



# READING COMPANY TECHNICAL & HISTORICAL SOCIETY

## Railroading Merit Badge Class - Workbook

Thank you for your interest in the Railroading Merit Badge Instruction provided by the Reading Railroad Heritage Museum! This workbook has been created to help you successfully complete the requirements for earning the badge. REMINDER: Sections 1a, 1c, 3a and 5a,c,e are to be completed BEFORE attending your scheduled class! If you have any questions or concerns prior to the class, please contact Class Instructor Andrew Dietz at [scouting@readingrailroad.org](mailto:scouting@readingrailroad.org)!

### Requirement 1a: Name Three Types of Modern Freight Trains.

Train 1: \_\_\_\_\_

Train 2: \_\_\_\_\_

Train 3: \_\_\_\_\_

### Why are "Unit Trains" more efficient than "Mixed" Freight Trains?

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### Requirement 1c: Using models or pictures, identify 10 types of railroad freight or passenger cars. Explain the purpose of each type of car.

- \_\_\_\_\_ Purpose: \_\_\_\_\_
- \_\_\_\_\_ Purpose: \_\_\_\_\_
- \_\_\_\_\_ Purpose: \_\_\_\_\_
- \_\_\_\_\_ Purpose: \_\_\_\_\_
- \_\_\_\_\_ Purpose: \_\_\_\_\_
- \_\_\_\_\_ Purpose: \_\_\_\_\_
- \_\_\_\_\_ Purpose: \_\_\_\_\_
- \_\_\_\_\_ Purpose: \_\_\_\_\_
- \_\_\_\_\_ Purpose: \_\_\_\_\_
- \_\_\_\_\_ Purpose: \_\_\_\_\_

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**Requirement 1c, continued**

- \_\_\_\_\_ Purpose: \_\_\_\_\_
- \_\_\_\_\_ Purpose: \_\_\_\_\_

**Requirement 1d: Explain how a modern diesel or electric locomotive develops power.**

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**Explain the term “Dynamic Braking.”**

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**Explain the term “Radial Steering Trucks.”**

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**TIMETABLE CLASS**

**Requirement 2a: Explain the purpose and formation of Amtrak.**

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**Explain, by the use of a timetable, a plan for making a trip by rail between two cities at least 500 miles apart.**

Departure Location: \_\_\_\_\_ Departure Time: \_\_\_\_\_

Arrival Location: \_\_\_\_\_ Arrival Time: \_\_\_\_\_

Train # \_\_\_\_\_ Train Name: \_\_\_\_\_

Services: \_\_\_\_\_

Distance Traveled: \_\_\_\_\_

**Requirement 2b: List and explain the various forms of public/mass transit using rail.**

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**Requirement 3a: Name four departments of a railroad company. Describe what each department does.**

- |                     |                   |
|---------------------|-------------------|
| 1. Department _____ | Description _____ |
| 2. Department _____ | Description _____ |
| 3. Department _____ | Description _____ |
| 4. Department _____ | Description _____ |

**Requirement 4: Explain the purpose of Operation Lifesaver and its mission.**

**Purpose:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Mission:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Requirement 5a: List five safety precautions that help make trains safer for workers and passengers.**

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_
5. \_\_\_\_\_  
\_\_\_\_\_

**Requirement 5c: 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. \_\_\_\_\_

\_\_\_\_\_

**Requirement 5e: 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.**

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1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

**Requirement 6: Explain the appearance and meaning of the following warning signs and devices:**

Advance Warning Sign: \_\_\_\_\_

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Pavement Markings: \_\_\_\_\_

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Crossbucks: \_\_\_\_\_

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Flashing Red Lights: \_\_\_\_\_

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Crossing Gates: \_\_\_\_\_

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**Requirement 7a: Explain how railroad signals operate.**

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**Show two basic signal types using configuration. Use reverse side of this page.**

**Requirement 7b: Explain the meaning of three whistle signals (~ is a long blast, 0 is a short blast)**

0 \_\_\_\_\_

~ 0 0 0 \_\_\_\_\_

0 0 \_\_\_\_\_

~ ~ 0 ~ \_\_\_\_\_

~ ~ \_\_\_\_\_

~ ~ ~ ~ ~ ~ ~ ~ \_\_\_\_\_

**Requirement 7c: Describe a way to signal a train for an emergency stop.**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Requirement 7d: 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 8a(3): Name the scale of four popular model railroad gauges. Identify the scale of four model cars or locomotives.**

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

5 \_\_\_\_\_

6 \_\_\_\_\_

**Requirement 8a(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.**

**NAME OF SCOUT:**

**DATE:**

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