



# Railroading

## Merit Badge Workbook

This workbook can help you but you still need to read the merit badge pamphlet.

The work space provided for each requirement should be used by the Scout to make notes for discussing the item with his counselor, not for providing the full and complete answers. Each Scout must do each requirement.

No one may add or subtract from the official requirements found in **Boy Scout Requirements** (Pub. 33216 – SKU 34765).

The requirements were last issued or revised in 2005 • This workbook was updated in March 2012.

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

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

<http://www.USScouts.Org> • <http://www.MeritBadge.Org>

Please submit errors, omissions, comments or suggestions about improving this workbook to: [Workbooks@USScouts.org](mailto:Workbooks@USScouts.org)

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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: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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 as the fixed-guide path. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

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. Explain the purpose of Operation Lifesaver and its mission. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Do THREE of the following:

- a. List five safety precautions that help make trains safer for workers and passengers.
  - 1. \_\_\_\_\_
  - 2. \_\_\_\_\_
  - 3. \_\_\_\_\_
  - 4. \_\_\_\_\_
  - 5. \_\_\_\_\_

- b. Explain to your merit badge counselor why railroad rights-of-way are important for safety. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- 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. \_\_\_\_\_

- f. Tell how to report a malfunction of grade crossing warning devices. \_\_\_\_\_  
\_\_\_\_\_
- 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.

Advance warning sign: \_\_\_\_\_  
\_\_\_\_\_

Pavement markings: \_\_\_\_\_  
\_\_\_\_\_

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 whistle signals.

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_

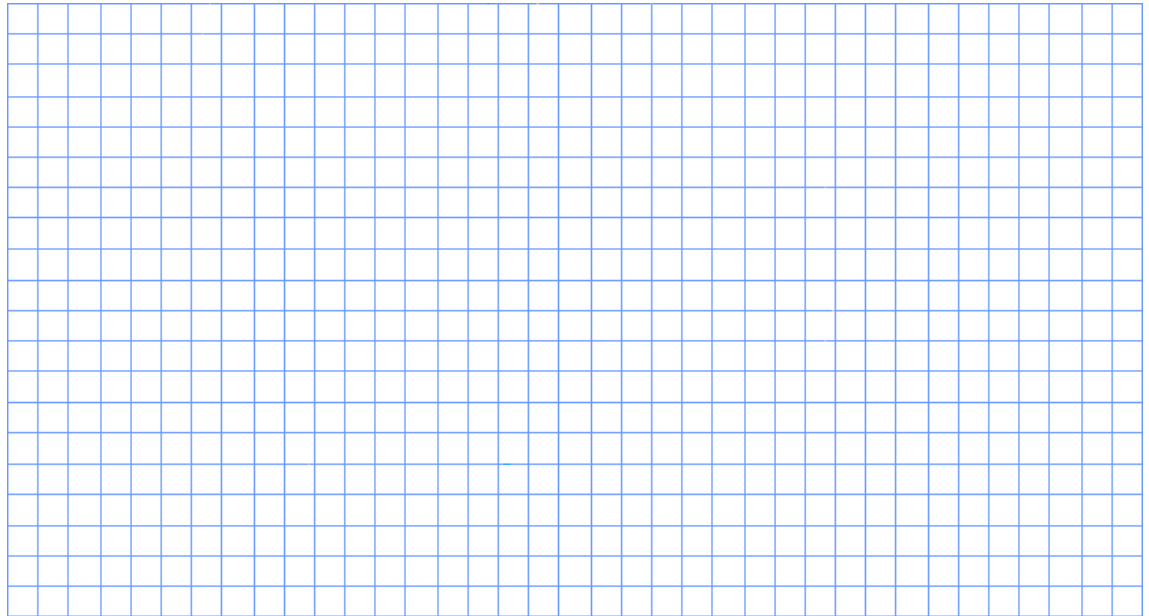
c. Describe a way to signal a train for an emergency stop. \_\_\_\_\_

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 trains. \_\_\_\_\_

8. 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.

	GaugeName	Scale	Track Gauge
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____

Identify the scale of four model cars or locomotives.

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

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- 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.

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

- 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, videotape, or sketch items of interest. Explain what you saw and describe your photos, sketches, or videotape.

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- 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 Web site 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.

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**Requirement resources can be found here:**  
[http://www.meritbadge.org/wiki/index.php/Railroading#Requirement\\_resources](http://www.meritbadge.org/wiki/index.php/Railroading#Requirement_resources)

## Important excerpts from the [‘Guide To Advancement’](#), No. 33088:

Effective January 1, 2012, the *‘Guide to Advancement’* (which replaced the publication *‘Advancement Committee Policies and Procedures’*) is now the *official* Boy Scouts of America source on advancement policies and procedures.

- **[ Inside front cover, and 5.0.1.4 ] — Unauthorized Changes to Advancement Program**  
***No council, committee, district, unit, or individual has the authority to add to, or subtract from, advancement requirements.***  
(There are limited exceptions relating only to youth members with disabilities. For details see section 10, “Advancement for Members With Special Needs”.)
- **[ Inside front cover, and 7.0.1.1 ] — The [‘Guide to Safe Scouting’](#) Applies**  
Policies and procedures outlined in the *‘Guide to Safe Scouting’*, No. 34416, apply to all BSA activities, including those related to advancement and Eagle Scout service projects. [Note: Always reference the online version, which is updated quarterly.]
- **[ 7.0.3.1 ] — The Buddy System and Certifying Completion**  
Youth members must not meet one-on-one with adults. Sessions with counselors must take place where others can view the interaction, or the Scout must have a buddy: a friend, parent, guardian, brother, sister, or other relative—or better yet, another Scout working on the same badge—along with him attending the session. When the Scout meets with the counselor, he should bring any required projects. If these cannot be transported, he should present evidence, such as photographs or adult certification. His unit leader, for example, might state that a satisfactory bridge or tower has been built for the Pioneering merit badge, or that meals were prepared for Cooking. If there are questions that requirements were met, a counselor may confirm with adults involved. Once satisfied, the counselor signs the blue card using the date upon which the Scout completed the requirements, or in the case of partials, initials the individual requirements passed.
- **[ 7.0.3.2 ] — Group Instruction**  
It is acceptable—and sometimes desirable—for merit badges to be taught in group settings. This often occurs at camp and merit badge midways or similar events. Interactive group discussions can support learning. The method can also be attractive to “guest experts” assisting registered and approved counselors. Slide shows, skits, demonstrations, panels, and various other techniques can also be employed, but as any teacher can attest, not everyone will learn all the material.

There must be attention to each individual’s projects and his fulfillment of *all* requirements. We must know that every Scout — actually and *personally*— completed them. If, for example, a requirement uses words like “show,” “demonstrate,” or “discuss,” then every Scout must do that. It is unacceptable to award badges on the basis of sitting in classrooms *watching* demonstrations, or remaining silent during discussions. Because of the importance of individual attention in the merit badge plan, group instruction should be limited to those scenarios where the benefits are compelling.

- **[ 7.0.3.3 ] — Partial Completions**  
Scouts need not pass all requirements with one counselor. The Application for Merit Badge has a place to record what has been finished — a “partial.” In the center section on the reverse of the blue card, the counselor initials for each requirement passed. In the case of a partial completion, he or she does not retain the counselor’s portion of the card. A subsequent counselor may choose not to accept partial work, but this should be rare. A Scout, if he believes he is being treated unfairly, may work with his Scoutmaster to find another counselor. An example for the use of a signed partial would be to take it to camp as proof of prerequisites. Partials have no expiration except the 18th birthday.