

2010

PLUMBING PROGRAM OVERVIEW & WORKBOOK



GRAND ISLAND SENIOR HIGH

MERIT BADGE UNIVERSITY

OVERLAND TRAILS COUNCIL

7/31/2010

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(MUST HAVE UNIT LEADER SIGNATURE PRIOR TO CLASS)



FEBRUARY 2010

Information in this booklet was accurate at the time of publishing.
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Program Overview & Workbook was reviewed by
Nick Winfrey.

PLUMBING PROGRAM OVERVIEW

COUNSELOR: Nick Winfrey

C/O: Overland Trails Council
PO Box 1361
Grand Island, NE 68802-1361

LOCATION: Grand Island Senior High
Industrial Arts Department
2124 North Lafayette Ave
Grand Island, NE 68801

TRANSPORTATION: Transportation is provided

ADDITIONAL COSTS: None

CLASS SIZE: 10

BRING TO CLASS: Plumbing merit badge pamphlet.
Plumbing merit badge workbook, part one & part two.
Signed "Application for Merit Badge", found at the end of the merit badge workbook. (This will be your only record of work completed on this merit badge.) If your Council requires the official "blue card", you must bring one with you to class.

PRE-REQUISITES: Complete Part One of the workbook before class (requirement 1).
Complete information on the "Application for Merit Badge" including Scoutmaster's signature.

CURRICULUM: Requirements 2, 3, 4, 5, 6, 7, & 8 will be completed during class (part two of the workbook). Pre-requisites will also be reviewed during class.





PRE-REQUISITE REQUIREMENTS ARE PRINTED IN **ITALICS &**
MUST BE COMPLETED BEFORE CLASS.

1. **Do the following:**
 - a) **Describe how a properly working plumbing system protects your family's health and safety.**
 - b) **List five important local health regulations related to plumbing and tell how they protect health and safety.**
 - c) **Describe the safety precautions you must take when making home plumbing repairs.**
2. Do the following:
 - a) Make a drawing and explain how a home hot- and cold-water supply system works. Tell how you would make it safe from freezing.
 - b) Make a drawing and explain the drainage system of the plumbing in a house. Show and explain the use of drains and vents.
3. Show how to use five important plumber's tools.
4. Identify and describe the use of each of the following: washer, retaining nut, plunger (rubber force cup), solder, flux, elbow, tee, nipple, coupling, plug, union, trap, drainpipe, and water meter.
5. Name the kinds of pipe that are used most often in a plumbing system. Explain why these pipes are used.
6. Cut, thread, and connect two pieces of steel pipe.
7. Under the supervision of a knowledgeable adult, solder three copper tube connections using a gas torch. Include one tee, two straight pieces, and one coupling.
8. Do the following:
 - a) Replace a washer in a faucet.
 - b) Clean out a sink or lavatory trap.

PLUMBING WORKBOOK

PART ONE, PRE-REQUISITIES



Name _____
 Unit # _____ District _____
 Council _____

Part One of the workbook must be completed before class.

Bring the entire workbook (part one and part two) with you to class.

Also bring the "Application for Merit Badge" signed by your scoutmaster (included at the end of the workbook).

<input type="checkbox"/> 1. Do the following: <input type="checkbox"/> a) Describe how a properly working plumbing system protects your family's health and safety.
<div style="border: 1px solid black; height: 40px; width: 100%;"></div> <div style="border: 1px solid black; height: 40px; width: 100%;"></div> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
<input type="checkbox"/> b) List five important local health regulations related to plumbing and tell how they protect health and safety.
<div style="border: 1px solid black; padding: 2px;">1. Health regulation:</div> <div style="border: 1px solid black; padding: 2px;">How does it protect:</div>
<div style="border: 1px solid black; padding: 2px;">2. Health regulation:</div> <div style="border: 1px solid black; padding: 2px;">How does it protect:</div>
<div style="border: 1px solid black; padding: 2px;">3. Health regulation:</div> <div style="border: 1px solid black; padding: 2px;">How does it protect:</div>
<div style="border: 1px solid black; padding: 2px;">4. Health regulation:</div> <div style="border: 1px solid black; padding: 2px;">How does it protect:</div>
<div style="border: 1px solid black; padding: 2px;">5. Health regulation:</div> <div style="border: 1px solid black; padding: 2px;">How does it protect:</div>
<input type="checkbox"/> c) Describe the safety precautions you must take when making home plumbing repairs.
<div style="border: 1px solid black; height: 40px; width: 100%;"></div> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>



PLUMBING WORKBOOK

PART TWO, CLASS CURRICULUM

Name _____
Unit # _____ District _____
Council _____

Part Two of the workbook will be completed during class.

- 2. Do the following:
 - a) Make a drawing and explain how a home hot- and cold-water supply system works. Tell how you would make it safe from freezing.

Hot and cold water system drawing:

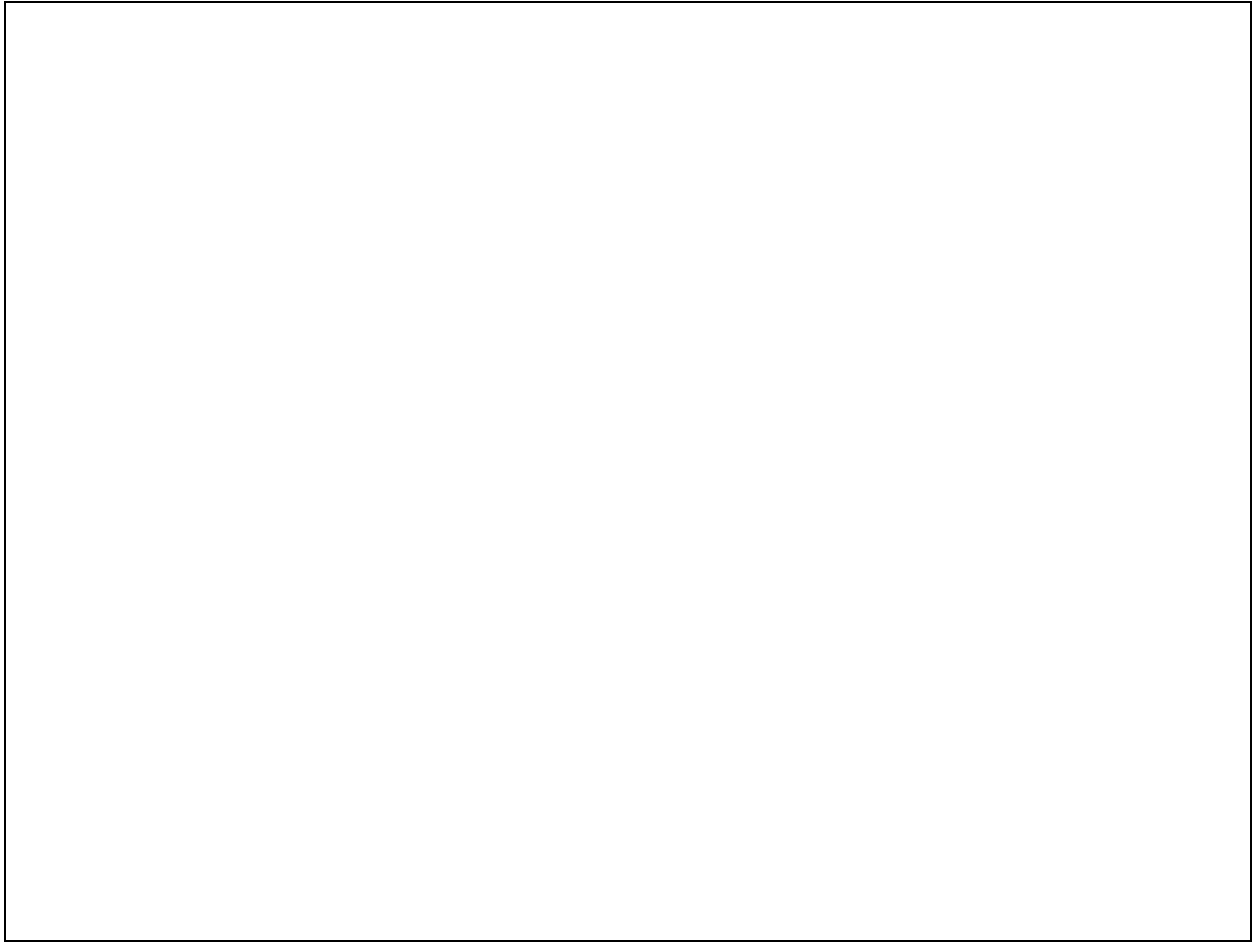
Keeping it safe from freezing:

Name _____

2. continued

- b) Make a drawing and explain the drainage system of the plumbing in a house. Show and explain the use of drains and vents.

Drainage system drawing:



Use of drains:

Use of vents:

Name _____

3. Show how to use five important plumber's tools.

<i>Plumbing tool :</i>	<i>It's use:</i>
1.	
2.	
3.	
4.	
5.	

4. Identify and describe the use of each of the following: washer, retaining nut, plunger (rubber force cup), solder, flux, elbow, tee, nipple, coupling, plug, union, trap, drainpipe, and water meter.

<i>Identify the following:</i>	<i>Describe it's use:</i>
<i>washer</i>	
<i>retaining nut</i>	
<i>plunger (rubber force cup)</i>	
<i>solder</i>	
<i>flux</i>	
<i>elbow</i>	
<i>tee</i>	
<i>nipple</i>	
<i>coupling</i>	
<i>plug</i>	
<i>union</i>	
<i>trap</i>	
<i>drainpipe</i>	
<i>water meter</i>	

5. Name the kinds of pipe that are used most often in a plumbing system. Explain why these pipes are used.

<i>Kinds of pipe:</i>	<i>Explain why these pipes are used:</i>
1.	
2.	
3.	
4.	

Name _____

- 6. Cut, thread, and connect two pieces of steel pipe.

Cut, thread, and connect two pieces of steel pipe:

- 7. Under the supervision of a knowledgeable adult, solder three copper tube connections using a gas torch. Include one tee, tow straight pieces, and one coupling.

Solder three copper tube connections using a gas torch:

- 8. Do the following:
 - a) Replace a washer in a faucet.

Replace a washer in a faucet:

- b) Clean out a sink or lavatory trap.

Clean out a sink or lavatory trap:

ORGANIZATIONS and WEB SITES

(Whenever you go online, be sure you have your parent's permission first.)

American Society of Plumbing Engineers

<http://www.aspe.org>

International Association of Plumbing and Mechanical Officials

<http://www.iapmo.org>

Mechanical Contractors Association of America

<http://www.mcaa.org>

Plumbing—Heating—Cooling Contractors Association

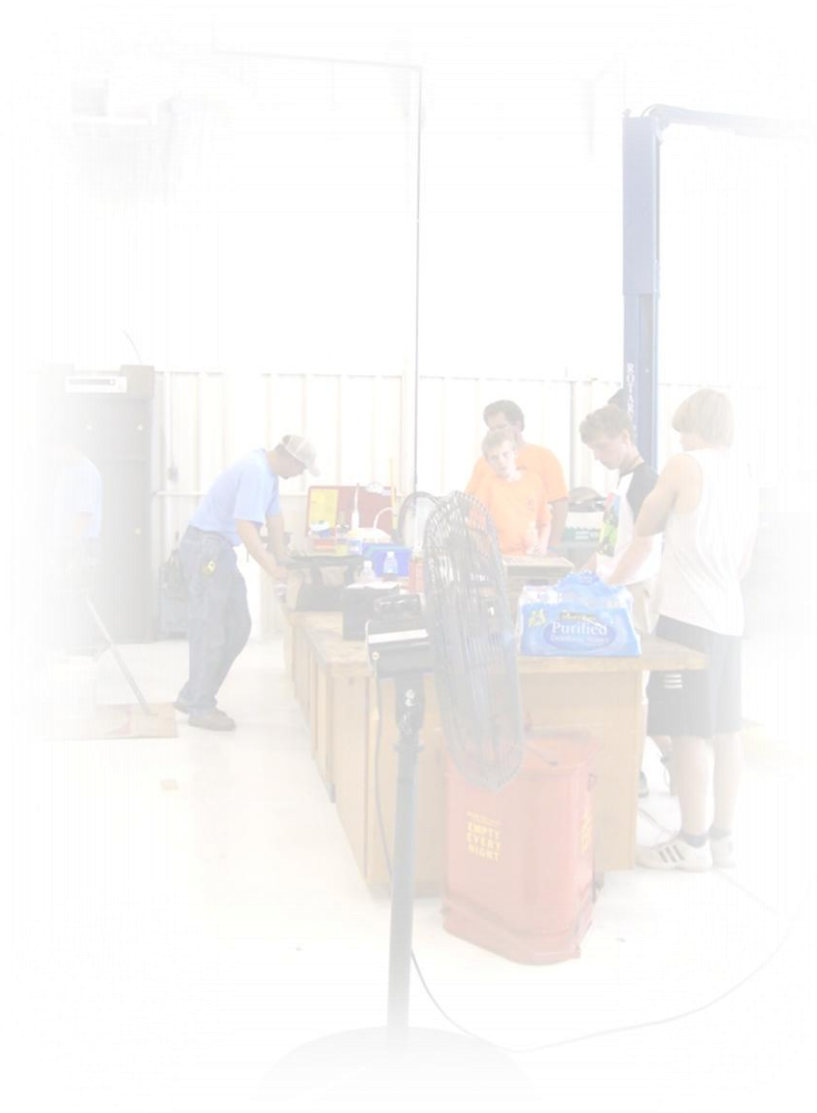
<http://www.phccweb.org>

United Association of Plumbers and Pipefitters

<http://www.ua.org>

PLUMBING WORKBOOK

Notes



APPLICATION FOR MERIT BADGE

Name: _____

Address: _____

City: _____

State: _____

Is a registered _____ Boy Scout,
 _____ Varsity Scout,
 _____ Venturer,

of _____ No. _____
Troop, team, crew, ship

District: _____

Council: _____

MERIT BADGE UNIVERISTY

Merit Badge: **Plumbing**

Counselor: Nick Winfrey

Address: Overland Trails Council

PO Box 1361

2808 O'Flannagan

Grand Island, NE 68802-1361

Phone: 308-382-3717

email: mbuotc@yahoo.com

and is qualified to begin working for this merit badge and has completed the following pre-requisite requirements:

SECTION A PRE-REQUISITE REQUIREMENTS

Requirement No. and letter	Date of Approval	Counselor Initial	Requirement No. and letter	Date of Approval	Counselor Initial
1					

The applicant has personally appeared before me and demonstrated to my satisfaction that he has met all pre-requisites requirements for the above stated merit badge and is ready to attend his assigned MBU class.

Signature of Unit Leader _____ Date _____

SECTION B APPLICANTS RECORD

Requirement No. and letter	Date of Approval	Counselor Initial	Requirement No. and letter	Date of Approval	Counselor Initial
2					
3					
4					
5					
6					
7					
8					

The applicant has personally appeared before me and demonstrated to my satisfaction that he has completed all requirements in **SECTION B** above for the

Merit Badge: **Plumbing**

Name of Counselor: Nick Winfrey

Signature of Counselor _____ Date _____

SCOUT INSTRUCTIONS

- Complete your name, address, city, unit type & number, district, & council on the Application for Merit Badge.
- Your unit leader must sign the Application for Merit Badge before attending class.
- All other information is already printed on the Application for Merit Badge; please make sure all information is correct.
- The merit badge counselor is registered & approved for this merit badge and is on the MBU Counselor's List.
- Read the merit badge pamphlet.
- Attend the merit badge class.
- Always meet with your counselor along with a buddy (a Scout, friend, or parent)
- Have your merit badge worksheet with you when you attend class.
- **If the merit badge pre-requisites are not completed before class, you will not be able to complete the merit badge during this weekend event, you will have to follow up with your Unit's Advancement Chair when you return home**
- **PLEASE BE AWARE THAT SOME COUNSELORS WILL NOT ALLOW YOU TO ATTEND THEIR CLASS WITHOUT PRE-REQUISITES COMPLETED—CLASS CURRICULUM IS DEPENDENT ON PRE-REQUISITE WORK BEING COMPLETED!**

COUNSELOR INSTRUCTIONS

- Never meet alone with a Scout.
- Verify all information & merit badge name on Application for Merit Badge is correct.
- Sign your name on the line at the bottom of **"SECTION B APPLICANTS RECORD"**.

