APPRENTICESHIP & CERTIFICATION

Study Guide Plumber

> Newfoundland Labrador



Department of Advanced Education, Skills and Labour

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Apprenticeship and Certification

Study Guide

Plumber

(Based on 2010 NOA)

Government of Newfoundland and Labrador Department of Advanced Education, Skills and Labour Apprenticeship and Trades Certification Division

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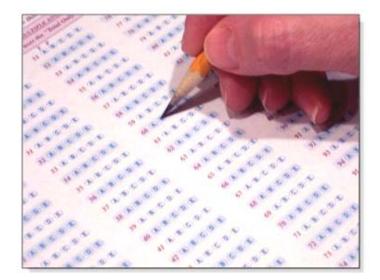
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This Study Guide has been developed by the Newfoundland and Labrador Department of Advanced Education, Skills and Labour, Apprenticeship and Trades Certification Division, to assist apprentices and trade qualifiers as they prepare to write the Interprovincial (IP) Red Seal Exam. IP Exams are available for all Red Seal trades. For a list of Interprovincial trades please refer to the Department of Advanced Education, Skills and Labour website: https://www.aesl.gov.nl.ca/app/trades.html

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 IP 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:

- □ National Plumbing Code of Canada
- □ 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 IP 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*).

IP 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.

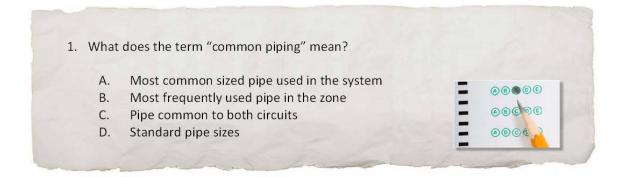
Level 2 Procedural and Application

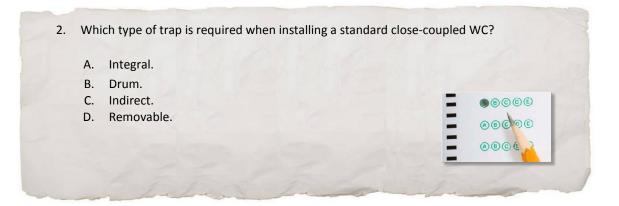
Questions at this level test your ability to apply your knowledge of procedures to a new situation.

Level 3 Critical Thinking

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

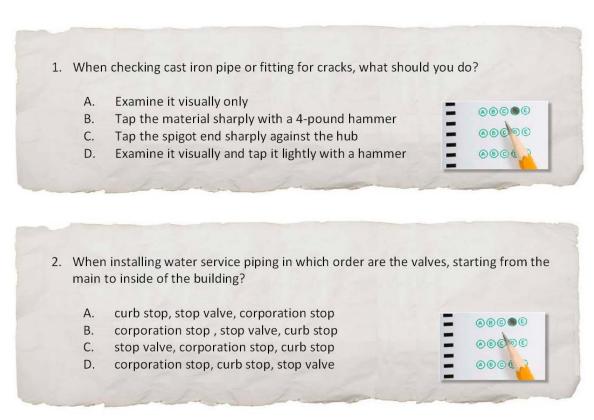
Level 1 Examples:

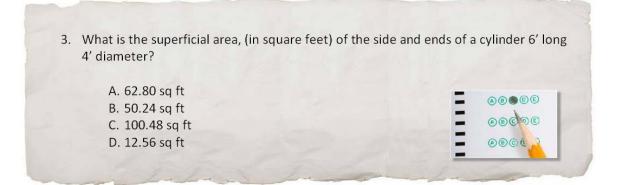




. Unde	er atmosp	heric condition at sea level wh	at is the boiling point of water?	
А.	110dC	220dF	12211112	
В.	100dC	212dF		OC
С.	0dC	32dF	- 000	9C
D.	4dC	39.2dF	= (A)(B)(C)	6.2

Level 2 Examples:

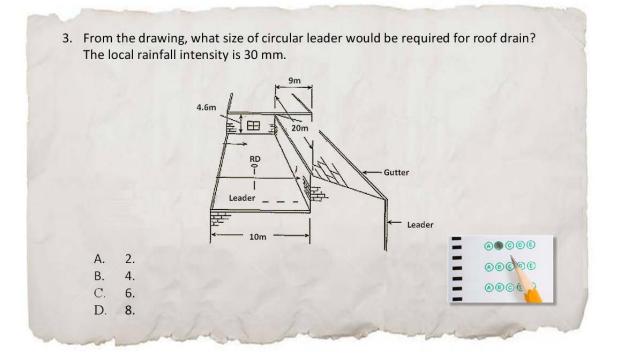




Level 3 Examples:

	in a two storey building?	units that can be drained to a 4 inch soil
SLACK	in a two storey building:	
А.	60 F.U.	
В.	90 F.U.	30386
C.	240 F.U.	- @@@@©
D.	540 F.U.	- ABC()

- 2. Two back-to-back water closets are roughed-in at 254 mm (10 in.) from the finished walls. If the partition is 125 mm (5 in.) hollow tile and the wall finish is 19 mm (3/4 in.) plaster, what is the c-c distance of the sleeves.
 - A. 335 mm / 13 ¼ in.
 B. 652 mm / 25 ¾ in.
 C. 671 mm / 26 ½ in.
 D. 698 mm / 27 ½ in.



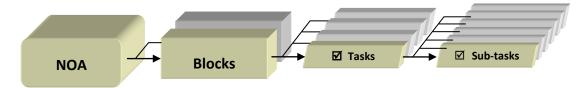
Source of questions: <u>www.red-seal.ca/s.1mpl.2.2x.1mQ.5.2st.3.4ns-eng.html?tid=181</u>

Exam Content

Understanding the National Occupational Analysis (NOA)

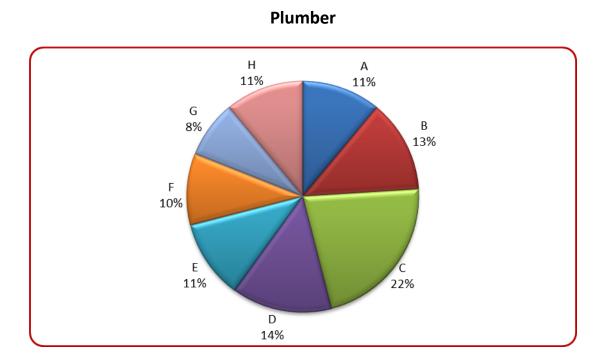
The NOA is a document used for Red Seal trades that describes the knowledge, skills and abilities required by a fully competent tradesperson working in that trade. The content for the IP Red Seal exam is based on the NOA. The NOA is an excellent tool to use as you study for the Red Seal exam. NOAs can be found at <u>www.red-seal.ca</u>.

NOA material is organized into major content areas called **BLOCKS**. The blocks are further broken down into **TASKS** and **SUB-TASKS**.



NOA Pie Chart

The NOA Pie Chart presents the block percentages in the form of a pie chart which tells you the approximate number of questions from each block. For example, 11% of the questions on the **Plumber** Exam will be based on **Block A**.



	Block Titles				
Block A	Occupational Skills	Block E	Fixtures, Appliances & Water Treatment Systems		
Block B	Piping Preparation & Assembly	Block F	Low Pressure Steam and Hydronic Heating & Cooling Systems		
Block C	Drainage, Waste, Vents & Sewage Treatment Systems	Block G	Specialized Systems		
Block D	Water Service & Distribution	Block H	Maintenance and Repairs		

Study Guide_Plumber_2019

Exam Breakdown

The **Plumber** exam currently has 125 questions. The following table shows a breakdown of the approximate number of questions that come from each NOA block. Please note that the 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 for phone numbers*).

Block AOccupational SkillsTask 1Performs safety-related functionsTask 2Uses and maintains tools and equipmentTask 3Organizes workTask 4Performs routine trade activitiesBlock BPiping Preparation and Assembly	14 16
Task 2Uses and maintains tools and equipmentTask 3Organizes workTask 4Performs routine trade activities	16
Task 3Organizes workTask 4Performs routine trade activities	16
Task 4 Performs routine trade activities	16
	16
Block B Piping Preparation and Assembly	16
Task 5 Prepares pipe	
Task 6Joins tube, tubing, pipe and fittings	
Block C Drainage, Waste, Vents and Sewage Treatment Systems	27
Task 7 Installs sewers	
Task 8 Installs sewage treatment systems	
Task 9Installs rough-in for interior drainage, waste and vent (DWV) systems	
Block D Water Service and Distribution	18
Task 10 Installs water services	
Task 11 Installs potable water distribution systems	
Task 12 Installs pressure systems	
Block E Fixtures, Appliances and Water Treatment Systems	14
Task 13 Installs plumbing fixtures and appliances	
Task 14 Installs water treatment systems	
Block F Low Pressure Steam and Hydronic Heating and Cooling Systems	12
Task 15 Installs low pressure steam systems	
Task 16Installs hydronic heating and cooling piping systems	
Task 17Installs hydronic heating and cooling generating systems and equipment	
Task 18 Installs hydronic system controls and transfer units	
Block G Specialized Systems	10
Task 19Installs piping and equipment for specialized systems	
Task 20 Installs fire protection systems (NOT COMMON CORE)	
Task 21 Installs process piping systems	
Block H Maintenance and Repairs	14
Task 22 Maintains systems and components	
Task 23 Troubleshoots systems and components	
Total	125

NOA Sub-tasks

The following NOA Task Profile Checklist outlines the blocks, tasks and sub-tasks for your trade. The IP Red Seal exam is written to test your knowledge and abilities regarding the sub-tasks in the NOA. This chart can be used to review your current knowledge. You can review by placing a checkmark (\checkmark) 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 NOA 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 NOA for your trade.

Task Profile Checklist Based on 2010 NOA Plumber

Bloc	:k	A:	Occupational Skills
		Tas	sk 1: Performs Safety-Related Functions
	ŀ	Sub-Tasks	 Maintains safe work environment Uses personal protection equipment (PPE) and safety equipment
		<i>p</i> - <i>T</i>	Handles hazardous materials
		Su	Performs lock-out and tag-out procedures
	כ	Tas	sk 2: Uses and Maintains Tools and Equipment
		sks	Maintains tools and equipment
		Sub-Tasks	Uses access equipment
	ľ	Sub	Uses rigging, hoisting and lifting equipment
		Tas	sk 3: Organizes Work
		sks	Organizes project tasks and procedures
	ŀ	Sub-Tasks	Organizes materials and supplies
	ב	Tas	sk 4: Performs Routine Trade Activities
			Performs piping system layout
			Calculates pipe length
			Calculates piping offsets
			Installs piping with adequate support
		isks	Installs sleeves
		Sub-Tasks	Tests piping and plumbing systems
		Sui	Commissions systems
			Protects piping systems, equipment and structure from damage
			Coordinates excavation and backfilling of trenches
			□ Installs fire stopping systems

Blo	Block B: Piping Preparation and Assembly					
		Tasł	k 5: Prepares Pipe			
		s	Inspects tube, tubing, pipe and fittings before installation			
		Tasi	Cuts tube, tubing and pipe			
		Sub-Tasks	Bends tube, tubing and pipe			
		Tasł	k 6: Joins Tube, Tubing, Pipe and Fittings			
			Joins copper pipe			
		sks	Joins plastic pipe			
		Sub-Tasks	Joins steel pipe			
		Sub	Joins cast iron pipe			
			Joins specialized pipe			

Block C: Drainage, Waste, Vents and Sewage Treatment Systems

] Ta	sk 7:	Installs Sewers
	ks		Sizes pipe for sewers
	Tas		Installs manholes and catch basins
	Sub-Tasks		Installs piping for sewers
	Та	sk 8:	Installs Sewage Treatment Systems
	sks		Plans installation of sewage treatment systems
	Sub-Tasks		Installs sewage treatment system components
Ľ	Та	sk 9:	Installs Rough-in for Interior Drainage, Waste and Vent (DWV) Systems
			Sizes pipe for interior drainage, waste and vent (DWV) systems
	ks		Installs underground piping and components for interior drainage, waste and
	Tas		vent (DWV) systems
	Sub-Tasks		Installs piping and components for interior drainage, waste and vent (DWV)
	ς		systems above-ground

Blo	Block D: Water Service and Distribution						
		l Ta	sk 10: Installs Water Services				
		ks	Sizes pipe for water services				
		Tas	Installs piping for water services				
		Sub-Tasks	Installs water service equipment				
		S					
		Ta	sk 11: Installs Potable Water Distribution Systems				
		S	Sizes piping and equipment for potable water distribution systems				
		ask	Installs piping for potable water distribution systems				
		Sub-Tasks	Installs potable water distribution equipment				
		Su	Installs cross-connection control devices				
		Ta	sk 12: Installs Pressure Systems				
		ა	Sizes pressure systems				
		Tas	Installs piping for pressure systems				
		Sub-Tasks	Installs equipment and components for pressure systems				

Bloc	ck E:	Fixtures, Appliances and Water Treatment Systems
L	_	ask 13: Installs Plumbing Fixtures and Appliances
	S	Installs fixture supports
	Task	Installs plumbing fixtures
	Sub-Tasks	Installs plumbing appliances
		ale 14. Installe Mator Treatment Systems
Ľ	⊥ Ta	ask 14: Installs Water Treatment Systems
	S	Sizes water treatment equipment
	Sub-Tasks	Installs water treatment equipment
	Sub-	
	•)	

Blc	ock	κF:	Low	Pressure Steam and Hydronic Heating and Cooling Systems
		Та	sk 15:	Installs Low Pressure Steam Systems
		ks		Sizes piping and components for low pressure steam systems
		Sub-Tasks		Installs piping and components for low pressure steam systems
		Та	sk 16:	Installs Hydronic Heating and Cooling Piping Systems
		S		Sizes piping and components for hydronic systems
		ask		Installs piping for hydronic systems
		Sub-Tasks		Installs hydronic system components
		Та	sk 17:	Installs Hydronic Heating and Cooling Generating Systems and Equipment
		iks		Installs hydronic heating generating systems
		Sub-Tasks		Installs hydronic cooling generating systems
		Та	sk 18:	Installs Hydronic System Controls and Transfer Units
		ks		Installs hydronic system controls
		Sub-Tasks		Installs hydronic transfer units

Blo	ock	(G	Spec	cialized Systems
		Та	sk 19:	Installs Piping and Equipment for Specialized Systems
		s		Installs piping for specialized systems
		ask		Installs equipment for specialized systems
		Sub-Tasks		Installs piping and equipment for non-potable systems
		Та	sk 20:	Installs Fire Protection Systems (NOT COMMON CORE)
				Installs piping for standpipe systems (NOT COMMON CORE)
		Sub-Tasks		Installs equipment for standpipe systems (NOT COMMON CORE)
				Installs fire protection systems for single family dwellings (NOT COMMON
			_	CORE)
		Sub		Installs fire protection systems for industrial, commercial and institutional (ICI)
				buildings (NOT COMMON CORE)
		Та	sk 21:	Installs Process Piping Systems
		sks		Installs piping for process piping systems
		-Tas		Installs process piping system equipment
		Sub-Tasks		
		•)		

Block H: Maintenance and Repairs

	Та	ask 22:	Maintains Systems and Components
	S		Monitors system performance
	asi	_	
	F-		Performs maintenance
	Sub-Tasks		
	S		
	Та	nsk 23:	Troubleshoots Systems and Components
	6		Diagnoses plumbing-related systems and components
	SK:		
	ľa		Repairs plumbing-related systems and components
	4		
	Sub-Tasks		
	- 1		

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 NOA subtask 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.						
wea.						
Thu.						
Fri.						
Sat.						
Curr						
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 journeyperson 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.

Exam Preparation Guide website: www.aesl.gov.nl.ca/app/publications/exam prep guide.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 an IP 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 NOA.

POT Website: www.aesl.gov.nl.ca/app/plans.html

Red Seal Website:

National Occupational Analysis - The NOA 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 IP exam is based on the NOA.

Red Seal Website: www.red-seal.ca

Plumber PRACTICE Exam

This is **NOT** an IP exam. This is a practice exam provided by the Inter-provincial Standards Red Seal program. It was developed using similar question types to that of a Red Seal exam. The exam is intended to be used for self-assessment in preparation for writing an IP Exam.

Sample questions can be found at: www.red-seal.ca/s.1mpl.2.2x.1mQ.5.2st.3.4ns-eng.html?tid=181

Glossary of Terms

The Red Seal website also lists a Glossary of Terms which will be helpful in preparing for your IP exam: <u>http://www.red-seal.ca/trades/plumbers/2010n.4.1_.1ppb_gl.4ss.1ry-eng.html</u>

Resources – Book List

The books listed below are sorted according to NOA blocks as referenced throughout this study guide. You can use this list 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.

Book	Block A	Block B	Block C	Block D	Block E	Block F	Block G	Block H
Basic Blueprint Reading and Sketching			~	~				
IPT Pipe Trades Handbook	 ✓ 	~	✓	~	✓	✓	✓	✓
National Plumbing Code	✓	✓	✓	✓	✓	✓	✓	✓
Natural Gas and Propane Installation Code							~	
Mathematics for Plumbers and Pipefitters		~	~		~			
Modern Plumbing	✓	✓	✓	✓	✓	✓	✓	✓
Plumbing Manual of Instruction for the Plumbing Trade	~	~	~	~	~	~	~	~
Plumbing Technology Design and Installation	~	~	~	~	~	~	~	~
Individual Learning Modules (see information below)	~	~	~	~	~	\checkmark	~	~

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

- Basic Blueprint Reading and Sketching, Olivio, C.T. and Olivo, P.T., ISBN 0-7668-0841-6
- □ IPT Pipe Trades Handbook, ISBN 0929855180
- □ National Plumbing Code of Canada, NRCC 47668
- □ Natural Gas and Propane Installation Code, CAN/CSA-B149.1-05
- □ Mathematics for Plumbers and Pipefitters, 7Th Edition, Smith, Lee, ISBN 1-4283-0461-4
- □ Modern Plumbing, ISBN 1590703502
- □ IPT Pipe Trades Handbook, ISBN 0929855180
- D Plumbing Manual of Instruction for the Plumbing Trade, ISBN 0-7718-8300-5
- Design and Installation, 4th Edition, Smith, Lee ISBN 0-7668-0841-6

Disclaimer

Various external resources (websites, textbooks) have been listed in this study guide to assist an individual in preparing to write an IP Red Seal Exam. This does not mean the Department of Advanced Education, Skills and Labour, Newfoundland and Labrador, endorses 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 an IP Red Seal exam. The Department of Advanced Education, Skills and Labour 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 IP Red Seal exam. If you have any questions regarding your IP 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 IP Red Seal exam, please contact one of the following regional offices:

Department of Advanced Education, Skills and Labour Apprenticeship and Trades Certification Division Toll Free: 1-877-771-3737 www.aesl.gov.nl.ca/app/contact.html

Corner Brook	Grand Falls-Windsor				
1-3 Union Street Aylward Building, 2 nd Floor Corner Brook, NL A2H 5M7 Telephone: (709) 637-2366 Facsimile: (709) 637-2519	42 Hardy Avenue Grand Falls-Windsor, NL A2A 2J9 Telephone: (709) 292-4215 Facsimile: (709) 292-4502				
Clarenville	St. John's				
45 Tilley's Road	P.O. Box 8700				

45 Tilley's Road Clarenville, NL A5A 1Z4

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

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

1170 Topsail Road

Mount Pearl, NL A1B 4J6

Happy Valley – Goose Bay

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

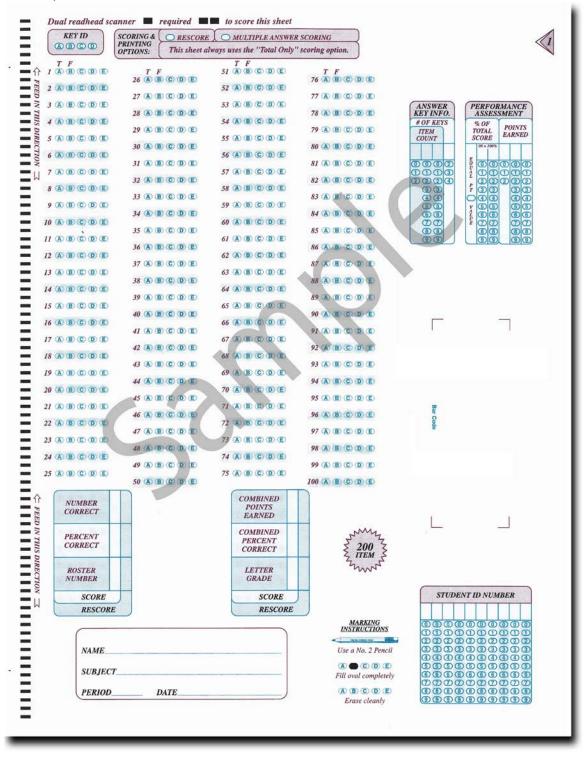
Telephone:(709) 896-6348Facsimile:(709) 896-3733

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.



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.



Feedback Form Study Guide - Plumber

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 Advanced Education, Skills and Labour Apprenticeship and Trades Certification Division Standards and Curriculum Unit 45 Tilley's Road, Clarenville, NL A5A 1Z4 Fax: (709) 466-3987

