



RAILROADING

Merit Badge Requirements

1) Do TWO of the following:

- A) Name three types of modern freight trains. Explain why unit trains are more efficient than mixed freight trains.
- B) Name one Class 1 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.
- C) Using models or pictures, identify 10 types of railroad freight or passenger cars. Explain the purpose of each type of car.
- D) Explain how a modern diesel or electric locomotive develops power. Explain the terms dynamic braking and radial steering trucks.

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 the type of service you want.
- 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.
- 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.
- D) With your parents and counselors 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.
- 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.
- 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.
- 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 marking, 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 and configuration.
- B) Explain the meaning of three whistle signals.
- 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.

Requirements continued on next page

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

A) Model Railroading

With your parents and counselors 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. 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.
- 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 a 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.

B) Railfanning

With your parent and counselors 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, sketched, or videotape.
- 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, and 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.

Requirement 1

You have been given four options for this requirement. Select and complete TWO of them.

If you have selected *Option A*:

Name three types of modern freight trains:

Explain why unit trains are more efficient than mixed freight trains: _____

If you have selected *Option B*:

Name one Class 1 or regional railroad: _____

What cities does it serve? _____

What are the locations of major terminals? _____

Where are the service facilities located? _____

Where is the crew change point? _____

What are the major commodities it carries? _____

If you selected *Option C*:

Using models or pictures, identify 10 types of railroad freight or passenger cars. List them below and explain the purpose of each type of car. Place an "M" by the cars you identified by a model and place a "P" by the cars you identified by picture.

Car Identified: _____ Purpose of Car: _____

Car Identified: _____ Purpose of Car: _____

Car Identified: _____ Purpose of Car: _____

Car Identified: _____ Purpose of Car: _____

Car Identified: _____ Purpose of Car: _____

Car Identified: _____ Purpose of Car: _____

Car Identified: _____ Purpose of Car: _____

Car Identified: _____ Purpose of Car: _____

Car Identified: _____ Purpose of Car: _____

Car Identified: _____ Purpose of Car: _____

Scout Name: _____ Unit #: _____ Date: _____

If you selected *Option D*:

Explain how a modern diesel or electric locomotive develops power: _____

Explain the term "dynamic braking": _____

Explain the term "radial steering trucks": _____

Requirement 2

Explain the purpose and formation of Amtrak: _____

Use the space below to explain the use of a timetable by making a written plan for a trip by rail between two cities at least 500 miles apart.

Departure Time: _____ Arrival Time: _____ Train #: _____ Service: _____

Written Plan: _____

List and explain the various forms of public/mass transit using rail as the fixed guide path: _____

Requirement 3

You have been given four options for this requirement. Select and complete ONE of them.

If you have selected *Option A*:

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

Department: _____

Responsibilities: _____

Department: _____

Responsibilities: _____

Department: _____

Responsibilities: _____

Department: _____

Responsibilities: _____

If you selected *Option B*:

Tell about the opportunities in railroading that interest you most and why: _____

If you selected *Option C*:

Name four rail support industries and describe the function of each one.

Support Industry: _____

Function: _____

Support Industry: _____

Function: _____

Scout Name: _____ Unit #: _____ Date: _____

Support Industry: _____

Function: _____

Support Industry: _____

Function: _____

If you selected *Option D*:

With your parents and counselors approval, interview someone employed in the rail industry.

Who did you interview? _____

What does this person do? _____

How did they become interested in railroading? _____

What type of schooling and training is required for this position? _____

Requirement 4

Explain the purpose of Operation Lifesaver and its mission: _____

Requirement 5

You have been given seven options for this requirement. Select and complete THREE of them.

If you have selected *Option A*:

List five safety precautions that help make trains safer for workers and passengers:

1) _____

2) _____

3) _____

4) _____

5) _____

Scout Name: _____ Unit #: _____ Date: _____

If you selected **Option B**:

Explain why railroad rights-of-way are important for safety: _____

If you selected **Option 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.

Tip: _____

Tip: _____

Tip: _____

Tip: _____

Tip: _____

Tip: _____

Tip: _____

Tip: _____

Tip: _____

Tip: _____

If you Selected **Option D**:

Tell 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: _____

Scout Name: _____ Unit #: _____ Date: _____

If you selected *Option E*:

Tell what an automobile driver can do to safely operate a car at grade crossing: _____

List three things an automobile driver should never do at a grade crossing:

- 1) _____
- 2) _____
- 3) _____

If you selected *Option F*:

Tell how to report a malfunction of grade crossing warning devices: _____

If you selected *Option G*:

List safety precautions a pedestrian should follow at a public crossing: _____

Requirement 6

Explain the appearance and meaning of the following warning signs and devices:

Advance Warning Sign: _____

Pavement Markings: _____

Crossbucks: _____

Flashing Red Lights: _____

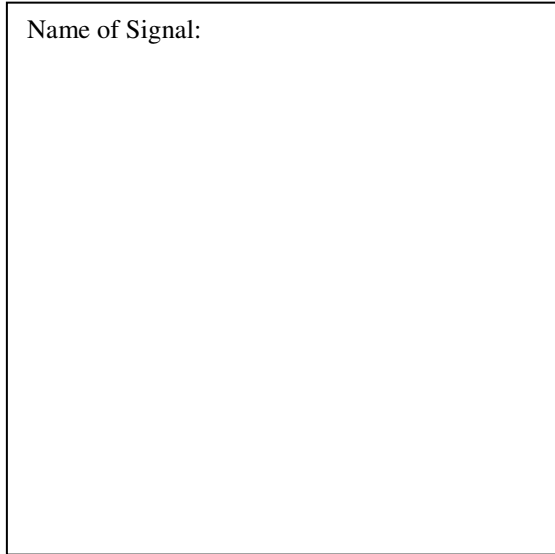
Crossing Gates: _____

Requirement 7

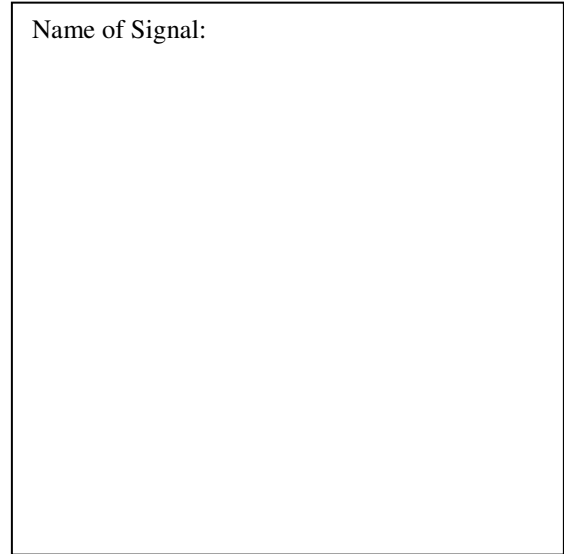
Explain how railroad signals operate: _____

In the spaces below show two basic signals types using color and configuration:

Name of Signal:



Name of Signal:



Describe a way to signal a train for an emergency stop: _____

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: _____

Requirement 8

You have been given two options for this requirement. Select and complete ONE of them.

If you have selected **Option A – Model Railroading**:

There are 7 different requirements within Option A. Select and complete TWO of them.

If you have selected **Option A1**:

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.

Once you have completed your drawing attach it to this worksheet and show it to your merit badge counselor.

Scout Name: _____ Unit #: _____ Date: _____

If you have selected **Option A2**:

Build one model railroad car kit or one locomotive kit.

Give a brief description of your model(s): _____

__ Show your model or photos of your model to your counselor.

If you have selected **Option A3**:

Name the scale of four popular model railroad gauges:

Scale Name: _____	Gauge: _____
Scale Name: _____	Gauge: _____
Scale Name: _____	Gauge: _____
Scale Name: _____	Gauge: _____

Identify the scale of four model cars or locomotives:

Scale Name: _____	Car/Locomotive: _____
Scale Name: _____	Car/Locomotive: _____
Scale Name: _____	Car/Locomotive: _____
Scale Name: _____	Car/Locomotive: _____

If you have selected **Option A4**:

Locate the Web site for four model railroad-related manufactures or magazine publishers.

Name: _____	Web site: _____
Name: _____	Web site: _____
Name: _____	Web site: _____
Name: _____	Web site: _____

Print information on their products and services. Attach the information to this worksheet. Discuss the information with your merit badge counselor.

If you selected **Option A5:**

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 a diorama scenic.

When you have completed this option show it to your merit badge counselor.

If you selected **Option A6:**

Alone or with others, build a model railroad or modular layout, including ballast and scenery. Make electrical connections and operate a train.

After you have completed this option show it to your merit badge counselor.

Describe what you enjoyed most: _____

If you selected **Option A7:**

Participate in a switching contest on a timesaver layout and record your time. Use the space below to tell about the experience: _____

If you selected **Option B – Railfanning**:

There are 4 different requirements within Option B. Select and complete TWO of them.

If you selected **Option B1**:

Visit a railroad museum, historical display, or a prototype railroad-sponsored event. With permission, photograph, videotape, or sketch items of interest. Explain what you saw and describe your photos, sketches, or videotape.

Use this area to give your report. Attach your photos/sketches/video to this worksheet and show it to your merit badge counselor.

If you selected **Option B2**:

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.

Scout Name: _____ Unit #: _____ Date: _____

If you selected **Option B3**:

Locate the Website of four rail historical groups. Tell the purpose of each group.

Name: _____ Web site: _____

Purpose of group: _____

Name: _____ Web site: _____

Purpose of group: _____

Name: _____ Web site: _____

Purpose of group: _____

Name: _____ Web site: _____

Purpose of group: _____

Find information on the history of the rail preservation operations. Give a brief summary of your findings: _____

Talk with a member of one of the groups and find out how you might help.

Who did you speak with? _____

What group do they belong to? _____

What did you learn from them? What can you do to help? _____

Scout Name: _____ Unit #: _____ Date: _____

If you selected **Option B4:**

Plan a trip by rail between two points. Obtain a schedule and explain when the train should arrive at two intermediate points. Purchase tickets and make the trip. Use the area below to give a brief report of all you did for this requirement. Show it to your merit badge counselor and then explain to your counselor what you saw: _____

Blank lined area for writing the report.