Draw a layout of your own model railroad or one that could be built in your home. Design a point-to-point track or loop with different routings. Include one of the following: turnaround or terminal or yard or siding.

Scouting America resources: Layout Planning (website) · Model Railroad Layout Design for Beginners (video)
Five Starter Track Plans That Make Model Railroading Fun (website)

My layout (draw here or attach)

☐ Point-to-point track or loop with different routings

☐ Includes a turnaround, terminal, yard, or siding

☐ **(2)** Build one model railroad car kit or one locomotive kit.

Scouting America resources: Modeling Safety (website) · Model Railroading Safety and Etiquette (website) · Tools (website)

Car or locomotive kit I built _____ Date finished _____

☐ **(3)** Name the scale of four popular model railroad gauges. Identify the scale of four model cars or locomotives.

Scouting America resources: Comparing Model Train Scales: T, Z, N, Tt, Ho, S, O, G Scales (video)

Four popular model railroad gauges

Gauge	Its scale

Four model cars or locomotives I identified

Model car or locomotive	Its scale

☐ **(4)** Locate the websites of four model railroad-related manufacturers or magazine publishers. Print information about their products and services, and discuss the information with your counselor.

Four model railroad manufacturers or magazine publishers

Company	Website	Products and services

Discussed with my counselor on

☐ **(5)** Build one railroad structure (from scratch or using a kit), paint and weather the structure, mount it on your layout or diorama, and make the surrounding area on the diorama scenic.

Scouting America resources: Weather Plastic Kit Buildings Easy—Detailed Guide DIY (video) · Structures (website) Weathering (website)

Structure I built From scratch or a kit Date

☐ Painted
☐ Weathered
☐ Mounted on my layout or diorama
☐ Surrounding area made scenic

☐ **(6)** Alone or with others, build a model railroad or modular layout including ballast and scenery. Make electrical connections and operate a train. Describe what you enjoyed most.

Scouting America resources: How To Ballast Your Track—Model Railway Basics: Episode Six (video) · Scenery (website)

Built alone or with Date

☐ Ballast
☐ Scenery
☐ Electrical connections made
☐ Operated a train

What I enjoyed most

☐ **(7)** Participate in a switching contest on a timesaver layout and record your time.

Scouting America resources: Fun With Model Train Switching Puzzles (video) · Switching Puzzle—Timesaver (Timelapse) (video) Classic Switching Puzzles — John Allen's Timesaver (website)

Where the contest was Date My time

☐ **(8)** Explain the difference between powering and controlling a model railroad by using direct current, and powering and controlling a model railroad using digital command control.

Scouting America resources: Differences Between DC and DCC HO Locomotives (video)
DC vs. DCC: What's Best for Your Model Railroad?! (video) · Adding Power (website)

Method	How it powers and controls a model railroad
Direct current	
Digital command control	

☐ **(b)** Option B—Railfanning. With your parent or guardian's and counselor's approval, do TWO of the following:

☐ Parent or guardian approved
☐ Counselor approved

☐ **(1)** Visit a railroad museum, historical display, or a prototype railroad-sponsored public event. With permission, photograph, digitally record, or sketch items of interest. Explain what you saw and describe your photos, sketches, or video.

Scouting America resources: Railroading Museums in the US (website) · Railroad Museum Etiquette (video)

Museum, display, or event I visited _____ Date _____

What I saw, and my photos, sketches, or video

☐ **(2)** Purchase tickets and ride a scenic or historic railroad. Under supervision, photograph the equipment and discuss with your counselor the historic significance of the operation.

Scenic or historic railroad I rode _____ Date _____

☐ Purchased my tickets
☐ Photographed the equipment

The historic significance of the operation

☐ **(3)** Locate the websites of four rail historical groups, then find information on the history of the rail preservation operations and purpose of each group. Talk with a member of one of the groups and find out how you might help.

Four rail historical groups

Group	Website	Its purpose

The history of each group's rail preservation operations

Member I talked with _____ Their group _____

How I might help

☐ **(4)** Plan a trip by rail between two points. Obtain a schedule and explain when the train should arrive at two intermediate points. Purchase the tickets and make the trip. Explain to your counselor what you saw.

From _____ To _____ Date of my trip _____

☐ Purchased the tickets
☐ Made the trip

From the schedule

Intermediate point	When the train should arrive

What I saw on the trip

Requirement 7 completed on _____ counselor initials _____

Counselor sign-off

Your counselor signs your blue card or approves the badge in Scoutbook, and your unit records it. This line is for your own records.

Counselor's signature _____ Date completed _____

Official Scouting America resources

Scouting America resources: Railroading merit badge page (requirements and resources) · Railroading merit badge pamphlet (free PDF)
All merit badges

Made by Cole at ScoutSmarts.com, an Eagle Scout who loves helping Scouts.
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