

Apprenticeship and Certification Study Guide



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Introduction

This Study Guide has been developed by the Newfoundland and Labrador Department of Education and Early Childhood Development, Apprenticeship and Trades Certification Division, to assist apprentices and trade qualifiers as they prepare to write the Red Seal Exam. Red Seal Exams are available for all Red Seal trades. For a list of Red Seal trades please refer to the Department of Education and Early Childhood Development website: <https://www.gov.nl.ca/atcd/designated-trades/list-of-designated-trades/>

Some of the specific goals of this guide are:

- ⇒ to help you understand the skills and knowledge that might be covered on the exam
- ⇒ to help you identify your strengths and weaknesses
- ⇒ to provide organization and structure for a course of study
- ⇒ to provide a list of resources to help you with your study plan
- ⇒ to support and supplement the teaching and learning process

This study guide outlines the theoretical portion of the program. The intent is not to replace technical training provided under the guidance of instructors. Rather, it is a tool to be used in conjunction with formal training.



Exam Process

Before the Exam

You must contact the nearest Apprenticeship and Trades Certification Divisional office to make request to write the Red Seal exam (*See Appendix A for a list of regional offices*). Upon approval, the Apprenticeship Program Officer (APO) will notify you of your eligibility to write the exam, and provide you with scheduling information. If you require special accommodations due to a disability or language barrier, please contact your regional office for information on applying for this service.

During the Exam

You must bring:

- personal identification such as a photo or signature ID or valid Newfoundland and Labrador driver's license
- your notification letter

The following will be provided:

- a calculator (*see Appendix B for calculator information*)
- all other items required such as pencils, scrap paper, etc.

Important Note:

Personal cell phones, calculators, or other electronic equipment are NOT allowed into the exam room. If you do bring them, they will be stored away and returned to you when you have completed the exam.

After the Exam

Results will be mailed to you approximately seven to ten days after completion of the exam. All necessary instructions and information will be provided in the results letter.

The percentage mark you obtained will be provided. You will also be given a section by section breakdown, showing how many questions were in each section, as well as the number of questions in each section you completed successfully.

If you are successful in obtaining a 70% or more on your exam, you will be issued a Newfoundland and Labrador Certificate of Qualification with a Red Seal endorsement.

Exam Format

All Red Seal exams are written in multiple-choice format. Each exam has between 100 and 150 questions. A multiple choice question consists of a stem (a complete question) followed by four options (A, B, C, D). The stem contains all the information necessary to answer the question. The options consist of the one correct answer and three “distracters.” Distracters are incorrect. (See Appendix C for a sample answer sheet).

Red Seal exams contain three types of questions:

Level 1 Knowledge and Recall

Questions at this level test your ability to recall and understand definitions, facts, and principles.

Level 2 Procedural and Application

Questions at this level test your ability to apply your knowledge of procedures to a new situation.

Level 3 Critical Thinking

Questions at this level test your ability to interpret data, solve problems and arrive at valid conclusions.

Level 1 Examples:

1. What needs to be done with damaged slings?
 - A. Destroy them.
 - B. Repair them.
 - C. Downgrade them.
 - D. Continue to use them with caution.



2. What is lubricated and aligned before the erection of the main jib?

- A. Turntable.
- B. Trolley.
- C. Pendants.
- D. Bridles.



3. Where is the identification of a tower crane found?

- A. In the operator's cab.
- B. On all major components.
- C. At the base of the tower.
- D. In the manufacturers' manual.



Level 2 Examples:

1. What would be the total for the grid line numbers $50^{\circ} 50$ minutes plus $48^{\circ} 40$ minutes?

- A. $98^{\circ} 90$ minutes.
- B. $99^{\circ} 30$ minutes.
- C. $100^{\circ} 88$ minutes
- D. $188^{\circ} 0$ minutes.



2. If when installing a set of stairs, it takes 4 ironworkers 3 hours to complete a job, how many hours will it take 3 ironworkers to complete the same job?
- A. 3 hours.
 - B. 4 hours.
 - C. 6 hours.
 - D. 12 hours.



3. What is the proper sequence prior to disconnecting the conveyor chain from an existing system?
- A. Disengage the take-up, check the elevations and secure the chain.
 - B. Disengage the drive, remove the pins and secure the chain.
 - C. Remove the chain pins, check and secure the take-up.
 - D. Remove the drive chain, check the take-up and remove the pins.



Level 3 Examples:

1. How many 20 ft. sections of tower weighing 3400 lb. each can be hoisted and placed inside an elevator shaft at the same time with a crane capacity of 5 tons, a building height of 210 ft. and an under-hook height of 273 ft.?
- A. 2.
 - B. 3.
 - C. 4.
 - D. 5.



2. Which colors of the color code represent a reinforcing steel bar 5280 mm in length??

- A. Dark blue, pink, light blue, red.
- B. Dark blue, red, light blue, pink.
- C. Light blue, red, dark blue, pink.
- D. Light blue, pink, dark blue, red.



3. What is the final force on a 15 mm strand of post-tensioning cable?

- A. 10 kN.
- B. 147 kN.
- C. 157 kN.
- D. 190 kN.



Source of Questions:

<http://www.red-seal.ca/s.1mpl.2.2x.1mQ.5.2st.3.4ns-eng.html?tid=132>

Exam Content

Understanding the *Red Seal Occupational Standard (RSOS)*

The Red Seal model has historically been based on the development of the National Occupational Analysis (NOA) which supports the development of multiple-choice format examinations.

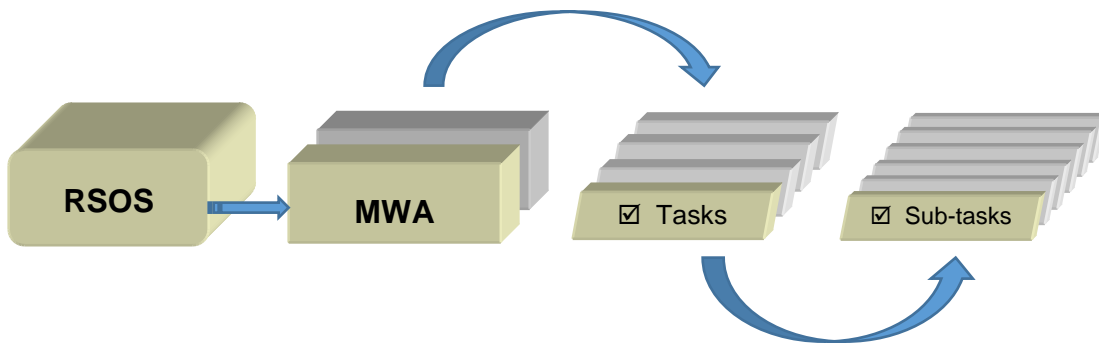
The RSOS was introduced in 2015 and is now taking the place of the NOA. Each RSOS or NOA sets the standard for a Red Seal trade. The Red Seal Examination is based on the Red Seal Standard.

The new standards provide greater consistency in learning resources and allow for increased industry involvement in the development of these standards. This new model places increases emphasis on apprenticeship training and assessing skills with industry learning objectives, outcomes and performance criteria.

The RSOS for each trade describes the tasks and sub-tasks; skills and knowledge requirements; summary of essential skills; safety information; trends affecting the trade; technical terms; names of tools and equipment; acronyms; learning objectives and outcomes; industry expected performance and essential skills related to each sub-task.

The RSOS is an excellent tool to use as you study for the Red Seal exam. RSOSs can be found at <http://www.red-seal.ca/resources/n.4.1-eng.html>

RSOS material is organized into the following categories: **MWA (Major Working Activity)**. The MWAs are further broken down into **TASKS** (*describes activities within an MWA*) and **SUB-TASKS** (*describe activities within a task – This is what the exam is based on*).

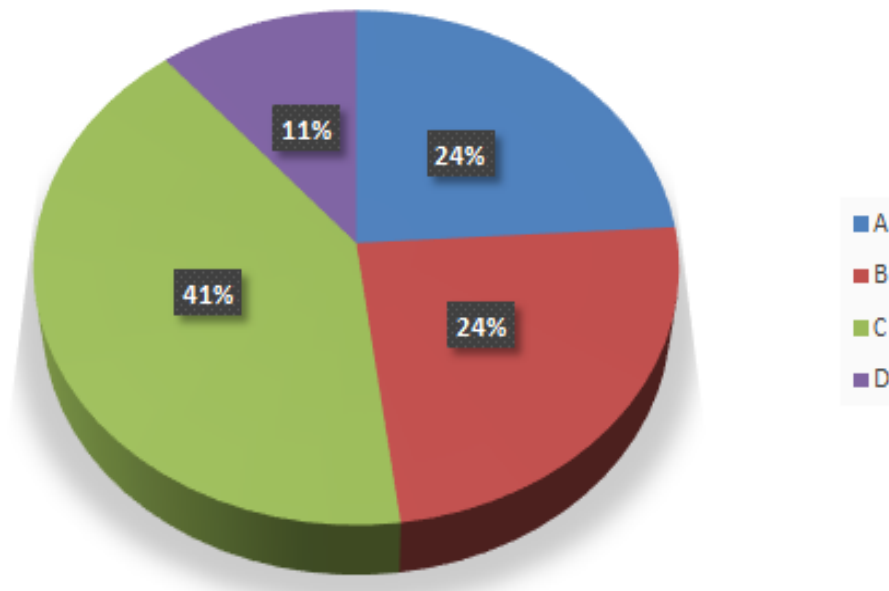


The NOA will continue to be used as the occupational standard for trades that do not yet have an RSOS developed.

RSOS Pie Chart

The RSOS Pie Chart presents the MWA percentages in the form of a pie chart which tells you the approximate number of questions from each MWA. For example, **24%** of the questions on the **Ironworker (Reinforcing)** Exam will be based on MWA A.

IRONWORKER (REINFORCING)



MWA Titles			
MWA A	Performs common occupational skills	MWA C	Fabricates and installs reinforcing materials
MWA B	Performs rigging, hoisting and positioning, and participates in crane and equipment mobilization and demobilization	MWA D	Performs pre-stressing/post-tensioning

Exam Breakdown

The **Ironworker (Reinforcing)** exam currently has 120 questions. The following table shows a breakdown of the number of questions that come from each RSOS MWA. It is important to note that the exact number of questions can change at any time. When you are ready to write your exam, you may contact your regional office to verify the number of questions (See Appendix A).

		# of Questions
MWA A	Performs Common Occupational Skills	29
Task 1	Maintains safe and healthy workplace	
Task 2	Uses and maintains tools and equipment	
Task 3	Organizes work	
Task 4	Maintains continuous learning	
Task 5	Uses communication and mentoring techniques	
MWA B	Performs rigging, hoisting, positioning, and participates in crane and equipment mobilization and demobilization	28
Task 6	Plans lift	
Task 7	Rigs, hoists and positions load	
Task 8	Performs post-lift activities	
Task 9	Participates in mobilization and demobilization of cranes and equipment	
MWA C	Fabricates and installs reinforcing materials	49
Task 10	Fabricates reinforcing materials on-site	
Task 11	Installs reinforcing materials	
MWA D	Performs pre-stressing/post-tensioning	14
Task 12	Places pre-stressed/post-tensioning systems	
Task 13	Stresses tendons	
Task 14	Grouts tendons	
	Total	120

RSOS Sub-tasks

The following *RSOS Task Profile Checklist* outlines the MWAs, tasks and sub-tasks for your trade. The Red Seal exam is written to test your knowledge and abilities regarding the sub-tasks in the RSOS. This chart can be used to review your current knowledge. You can review by placing a check mark (✓) next to those you understand fully.

Place your focus on those you do not understand and study them until you are comfortable with the material. Think of possible questions in that particular content area.

The RSOS also contains a list of “supporting knowledge and abilities” for each sub-task. They are the skills and knowledge you must have to perform a sub-task. The supporting knowledge and abilities identified under each sub-task will be very helpful as you review. The list can be found in the RSOS for your trade.

**Task Profile Checklist
Based on 2025 RSOS
Ironworker (Reinforcing)**

MWA A: Performs Common Occupational Skills

Task 1: Maintains safe and healthy workplace

- Sub-Tasks**
- Maintains safe work environment
 - Uses personal protective equipment (PPE) and safety equipment
 - Participates in healthy and respectful work environment

Task 2: Uses and maintains tools and equipment

- Sub-Tasks**
- Uses hand tools and measuring equipment
 - Uses power tools
 - Uses bending tools and equipment
 - Uses mobile elevating work platforms (MEWP)
 - Uses material handling equipment
 - Uses ladders
 - Uses scaffolding
 - Uses surveying equipment
 - Uses welding equipment
 - Uses mechanical cutting equipment
 - Uses thermal cutting equipment

Task 3: Organizes work

- Sub-Tasks**
- Organizes materials and supplies
 - Performs layout
 - Uses drawings and documentation
 - Plans tasks

Task 4: Maintains continuous learning

- Sub-Tasks**
- Up skills in new trade practices and procedures
 - Upskills in emerging technologies

Task 5: Uses communication and mentoring techniques

- Sub-Tasks**
- Uses communication techniques
 - Uses mentoring techniques

MWA B: Performs Rigging, Hoisting, Positioning, Mobilization, Erection, and demobilization of Cranes

Task 6: Plans lift

Sub-Tasks

- Assesses load
- Performs pre-lift analysis
- Selects rigging, hoisting and positioning equipment
- Secures lift area

Task 7: Rigs, hoists and positions load

Sub-Tasks

- Inspects rigging, hoisting and positioning equipment
- Assembles rigging, hoisting and positioning equipment
- Attaches rigging equipment to load.
- Performs hoisting and positioning operations
- Secures load before rigging removal

Task 8: Performs post-lift activities

Sub-Tasks

- Conducts post-lift inspection
- Disassembles rigging, hoisting and positioning equipment
- Maintains rigging, hoisting and positioning equipment

Task 9: Performs in mobilization, and demobilization of cranes and equipment

Sub-Tasks

- Participates in mobilization of cranes and equipment
- Demobilizes cranes and equipment

MWA C: Fabricates and Installs Reinforcing Material

Task 10: Fabricates reinforcing materials on-site

Sub-Tasks

- Cuts reinforcing materials
- Bends reinforcing materials

Task 11: Installs Reinforcing Materials

Sub-Tasks

- Places reinforcing materials
- Ties reinforcing materials
- Splices reinforcing materials

MWA D: Performs Pre-Stressing/Post-Tensioning

Task 12: Places pre-stressed/post-tensioning systems

- Sub-Tasks**
- Lays out profile
 - Places tendons and accessories
 - Installs bursting steel and anchorages
 - Connects tendons to anchorages
 - Protects exposed tendons

Task 13: Stresses tendons

- Sub-Tasks**
- Sets up stressing equipment
 - Tensions tendons
 - Cuts and caps tendons
 - Removes stressing equipment
 - De stresses tendons

Task 14: Grouts tendons

- Sub-Tasks**
- Sets up grouting equipment
 - Installs grout

Create a Study Plan

As you prepare for your exam, it is important to plan a schedule. The following two tables will help you stay on track.

The first table is a **“Weekly Study Plan.”** In this table list the areas you will focus your study for each day. You should include items you need to review as well as items you need to study. Remember, more time will be needed for study in areas you find difficult, whereas you may only require review in areas you are more familiar with. As you work through the RSOS sub-task list you can start to fill in this table.

The second table is a **“Study Time Table.”** It is important to create a study schedule where you determine the best days of the week and times of day for you to study.

Print several copies of these tables and fill out for each week of study. It is important to stick to your study schedule.

Weekly Study Plan for Week of: _____

	Area of Study 1	Area of Study 2	Area of Study 3	Area of Study 4	Area of Study 5	Area of Study 6
Mon.						
Tues.						
Wed.						
Thu.						
Fri.						
Sat.						
Sun.						

Study Time Table for Week of: _____

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8:00 AM - 9:00 AM							
9:00 AM - 10:00 AM							
10:00 AM - 11:00 AM							
11:00 AM - 12:00 Noon							
12:00 Noon - 1:00 PM							
1:00 PM - 2:00 PM							
2:00 PM - 3:00 PM							
3:00 PM - 4:00 PM							
4:00 PM - 5:00 PM							
5:00 PM - 6:00 PM							
6:00 PM - 7:00 PM							
7:00 PM - 8:00 PM							

Resources - Websites

Study information can be drawn from a variety of sources. A sample list of study materials (websites and books) is provided below. These and other helpful resources may be found in a local college bookstore, on the internet, or at your place of employment. You may also be able to borrow them from an apprentice or journey person in your trade.

Study Strategies and Exam Preparation Guide

The *Study Strategies & Exam Preparation Guide* is meant to be used in conjunction with this study guide. It provides direction and information on such areas as study habits, test preparation and test taking techniques.

<https://www.gov.nl.ca/atcd/files/Study-Strategies-and-Exam-Prep-Guide-March-2026.pdf>

Plan of Training (POT)

A *Provincial Plan of Training* details the full scope of learning for a particular occupation, including both technical training competencies and industry experiences necessary to write a Red Seal exam (and complete the requirements for Red Seal Certification), or to write a provincial examination. The Plan of Training is based on the RSOS.

<https://www.gov.nl.ca/atcd/designated-trades/pots-aacs/>

Red Seal Website

Red Seal Occupational Standard - The RSOS is a document used for Red Seal trades that describes the knowledge and abilities required by a fully competent tradesperson working in that trade. The content for the Red Seal exam is based on the RSOS.

<http://www.red-seal.ca/>

Acronyms

The Red Seal website lists Acronyms which will be helpful in preparing for your Red Seal exam:

https://red-seal.ca/eng/trades/ironwork_reinforce/app-a.shtml

Tools and Equipment

The Red Seal website lists Tools and Equipment which will be helpful in preparing for your Red Seal exam:

https://red-seal.ca/eng/trades/ironwork_reinforce/app-b.shtml

Terminology

The Red Seal website shows a Terminology list which will be helpful in preparing for your Red Seal exam:

https://red-seal.ca/eng/trades/ironwork_reinforce/app-c.shtml

Resources – Book List

You can use books listed below to help you obtain information on specific topics. It is not necessary to use these books specifically, as you may find others that will be equally beneficial.

If you wish to obtain any of the resources listed above, here is the reference information:

- Structural Welding Code--Steel*, [Standard] AWS D1.1/D1.1M:2010,
- Detailing for Steel Construction*, 3rd edition, May, 2002, American Institute of Steel Construction, ISBN 1564240541
- Fundamentals of Reinforced and Pre-stressed Concrete (video)*, 1988, Portland Cement Association, Skokie, Ill.: The Association, OCLC #35247129
- Structural Manual for Ironworkers, 3 Volumes: Manual V*, January 1, 1979, IABRIW, International Association of Bridge, Structural, Ornamental and Reinforcing Ironworkers, ASIN: B002A6QLMS
- Swing Stage Basic Rigging and Operating Procedures, Volume 1: Manual V*, 1987, Format: DVD

Disclaimer

Various external resources (websites, textbooks) have been listed in this study guide to assist an individual in preparing to write a Red Seal Exam. This does not mean the Department of Education and Early Childhood Development, Newfoundland and Labrador endorse the material or that these are recommended as the best resources. There may be other resources of equal or greater value to an individual preparing for a Red Seal exam. The Department of Education and Early Childhood Development has no control over the content of external textbooks and websites listed, and no responsibility is assumed for the accuracy of the material.

Conclusion

We hope this guide has provided you with some useful tools as you prepare for your Red Seal exam. If you have any questions regarding your Red Seal exam please contact your regional office (*see Appendix A for a list of regional offices*).

We appreciate your comments and feedback regarding the usefulness of this study guide. If you have any comments or suggestions, we welcome your feedback. The feedback form at the end of this guide can be used for this purpose.

Appendix A: Regional Offices

If you have any questions regarding your Red Seal exam, please contact one of the following regional offices:

Department of Education and Early Childhood Development
Apprenticeship and Trades Certification Division
Toll Free: 1-877-771-3737

<https://www.gov.nl.ca/atcd/contact-us/staff-listing-and-office-locations/>

Corner Brook

1-3 Union Street
Aylward Building, 2nd Floor
Corner Brook, NL A2H 5M7

Telephone: (709) 637-2366
Facsimile: (709) 637-2519

Grand Falls-Windsor

42 Hardy Avenue
Grand Falls-Windsor, NL
A2A 2J9

Telephone: (709) 292-4215
Facsimile: (709) 292-4502

Clarenville

45 Tilley's Road
Clarenville, NL
A5A 1Z4

Telephone: (709) 466-3982
Facsimile: (709) 466-3987

St. John's

P.O. Box 8700
1170 Topsail Road
Mount Pearl, NL A1B 4J6

Telephone: (709) 729-2729
Facsimile: (709) 729-5878

Happy Valley-Goose Bay

163 Hamilton River Road
Bursey Building
Happy Valley-Goose Bay, NL
AOP 1E0

Telephone: (709) 896-6348
Facsimile: (709) 896-3733

Wabush

1D Grenfell Drive
P.O. Box 160
Wabush, NL
AOR 1B0

Telephone: (879) 382-1920
Facsimile: (709) 282-3007

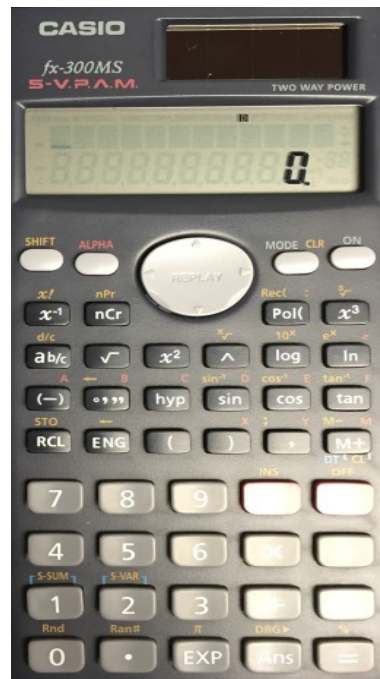
Appendix B: Calculator Use

The picture below shows a calculator with the same functions as the one you will be provided with during your exam. It is advisable to borrow or purchase one with similar functions so that you can familiarize yourself with it before you write your exam.

Casio FX-260



Casio FX-300 MS



Appendix C: Answer Sheet Example

With your exam you will be given an answer sheet similar to the one below. When answering multiple choice questions be sure to fill the circle completely and fill the circle that corresponds to the question on the exam.

Dual readhead scanner required to score this sheet

KEY ID
 A B C D

SCORING & PRINTING OPTIONS:
 RESCORE MULTIPLE ANSWER SCORING
 This sheet always uses the "Total Only" scoring option.

FEED IN THIS DIRECTION

1	T F	A B C D E
2	T F	A B C D E
3	T F	A B C D E
4	T F	A B C D E
5	T F	A B C D E
6	T F	A B C D E
7	T F	A B C D E
8	T F	A B C D E
9	T F	A B C D E
10	T F	A B C D E
11	T F	A B C D E
12	T F	A B C D E
13	T F	A B C D E
14	T F	A B C D E
15	T F	A B C D E
16	T F	A B C D E
17	T F	A B C D E
18	T F	A B C D E
19	T F	A B C D E
20	T F	A B C D E
21	T F	A B C D E
22	T F	A B C D E
23	T F	A B C D E
24	T F	A B C D E
25	T F	A B C D E
26	T F	A B C D E
27	T F	A B C D E
28	T F	A B C D E
29	T F	A B C D E
30	T F	A B C D E
31	T F	A B C D E
32	T F	A B C D E
33	T F	A B C D E
34	T F	A B C D E
35	T F	A B C D E
36	T F	A B C D E
37	T F	A B C D E
38	T F	A B C D E
39	T F	A B C D E
40	T F	A B C D E
41	T F	A B C D E
42	T F	A B C D E
43	T F	A B C D E
44	T F	A B C D E
45	T F	A B C D E
46	T F	A B C D E
47	T F	A B C D E
48	T F	A B C D E
49	T F	A B C D E
50	T F	A B C D E
51	T F	A B C D E
52	T F	A B C D E
53	T F	A B C D E
54	T F	A B C D E
55	T F	A B C D E
56	T F	A B C D E
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63	T F	A B C D E
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77	T F	A B C D E
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79	T F	A B C D E
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81	T F	A B C D E
82	T F	A B C D E
83	T F	A B C D E
84	T F	A B C D E
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87	T F	A B C D E
88	T F	A B C D E
89	T F	A B C D E
90	T F	A B C D E
91	T F	A B C D E
92	T F	A B C D E
93	T F	A B C D E
94	T F	A B C D E
95	T F	A B C D E
96	T F	A B C D E
97	T F	A B C D E
98	T F	A B C D E
99	T F	A B C D E
100	T F	A B C D E

ANSWER KEY INFO.
 # OF KEYS
 ITEM COUNT

0	0	0	2
1	1	1	3
2	2	2	4
3	3	3	5
4	4	4	6
5	5	5	7
6	6	6	8
7	7	7	9
8	8	8	0
9	9	9	1

PERFORMANCE ASSESSMENT
 % OF TOTAL SCORE
 POINTS EARNED

0% = 100%			
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Bar Code

NUMBER CORRECT	
PERCENT CORRECT	
ROSTER NUMBER	
SCORE	
RESCORE	

COMBINED POINTS EARNED	
COMBINED PERCENT CORRECT	
LETTER GRADE	
SCORE	
RESCORE	

200 ITEM

MARKING INSTRUCTIONS
 Use a No. 2 Pencil
 Fill oval completely
 Erase cleanly

STUDENT ID NUMBER

0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9

NAME _____
 SUBJECT _____
 PERIOD _____ DATE _____

Feedback Form
Study Guide – Ironworker
(Reinforcing)

Please answer the following:

- (1) This Study Guide is a useful tool for exam preparation.
 strongly agree agree disagree strongly disagree
- (2) The topics contained in the guide are arranged in a logical order.
 strongly agree agree disagree strongly disagree
- (3) The design and format of the guide caught my attention.
 strongly agree agree disagree strongly disagree
- (4) The instructions throughout the guide are clear and to the point.
 strongly agree agree disagree strongly disagree
- (5) The resources listed in this guide are suitable and valuable.
 strongly agree agree disagree strongly disagree
- (6) The guide should contain more information.
 strongly agree agree disagree strongly disagree

Suggested information/resources to include:

Additional Comments:

Please complete this form and return via fax or mail to the following:

Department of Education and Early Childhood Development
Apprenticeship and Trades Certification Division
Standards and Curriculum Unit
45 Tilley's Road, Clarenville, NL A5A 1Z4
Fax: (709) 466-3987

Department of Education and Early Childhood Development
Apprenticeship and Trades Certification Division

