



Railroading

Merit Badge Workbook



This workbook can help you but you still need to read the merit badge pamphlet.
This Workbook can help you organize your thoughts as you prepare to meet with your merit badge counselor

Merit Badge Counselors may not require the use of this or any similar workbooks.

You still must satisfy your counselor that you can demonstrate each skill and have learned the information. You should use the work space provided for each requirement to keep track of which requirements have been completed, and to make notes for discussing the item with your counselor, not for providing full and complete answers.

If a requirement says that you must take an action using words such as "discuss", "show", "tell", "explain", "demonstrate", "identify", etc, that is what you must do.

No one may add or subtract from the official requirements found on Scouting.org.

The requirements were last issued or revised in 2022 • This workbook was updated in May 2022.

Scout's Name: _____ Unit: _____

Counselor's Name: _____ Phone No.: _____ Email: _____

Please submit errors, omissions, comments or suggestions about this **workbook** to: Workbooks@USScouts.Org
Comments or suggestions for changes to the **requirements** for the **merit badge** should be sent to: Merit.Badge@Scouting.Org

1. Do THREE of the following:

a. Name three types of modern freight trains.

1.	
2.	
3.	

Explain 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.

Workbook © Copyright 2022 - U.S. Scouting Service Project, Inc. - All Rights Reserved
Requirements © Copyright, Boy Scouts of America (Used with permission.)

This workbook may be reproduced and used locally by Scouts and Scouters for purposes consistent with the programs of the Boy Scouts of America (BSA), the World Organization of the Scout Movement (WOSM) or other Scouting and Guiding Organizations. However it may NOT be used or reproduced for electronic redistribution or for commercial or other non-Scouting purposes without the express permission of the U. S. Scouting Service Project, Inc. (USSSP).

--

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

1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

9.

10.

d. Explain how a modern diesel or electric locomotive develops power.

Explain the terms dynamic braking and radial steering trucks.

Dynamic braking:

Radial steering trucks:

- 2. Do the following:
- a. Explain the purpose and formation of Amtrak.

Purpose:

Formation:

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.

Depart Location	Time	Arrival Location	Time	Train#	Service

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

- 3. Do ONE of the following:
- a. Name four departments of a railroad company. Describe what each department does.

	Department	What the department does.					
1.		<table border="1"> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> </table>					
2.		<table border="1"> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> </table>					
3.		<table border="1"> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> </table>					
4.		<table border="1"> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td> </td></tr> </table>					

b. Tell about the opportunities in railroading that interest you most and why.

c. Name four rail support industries. Describe the function of each one.

	Industry	Function
1.		
2.		
3.		
4.		

- d. With your parent'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 are required for this position.

- 4. Do the following:
 - a. Explain the purpose of Operation Lifesaver and its mission.

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

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	

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

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	

- d. Tell your counselor what a driver can do safely operate near tracks.

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

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

- a. Passive signs and active signs.

Appearance	Meaning

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

Appearance	Meaning

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

Appearance	Meaning

- 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)

Appearance	Meaning

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

Appearance	Meaning

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

Appearance	Meaning

6. Do EACH of the following:

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

b. Explain the meaning of three horn signals.

1.	
2.	
3.	

c. Describe 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.

- 7. Select ONE of the following special-interest areas and complete the requirements.

- a. **Model Railroading -**

With your parent's and counselor's approval, do TWO of the following:

- 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.

- 2. Build one model railroad car kit or one locomotive kit.
- 3. Name the scale of four popular model railroad gauges.

	Gauge	Name	Scale	Track Gauge
1				
2				
3				
4				

- Identify the scale of four model cars or locomotives.

- 4. Locate the website of four model railroad-related manufacturers or magazine publishers. Print information on their products and services and discuss the information with your counselor.

- 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.
- 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.

- 7. Participate in a switching contest on a timesaver layout and record your 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.

- b. **Railfanning**
With your parent's and counselor's approval, do TWO of the following:

- 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.

- 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.
- 3. Locate the website 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.
- 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.

When working on merit badges, Scouts and Scouters should be aware of some vital information in the current edition of the *Guide to Advancement* (BSA publication 33088). Important excerpts from that publication can be downloaded from <http://usscouts.org/advance/docs/GTA-Excerpts-meritbadges.pdf>.
 You can download a complete copy of the *Guide to Advancement* from <http://www.scouting.org/filestore/pdf/33088.pdf>.