



# 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.

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.

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

No one may add or subtract from the official requirements found in Scouts BSA Requirements (Pub. 33216).

The requirements were last issued or revised in 2019 • This workbook was updated in April 2019.

Scout's Name: \_\_\_\_\_ Unit: \_\_\_\_\_

Counselor's Name: \_\_\_\_\_ Counselor's Phone No.: \_\_\_\_\_

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


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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:




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


3. Do ONE of the following:

c a. Name four departments of a railroad company. Describe what each department does.

	Department	What the department does.
1.		
2.		
3.		
4.		



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- c 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. Explain the purpose of Operation Lifesaver and its mission.


- 5. Do THREE of the following:

- c a. List five safety precautions that help make trains safer for workers and passengers.

1.	
2.	
3.	
4.	
5.	

- c b. Explain to your merit badge counselor why safety around rights-of-way is important.


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- c. List 10 safety tips to remember when you are near a railroad track (either on the ground or on a station platform) or aboard a train.

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

- d. Tell your counselor about the guidelines for conduct that should be followed when you are near or on railroad property.


**Explain the dangers of trespassing on railroad property.**


- e. Tell what an automobile driver can do to safely operate a car at grade crossings, and list three things an automobile driver should never do at a grade crossing.

**Safely operate a car:**




What a driver should never do at a grade crossing.

1.

2.

3.

c f. Tell how to report a malfunction of grade crossing warning devices.

c g. List safety precautions a pedestrian should follow at a public crossing.

6. Explain the appearance and meaning of the following warning signs and devices: advance warning sign, pavement markings, crossbucks, flashing red lights, crossing gates.

	Appearance	Meaning
Advance warning sign:		
Pavement markings:		

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Crossbucks:


Flashing red lights:


Crossing gates:


**7. 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.

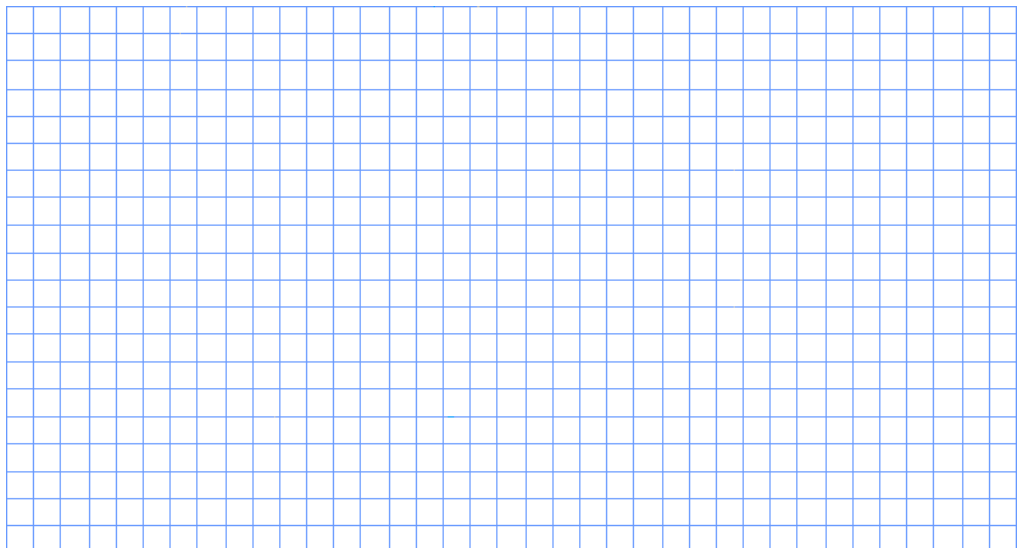

c. Describe a way to signal a train for an emergency stop.


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.


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

c a. Model Railroading - With your parent's and counselor's approval, do TWO of the following:

c 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.