

## Railroading





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 – SKU 653801). The requirements were last issued or revised in 2019 • This workbook was updated in June 2020.

| Scout's Nar | ne:               |   |           | Unit:                 |                              |
|-------------|-------------------|---|-----------|-----------------------|------------------------------|
| Counselor's | Counselor's Name: |   | ).:       |                       | Email:                       |
| Com         |                   | http://www.USScouts.Coase submit errors, omissions, comments or so or suggestions for changes to the requirem | uggestion | s about this workboo  | k to: Workbooks@USScouts.Org |
| I. Do THI   | REE o             | of the following:   |           |                       |                              |
| a.          | Nar               | me three types of modern freight trains.  |           |                       |                              |
|             | 1.                |   |           |                       |                              |
|             | 2.                |   |           |                       |                              |
|             | 3.                |   |           |                       |                              |
|             | Exp               | plain why unit trains are more efficient that   | an mixed  | freight trains.       |                              |
|             |                   |   |           |                       |                              |
|             |                   |   |           |                       |                              |
| b.          | Nar               | me one class I or regional railroad   |           |                       |                              |
| U.          | Exp               | plain what major cities it serves, the locat<br>major commodities it carries.                                 | ions of m | ajor terminals, servi |                              |
|             |                   |   |           |                       |                              |
|             |                   |   |           |                       |                              |
|             |                   |   |           |                       |                              |
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Scout's Name: \_\_\_\_ \_\_\_\_\_

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| 10.                                      |                        |                    |        |  |
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|  |                        |                    |        |  |
|  |                        |                    |        |  |
| Explain how a modern di                  | esel or electric locor | notive develops    | oower. |  |
|  |                        |                    |        |  |
|  |                        |                    |        |  |
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|  |                        |                    |        |  |
| Evalois the terms dynam                  | is braking and radio   | Lotopring trunks   |        |  |
| Explain the terms dynam                  | ic braking and radia   | steering trucks.   |        |  |
| Explain the terms dynam Dynamic braking: | ic braking and radia   | l steering trucks. |        |  |
|  | ic braking and radia   | I steering trucks. |        |  |
|  | ic braking and radia   | I steering trucks. |        |  |
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|  | ic braking and radia   | steering trucks.   |        |  |
|  | ic braking and radia   | I steering trucks. |        |  |
| Dynamic braking:                         | ic braking and radia   | I steering trucks. |        |  |
|  | ic braking and radia   | I steering trucks. |        |  |
| Dynamic braking:                         | ic braking and radia   | steering trucks.   |        |  |
| Dynamic braking:                         | ic braking and radia   | steering trucks.   |        |  |
| Dynamic braking:                         | ic braking and radia   | I steering trucks. |        |  |
| Dynamic braking:                         | ic braking and radia   | I steering trucks. |        |  |

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| roading    |                |                 |                |                           | Scou         | t's Name:      |                            |
|------------|----------------|-----------------|----------------|---------------------------|--------------|----------------|----------------------------|
| Do the fa. | following:     | urnaca and fo   | ormation of A  | mtrak                     |              |                |                            |
| a.         |                | urpose and it   | JIIIAUUII UI A | IIIII ak.                 |              |                |                            |
|            | Purpose:       |                 |                |                           |              |                |                            |
|            |                |                 |                |                           |              |                |                            |
|            |                |                 |                |                           |              |                |                            |
|            |                |                 |                |                           |              |                |                            |
|            |                |                 |                |                           |              |                |                            |
|            | Formation:     |                 |                |                           |              |                |                            |
|            |                |                 |                |                           |              |                |                            |
|            |                |                 |                |                           |              |                |                            |
|            |                |                 |                |                           |              |                |                            |
|            |                |                 |                |                           |              |                |                            |
|            | Explain, by th | ne use of a tin | netable, a pla | n for making a trip by ra | il between t | wo cities at I | east 500 miles apart. List |
|            |                |                 |                |                           |              |                | he type of service you wa  |
|            | Depart         | Location        | Time           | Arrival Location          | Time         | Train#         | Service                    |
|            |                |                 |                |                           |              |                |                            |
|            |                |                 |                |                           |              |                |                            |
|            |                |                 |                |                           |              |                |                            |
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|            |                |                 |                |                           |              |                |                            |
|            |                |                 |                |                           |              |                |                            |

| of the following: |   |
|-------------------|---|
|                   | tments of a railroad company. Describe what each department does. |
| Departr           | tment What the department does.                                   |
| 1.                |   |
|                   |   |
|                   |   |
|                   |   |
|                   |   |
| 2.                |   |
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|                   |   |
| 3.                |   |
| 3.                |   |
| 3.                |   |
| 3.                |   |
| 3.                |   |
|                   |   |
| 4.                |   |
|                   |   |

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

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Railroading

3.

| Railroading |                     |                          | Scout's Name:                     |
|-------------|---------------------|--------------------------|-----------------------------------|
| c <b>b.</b> | Tell about the oppo | rtunities in railroadinç | g that interest you most and why. |
|             |                     |                          |                                   |
|             |                     |                          |                                   |
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|             |                     |                          |                                   |
|             |                     |                          |                                   |
| C <b>C.</b> | Name four rail supp | ort industries. Descr    | ribe the function of each one.    |
|             | Industry            | •                        | Function                          |
|             | 1.                  |                          |                                   |
|             |                     |                          |                                   |
|             |                     |                          |                                   |
|             |                     |                          |                                   |
|             |                     |                          |                                   |
|             | 2.                  |                          |                                   |
|             |                     |                          |                                   |
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|             |                     |                          |                                   |
|             |                     |                          |                                   |
|             | 3.                  |                          |                                   |
|             |                     |                          |                                   |
|             |                     |                          |                                   |
|             |                     |                          |                                   |
|             |                     |                          |                                   |
|             | 4.                  |                          |                                   |
|             |                     |                          |                                   |
|             |                     |                          |                                   |
|             |                     |                          |                                   |

| Ra | ilroa | ding   | Scout's Name:   |
|----|-------|--------|---|
|    | С     | 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. | Ev    | nlain  | the purpose of Operation Lifesaver and its mission.   |
| 4. |       | piaiii | the purpose of Operation Lifesaver and its mission.   |
|    |       |        |   |
|    |       |        |   |
|    |       |        |   |
|    |       |        |   |
|    |       |        |   |
| 5. | Do    | THR    | REE of the following:   |
|    | С     | a.     | List five safety precautions that help make trains safer for workers and passengers.  |
|    |       |        | 1.  |
|    |       |        | 2.  |
|    |       |        | 3.  |
|    |       |        | 4.  |
|    |       |        | 5.  |
|    | С     | b.     | Explain to your merit badge counselor why safety around rights-of-way is important.   |
|    |       |        |   |
|    |       |        |   |
|    |       |        |   |
|    |       |        |   |
|    |       |        |   |
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|    |       |        |   |

| С | 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.   |
| С | 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.  |
|   |    |   |
|   |    |   |
|   |    |   |
|   |    |   |
|   |    |   |
|   |    |   |
| С | 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:   |
|   |    |   |
|   |    |   |
|   |    |   |
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Railroading

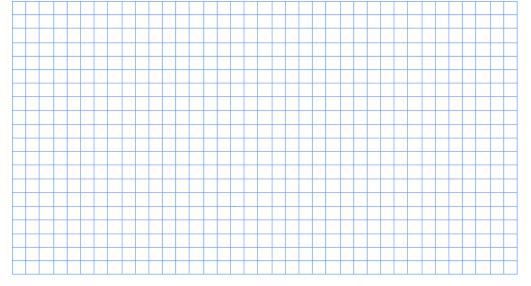
| Railroading                                       |   | Scout's Name:                                       |
|---|---|---|
| What a driver sho                                 | uld never do at a grade crossing.   |   |
| 1.  |   |   |
|   |   |   |
|   |   |   |
|   |   |   |
| 2.  |   |   |
|   |   |   |
|   |   |   |
|   |   |   |
| 3.  |   |   |
|   |   |   |
|   |   |   |
| ( T.II.   |   |   |
| c f. Tell how to re                               | port a malfunction of grade crossing warning de                           | evices.   |
|   |   |   |
|   |   |   |
|   |   |   |
|   |   |   |
| ⊂ g. List safety pr                               | ecautions a pedestrian should follow at a public                          | crossina.   |
| g. Lacourage                                      |   | <del></del>   |
|   |   |   |
|   |   |   |
|   |   |   |
|   |   |   |
| 6. Explain the appearance crossbucks, flashing re | e and meaning of the following warning signs a ed lights, crossing gates. | nd devices: advance warning sign, pavement markings |
|   | Appearance  | Meaning   |
| Advance warning sign                              | 1:  |   |
|   |   |   |
|   |   |   |
|   |   |   |
| Pavement markings:                                |   |   |
|   |   |   |
|   |   |   |
|   |   |   |

| Railroading   |                         |                    |                         | Scout's Name:                     |
|---------------|-------------------------|--------------------|-------------------------|-----------------------------------|
| Crossbucks    | :                       |                    |                         |                                   |
|               |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
| Flashing red  | I lights:               |                    |                         |                                   |
|               |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
| Crossing ga   | tes:                    |                    |                         |                                   |
|               |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
| 7. Do EACH of | the following:          |                    |                         |                                   |
| a. Exp        | olain how railroad sign | als operate and sh | ow two basic signal typ | pes using color or configuration. |
|               |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
|               | olain the meaning of th | ree horn signals.  |                         |                                   |
| 1.            |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
| 2.            |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |
|               |                         |                    |                         |                                   |

7.

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|             | 3.   |  |
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|             |  |  |
| C.          | Describe a way to signal                                 | a train for an emergency stop.   |
| 0.          | Describe a may to signal                                 | a tum for an emergency step.   |
|             |  |  |
|             |  |  |
|             |  |  |
|             |  |  |
| d.          | Explain the use and functions car of most freight trains | tion of the EOTD (end-of-train device) or FRED (flashing rear end device) used on the last |
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|             |  |  |

- 8. Select ONE of the following special-interest areas and complete the requirements.
  - $\, \subset \, \,$  a. Model Railroading With your parent's and counselor's approval, do TWO of the following:
    - 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.



| Railroading |        |               | Scout's Name:   |  |                             |                          |                        |  |
|-------------|--------|---------------|---|--|-----------------------------|--------------------------|------------------------|--|
|             |        | 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   |  |                             |                          |                        |  |
|             |        |               |   |  |                             |                          |                        |  |
|             | $\Box$ | <b>∐</b><br>1 | Identify the scale of four model cars or locomotives.   |  |                             |                          |                        |  |
|             | Ш      | 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. |  |                             |                          |                        |  |
|             |        |               |   | on producte and convice  | o and diodeo the informa    | alon wan your oouncolor. |                        |  |
|             |        |               |   |  |                             |                          |                        |  |
|             |        |               |   |  |                             |                          |                        |  |
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|             |        |               |   |  |                             |                          |                        |  |
|             |        |               |   |  |                             |                          |                        |  |
|             |        | 5.            | Build one railroad structure (from scratch or using a kit), paint and weather the structure, mount it on your   |  |                             |                          |                        |  |
|             |        |               | layou   | it or diorama, and make  | the surrounding area on t   | he diorama scenic.       |                        |  |
|             |        | 6.            |   |  | model railroad or modular   |                          | nd scenery. Make       |  |
|             |        |               | elect   | rical connections and op   | erate a train. Describe w   | hat you enjoyed most.    |                        |  |
|             |        |               |   |  |                             |                          |                        |  |
|             |        |               |   |  |                             |                          |                        |  |
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|             |        |               |   |  |                             |                          |                        |  |
|             |        |               |   |  |                             |                          |                        |  |
|             |        | 7.            | Parti   | Participate in a switching contest on a timesaver layout and record your time. |                             |                          |                        |  |
|             |        | 8.            |   |  | en powering and controllin  |                          | ng direct current, and |  |
|             |        |               | powe  | ering and controlling a m  | odel railroad using digital | command control.         |                        |  |
|             |        |               |   |  |                             |                          |                        |  |
|             |        |               |   |  |                             |                          |                        |  |
|             |        |               |   |  |                             |                          |                        |  |
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| ☐ b.        | Railfanning - With your parent's and counselor's approval, do TWO of the following:  |
| Ш .         | 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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|             |  |
|             |  |
|             |  |
|             | 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.                        |
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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 <a href="http://usscouts.org/advance/docs/GTA-Excerpts-meritbadges.pdf">http://usscouts.org/advance/docs/GTA-Excerpts-meritbadges.pdf</a>.

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