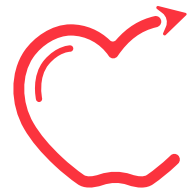


**PROJECT: DISCOVERY**

**JOB SKILLS TRAINING  
CURRICULUM**

**SAMPLES**



**education: associates**  
**Job Ready. Life Ready.**

**EXCERPTS PROVIDED:**

1. Competencies ..... (1 page front and back)
2. Outline Chart - Scope and Sequence ..... (3 pages front and back)
3. Pre-Post Test ..... (1 page front and back)
4. First Look at Carpenter's Helper ..... (2 pages front and back)
5. Instructor's Lesson Plan ..... (1 page)
6. Student Instructions ..... (1 page front and back)
7. Student Worksheets ..... (2 pages front and back)



## **CARPENTER'S HELPER ENHANCED SKILLS TRAINING COMPETENCIES**

### **Student applies shop and occupational safety skills:**

1. Follows universal safety precautions
2. Displays a safe attitude when working
3. Performs work in a safe manner without being told.
4. Identifies potential dangers and understands their consequences in independent work situations.
5. Uses hand tools safely and accurately.
6. Uses safety equipment appropriately.
7. Identify the types of signs and markings used on the job site.

### **Student demonstrates basic measuring skills for carpentry:**

8. Identify the parts of the English measuring system.
9. Demonstrate an understanding of the metric system.
10. Identify the metric system and convert between the English system.
11. Identify the reasons for using the English and metric systems of measurement.
12. Describe the tools used in measuring activities.
13. Accurately measure, mark and cut wood.
14. Identify measurement tools used in carpentry.
15. Use mathematic computations and measurement skills in planning and designing a workbench.
16. Identify and discuss geometric patterns that repeat or that have rotational or reflective symmetry.
17. Calculate the area or perimeter of various two-dimensional shapes.
18. Understand the application of mathematic skills to the carpentry trade.

### **Student describes carpentry industry opportunities:**

19. Demonstrate knowledge of job opportunities in carpentry.
20. Demonstrate knowledge of skills needed in the carpentry field.

### **Student describes the characteristics of building materials:**

21. Describe and recognize different types of lumber.
22. Describe and recognize lumber definitions.
23. Identify lumber used in carpentry.

### **Student demonstrates competent and safe use of basic tools used in carpentry:**

24. Use hand saws safely and accurately.
25. Check for level and square using a variety of squaring, plumbing and leveling techniques and tools.
26. Identify hand tools used in carpentry.
27. Use a sander safely and accurately.

### **Student will be able to read basic blueprints:**

28. Recognize and identify basic blueprint terms, components, and symbols.

29. Recognize different classifications of drawings.
30. Understand the difference in architectural and engineer scales.

**Student will complete two wood projects.**

31. Follow directions in building a carpentry project.
32. Prime wood in preparation for painting.
33. Paint a completed carpentry project.
34. Identify primers and paint used on the job site.
35. Safely use tools and equipment to complete a project.

**Student will complete project cost sheet**

36. Use math skills to compute cost of project.

**Student will demonstrate writing skills and oral presentation skills**

37. Demonstrate the ability to use writing skills.
38. Use writing skills to compare and contrast items used in the carpentry trade.
39. Develop and deliver a presentation promoting the career choice as a carpenter.

**Student will demonstrate employability and life skills:**

40. Completes a personal data sheet.
41. Completes a job application.
42. Conducts a job search.
43. Prepares a resume.
44. Prepares a cover letter.
45. Demonstrates effective interview skills.
46. Demonstrates effective job keeping skills.
47. Demonstrates life skills.

**Student demonstrates work ethics/employability skills.**

48. Reports to work area and dresses appropriately for work.
49. Has all supplies needed to perform work.
50. Starts work promptly.
51. Asks instructor for assistance if needed.
52. Stays on task.
53. Demonstrates correct social skills at all times.
54. Asks instructor for work assignment if necessary.
55. Cleans up work area at the end of the period without being asked.
56. Works cooperatively with others on group projects.
57. Works independently after being assigned a task.
58. Accepts constructive criticism.
59. Notifies school/employer of absence or tardiness.
60. Accepts and performs additional tasks willingly.
61. Examines personality traits important to business
62. Demonstrates knowledge of skills required of the occupation.

**CARPENTER'S HELPER  
ENHANCED SKILLS TRAINING  
90 DAY CURRICULUM OUTLINE**

DAY	LESSON PLAN	MATERIALS PROVIDED	INSTRUCTOR NOTES	COMPETENCY
1-2	School is Your Job! Page 1	<ul style="list-style-type: none"> <li>• "Is School a Real Job?" Handout</li> <li>• "Pre-test" Handout</li> </ul>	<ul style="list-style-type: none"> <li>• Explain the grading system and course expectations.</li> <li>• Give the Pretest.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrates work ethics/employability skills</li> </ul>
3-5	Safety on the Job Page 7	<ul style="list-style-type: none"> <li>• "Safety on the Job" Handout</li> <li>• "Safety on the Job Test" Handout (with answer key)</li> </ul>	<ul style="list-style-type: none"> <li>• Provide students with an overview of basic safety.</li> <li>• Distribute the handout "Safety on the Job" and discuss with the class.</li> <li>• Administer the "Safety on the Job Test"</li> </ul>	<ul style="list-style-type: none"> <li>• Follows universal safety precautions.</li> <li>• Displays a safe attitude when working</li> <li>• Performs work in a safe manner without being told.</li> <li>• Identifies potential dangers and understands their consequences in independent work situations.</li> <li>• Identifies the types of signs and markings used on the job site.</li> </ul>
6-8	Woodshop Safety Page 16	<ul style="list-style-type: none"> <li>• "Basic Woodshop Safety" DVD</li> <li>• "Architecture &amp; Construction" DVD</li> </ul>	<ul style="list-style-type: none"> <li>• Students will view the DVDs.</li> <li>• After viewing, ask the students to write a 200 word essay on what they saw.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate ability to use writing skills.</li> <li>• Follows universal safety precautions.</li> <li>• Displays a safe attitude when working</li> <li>• Performs work in a safe manner without being told.</li> <li>• Identifies potential dangers and understands their consequences in independent work situations.</li> </ul>
9-10	Math Skills in Carpentry Page 18	<ul style="list-style-type: none"> <li>• Tape measure</li> <li>• Ruler</li> <li>• Yardstick</li> <li>• "Math and Measuring Concepts Quiz" Handout (with answer key)</li> </ul>	<ul style="list-style-type: none"> <li>• Review measurement lesson in Carpentry I.</li> <li>• Present information to students on the English metric system as outlined in the procedure.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify the parts of the English measuring system.</li> <li>• Identify the metric system and convert between the English systems.</li> <li>• Identify the reasons for using the English and metric systems of measurement.</li> <li>• Describe the tools used in measuring</li> </ul>

**CARPENTER'S HELPER  
ENHANCED SKILLS TRAINING  
90 DAY CURRICULUM OUTLINE**

DAY	LESSON PLAN	MATERIALS PROVIDED	INSTRUCTOR NOTES	COMPETENCY
9-10 con't				activities. <ul style="list-style-type: none"> <li>Understand the application of mathematic skills to the carpentry trade.</li> </ul>
11-13	Lumber Manufacturing Terms and Definitions Page 24	<ul style="list-style-type: none"> <li>"Lumber Definitions" Handout</li> <li>"Lumber Definitions Student Quiz" Handout (with answer key)</li> </ul>	<ul style="list-style-type: none"> <li>Provide students with information on the lumber manufacturing process and the composition of OSB as outlined in the procedure.</li> </ul>	<ul style="list-style-type: none"> <li>Describe and recognize different types of lumber.</li> <li>Describe and recognize lumber definitions.</li> </ul>
14-16	Measuring and Marking Wood for Cutting Page 31	<ul style="list-style-type: none"> <li>"Measuring and Marking Vocabulary" Handout</li> <li>"Measuring and Marking Wood" Handout</li> <li>Tape measure</li> <li>Carpenters square</li> <li>Combination square</li> <li>Hammer</li> <li>Nail remover tool</li> <li>Chalk line</li> <li>Plumb line &amp; bob</li> </ul>	<ul style="list-style-type: none"> <li>Discuss vocabulary terms and definitions with students.</li> <li>Provide them with measuring materials and have them work through the handout on measuring and marking wood.</li> <li>Circulate and assist, demonstrating the use of the tools as needed.</li> </ul>	<ul style="list-style-type: none"> <li>Accurately measure, mark and cut wood.</li> <li>Understand the application of mathematic skills to the carpentry trade</li> </ul>
17-19	Using Hand Tools Safely Page 39	<ul style="list-style-type: none"> <li>"Hand Tool Safety Review" Handout</li> <li>"Hand Tool Safety</li> </ul>	<ul style="list-style-type: none"> <li>Review the hand tool safety handout.</li> <li>Discuss each item</li> </ul>	<ul style="list-style-type: none"> <li>Use hand tools safely and accurately.</li> </ul>

**CARPENTER'S HELPER**  
**ENHANCED SKILLS TRAINING**  
**90 DAY CURRICULUM OUTLINE**

DAY	LESSON PLAN	MATERIALS PROVIDED	INSTRUCTOR NOTES	COMPETENCY
17-19 con't		Quiz' Handout (with answer key)	thoroughly. <ul style="list-style-type: none"> <li>Ask students to complete the quiz.</li> </ul>	
20	Field Trip to Building Supply Store Page 47	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Plan a field trip to a building supply store.</li> <li>Students should identify items in lessons shown above.</li> <li>Ask students to write about their field trip experience.</li> </ul>	<ul style="list-style-type: none"> <li>Identify lumber used in carpentry.</li> <li>Identify hand tools used in carpentry.</li> <li>Identify measurement tools used in carpentry.</li> </ul>
21-24	Using Hand Saws Page 48	<ul style="list-style-type: none"> <li>"Using Hand Saws to Cut Lumber" Handout</li> <li>Folding workbenches</li> <li>Cross cut saw</li> <li>Miter saw</li> <li>Orbital sander</li> <li>Sanding block</li> <li>Tape measure</li> <li>Carpenter's square</li> <li>Safety goggles</li> <li>Work gloves</li> <li>Sandpaper</li> </ul>	<ul style="list-style-type: none"> <li>Distribute the handout and materials from kit.</li> <li>Circulate and assist as students work through each step on the handout.</li> <li>Demonstrate proper techniques as needed.</li> </ul>	<ul style="list-style-type: none"> <li>Accurately measure, mark and cut wood.</li> <li>Use hand saws safely and accurately.</li> <li>Use sander safely and accurately.</li> </ul>
25-32	Building a Saw Horse Page 52	<ul style="list-style-type: none"> <li>"Building A Saw Horse" Handout</li> <li>Cross cut saw</li> <li>Nail set</li> </ul>	<ul style="list-style-type: none"> <li>Students will use the handout "Building a Saw Horse" to complete the project.</li> </ul>	<ul style="list-style-type: none"> <li>Accurately measure, mark and cut wood.</li> <li>Use hand saws safely and accurately.</li> <li>Use sander safely and accurately.</li> <li>Follow directions in building a carpentry</li> </ul>

**CARPENTER'S HELPER  
ENHANCED SKILLS TRAINING  
90 DAY CURRICULUM OUTLINE**

DAY	LESSON PLAN	MATERIALS PROVIDED	INSTRUCTOR NOTES	COMPETENCY
25-32 con't		<ul style="list-style-type: none"> <li>Orbital sander</li> <li>Carpenter's square</li> <li>Hammer</li> <li>Safety goggles</li> <li>Work gloves</li> <li>Sandpaper</li> </ul>	<ul style="list-style-type: none"> <li>Circulate and assist as students proceed through the activity.</li> <li>Check for accuracy in measuring and safely cutting wood.</li> </ul>	project.
33	First Six Weeks Exam			
34-35	Priming and Painting Definitions Page 61	<ul style="list-style-type: none"> <li>"<i>Priming and Painting Terms and Definitions</i>" Handout</li> <li>"<i>Priming and Painting Terms and Definitions Quiz</i>" Handout (with answer key)</li> </ul>	<ul style="list-style-type: none"> <li>Provide students with the handout "Priming and Painting Terms and Definitions."</li> <li>Review each of the terms and discuss students' prior experiences in priming and painting.</li> <li>Give the students the quiz.</li> </ul>	<ul style="list-style-type: none"> <li>Prime wood in preparation for painting.</li> <li>Paint a completed carpentry project.</li> </ul>
36-38	Job Shadowing Page 67	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Follow policy of school to set up job shadowing, transportation, etc.</li> <li>For homework, ask students to complete a writing assignment on the experience.</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate knowledge of job opportunities in carpentry.</li> <li>Demonstrate knowledge of skills needed in the carpentry field.</li> </ul>
39	Field Trip to Paint Store Page 69	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Plan a field trip to a paint store.</li> <li>Arrange for someone at the paint store to give the</li> </ul>	<ul style="list-style-type: none"> <li>Identify primers and paints used on the job site.</li> </ul>



**CARPENTER'S HELPER  
ENHANCED SKILLS TRAINING  
90 DAY CURRICULUM OUTLINE**

DAY	LESSON PLAN	MATERIALS PROVIDED	INSTRUCTOR NOTES	COMPETENCY
39 cont'			<p>students a guided tour and discuss the paints and primers and tools used.</p> <ul style="list-style-type: none"> <li>• Students should make a list of all the types of paint that are available.</li> <li>• Ask students to write about their experience.</li> </ul>	
40-42	Priming and Painting a Saw Horse Page 70	<ul style="list-style-type: none"> <li>• "Prime and Paint a Saw Horse" Handout</li> <li>• Orbital sander</li> <li>• Safety goggles</li> <li>• Paint Brush</li> <li>• Vinyl gloves</li> <li>• Sanding block</li> <li>• Sandpaper</li> <li>• Drop cloth</li> </ul>	<ul style="list-style-type: none"> <li>• Distribute the "Prime and Paint a Saw Horse Handout." Have students follow the steps in the procedure.</li> <li>• Circulate and assist as the students move through the steps in the project. Check their work for completeness.</li> </ul>	<ul style="list-style-type: none"> <li>• Prime wood in preparation for painting.</li> <li>• Paint a completed carpentry project.</li> <li>• Use sander safely and accurately.</li> <li>• Use safety equipment appropriately.</li> </ul>
43-45	Planning and Designing a Workbench Page 74	<ul style="list-style-type: none"> <li>• "Planning and Designing a Workbench Instruction Sheet" Handout</li> <li>• "Workbench Parts Diagram" Handout</li> <li>• "Workbench Cost Sheet" Handout</li> <li>• Tape measure</li> </ul>	<ul style="list-style-type: none"> <li>• Students should use the "Planning and Designing a Workbench Instruction Sheet" and the "Workbench Parts Diagram" to complete the activity.</li> </ul>	<ul style="list-style-type: none"> <li>• Use mathematic computations and measurement skills in planning and designing a workbench.</li> <li>• Use mathematic skills to compute the cost of a project.</li> <li>• Understand the application of mathematic skills to the carpentry trade.</li> </ul>

**CARPENTER'S HELPER  
ENHANCED SKILLS TRAINING  
90 DAY CURRICULUM OUTLINE**

DAY	LESSON PLAN	MATERIALS PROVIDED	INSTRUCTOR NOTES	COMPETENCY
46-47	Compare and Contrast Page 80	None	<ul style="list-style-type: none"> <li>Ask the students to write a 200 word compare/contrast of two unlike things they have learned in Carpentry II.</li> </ul>	<ul style="list-style-type: none"> <li>Use writing skills to compare and contrast items used in the carpentry trade.</li> </ul>
48-49	Reflective Symmetry Page 82	<ul style="list-style-type: none"> <li>"Two Dimensional Mathematical Shapes" Handout</li> <li>"Reflective Symmetry" Handout</li> <li>"Shapes Word Scramble" Handout</li> </ul>	<ul style="list-style-type: none"> <li>Provide the students with the handout "Two Dimensional Mathematical Shapes".</li> <li>Discuss the shapes and their attributes, asking students to identify carpentry projects or building sites that may use the shapes in construction projects.</li> <li>Guide them through the procedures listed.</li> </ul>	<ul style="list-style-type: none"> <li>Identify and discuss geometric patterns that repeat (show translation), or that have rotational or reflective symmetry.</li> <li>Understand the application of mathematic skills to the carpentry trade.</li> </ul>
50-52	Finding the Perimeters and Areas Page 92	<ul style="list-style-type: none"> <li>"How to Find the Perimeter and Area" Handout</li> <li>"Finding the Perimeter and Area Quiz" Handout (with answer key)</li> </ul>	<ul style="list-style-type: none"> <li>Give the students the "How to Find the Perimeter and Area" handout to understand the method used to find the perimeter.</li> <li>Students may work in groups or teams to complete the activity.</li> </ul>	<ul style="list-style-type: none"> <li>Calculate the area or perimeter of various two-dimensional shapes.</li> <li>Demonstrate an understanding of the metric system.</li> <li>Understand the application of mathematic skills to the carpentry trade.</li> </ul>
53-55	Reading Blueprints Page 101	<ul style="list-style-type: none"> <li>"Blueprint Symbols" Handout</li> </ul>	<ul style="list-style-type: none"> <li>Provide students with handouts and discuss</li> </ul>	<ul style="list-style-type: none"> <li>Recognize and identify basic blueprint terms, components, and symbols.</li> </ul>

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## CARPENTER'S HELPER - ENHANCED SKILLS PRE-TEST

Directions: Read each item and circle the letter of the choice that best completes the statement or answers the question

1. In most cases, informational signs are:

- a. red in color.
- b. blue in color.
- c. green in color.
- d. orange in color.

2. OSB stands for:

- a. Oriented Strand Board
- b. Oriented Strand Bonded
- c. Oriented Special Bond
- d. Oriented Special Board

3. Horseplay on the job...

- a. is a poor work habit.
- b. is a good work habit.
- c. is permitted on the job.
- d. is okay on a break.

4. The prefix "milli" means:

- a. one hundredth.
- b. one thousandth.
- c. one tenth.
- d. one eighth.

5. An inch is comprised of:

- a. five equal parts.
- b. ten equal parts.
- c. four equal parts.
- d. sixteen equal parts.

6. One yard converts to:
- one millimeter in the metric system.
  - two millimeters in the metric system.
  - one meter in the metric system.
  - does not convert in the metric system.
7. The term bullnose means:
- a squared end on a piece of lumber.
  - a rounded end on a piece of lumber.
  - a cut on the end of a piece of lumber.
  - none of the above.
8. "King Henry died Monday drinking chocolate Milk" is an easy way to remember :
- the order of measurement on a tape measure.
  - the order of measurement on a level.
  - the order of measurement on a plumb.
  - the order of measurement in the metric units.
9. Always use tools with;
- your wrist bent.
  - your arm straight.
  - your back bent.
  - your wrist straight.
10. The perimeter of a rectangle is found by:
- subtracting the length of one side from the length of the opposite side.
  - adding the widths of its sides.
  - subtracting the width of its sides from the length of its sides.
  - adding the lengths of its sides



**“FIRST LOOK AT  
CARPENTER’S HELPER”**

**ENHANCED SKILLS TRAINING**

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**Days 3-5  
“Safety on the Job”**

**Safety signs** – **Safety signs** are often white signs with green letters such as where to get first aid.



**Exit signs** are signs showing you how to leave the building and are often in red and white.



**Days 3-5**

**“Safety on the Job” Con’t**

**Caution signs** – **Caution signs** tell you to be careful for safety reasons.

“Watch Your Step” and “Wet Floor” are **caution signs**. They are usually yellow and black.



**Days 3-5**

**“Safety on the Job” Con’t**

**Informational signs** – **Informational signs** are usually blue signs. Examples of **informational signs** are “For Employees Only” or “No Trespassing”





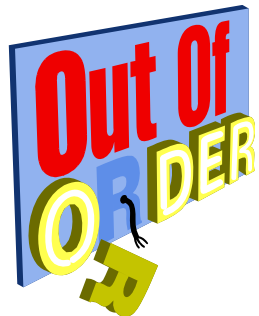
**Days 3-5**  
**“Safety on the Job”**

**Danger signs** – **Danger signs** usually tell you about an immediate danger. Examples of **danger signs** are “High Voltage” or “Flammable”; these signs are often red, black, and white signs.



**Days 3-5**  
**“Safety on the Job” Con’t**

**Temporary warnings** – **Temporary warning** signs like “Out of Order” are put up and then taken down when they are no longer needed.





**Days 9-10**  
**“Math Skills in Carpentry”**

**Basic Measuring Tools:**

- **Ruler** -- a tool that is 12 inches long is called a **ruler**.



- **Yardstick** -- a tool that is 3 feet long is called a **yardstick**.



**Days 9-10**  
**“Math Skills in Carpentry” Con’t**

**Basic Measuring Tools:**

- **Tape measure** -- a small, flexible measuring tool with a tape that can be in inches or centimeters is called a **tape measure**.





**DAYS 43-45**

**LESSON PLAN - PLANNING AND DESIGNING A WORKBENCH**

**COMPETENCIES**

Use mathematic computations and measurement skills in planning and designing a workbench.

Use mathematic skills to compute the cost of a project.

Understand the application of mathematic skills to the carpentry trade.

**OBJECTIVE - Students will:**

- Use mathematic computations to design a workbench plan.
- Use measurement skills to identify lumber needed for a workbench.

**MATERIALS NEEDED FROM THE KIT:**

1. "*Planning and Designing a Workbench Instruction Sheet*" Handout
2. "*Workbench Parts Diagram*" Handout
3. "*Workbench Cost Sheet*" Handout
4. Tape measure

**MATERIALS YOU NEED TO GET:**

1. Pencil
2. Paper

**LENGTH:** Three class periods

**PROCEDURE:**

1. **NOTE:** This workbench is a different one from the workbench they will build in Days 60-71. Distribute the handouts. Students should use the "*Planning and Designing a Workbench Instruction Sheet*" Handout and the "*Workbench Parts Diagram*" Handout to complete the activity.
2. Distribute the "*Workbench Cost Sheet*" handout. Ask students to complete the activity.

**EVALUATION:**

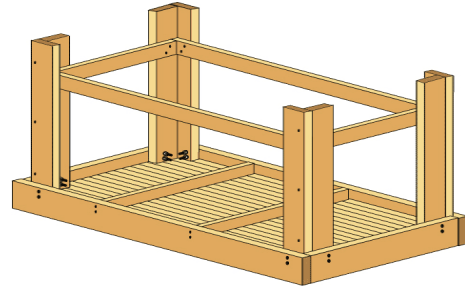
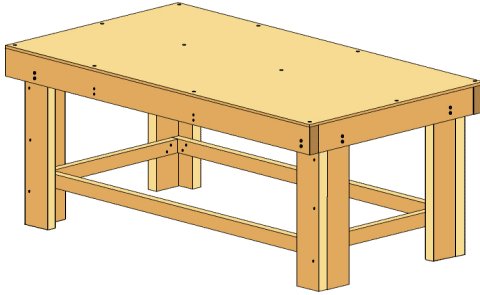
Successful completion of student handouts.



# PLANNING AND DESIGNING A WORKBENCH

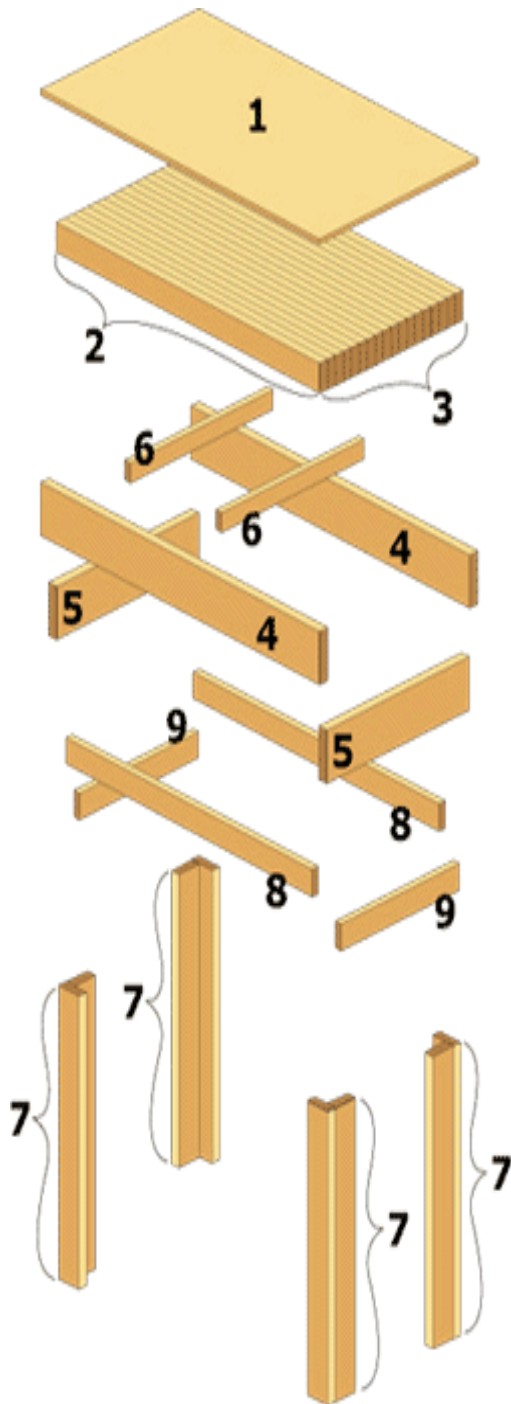
## Student Instructions

Student Name \_\_\_\_\_ Date: \_\_\_\_\_



1. You will begin the planning and design of a workbench. The size of your completed workbench should be **24" deep, 34" high and 60" long**.
2. Use the "*Workbench Parts Diagram*" handout to identify the specific calculations you will need to make for your bench.
3. Calculate the amount of wood you will need (by type) for your project.
4. Remember, you will need all of the wood pieces listed on the "*Workbench Parts Diagram*" handout (count the top substrate as 1 piece) to complete this project.
5. Identify the cost of all the materials needed for the workbench using the "*Workbench Cost Sheet*" handout. Add local sales tax and determine the total cost.
6. Ask your instructor to check your work.

## Student Instructions - Workbench Parts Diagram



1. Plywood cover for the top (1) is equal to the overall width of the workbench by the overall depth. **An example would be 60" by 30 ½".**

2. Calculate the length of the 2 x 4's for the top substrate by subtracting 3" from the overall length. **Example:**  $60''-3'' = 57''$ .

3. Calculate the number of 2 x 4's needed for the top substrate by subtracting 3" from the depth and then dividing that number by 1.5. **Example:**  $(30-3) \div 1.5 =$  Number of 2x4's for the top =  $27 \div 1.5 = 18$

4. Calculate the length of the long 2x8 top rails by using the overall width of the bench. **Example:**  $60 = 60''$  (Regardless of other dimensions the bench will require two long 2x8 top rails)

5. Calculate the length of short 2x8 top rails by using the overall depth of the bench minus 3". **Example:**  $30-3=27''$  (Regardless of other dimensions the bench will require two short 2x8 top rails.)

6. Calculate the length of 2x4 rail stretchers by using the overall depth of the bench minus 3". **Example:**  $30-3= 27''$  The bench should have at least two rail stretchers, positioned 1/3 of the way in from each edge of the bench.

7. Calculate the length of the 2x4 legs by subtracting 4" from the overall height of the bench. **Example:**  $34-4=30''$  Regardless of other dimensions the bench will require eight 2x4 leg pieces.

8. Calculate the length of the long 2x4 bottom rails by subtracting 6" from the overall width. **Example:**  $60-6=54''$  Regardless of other dimensions the bench will require two long 2x4 bottom rails.

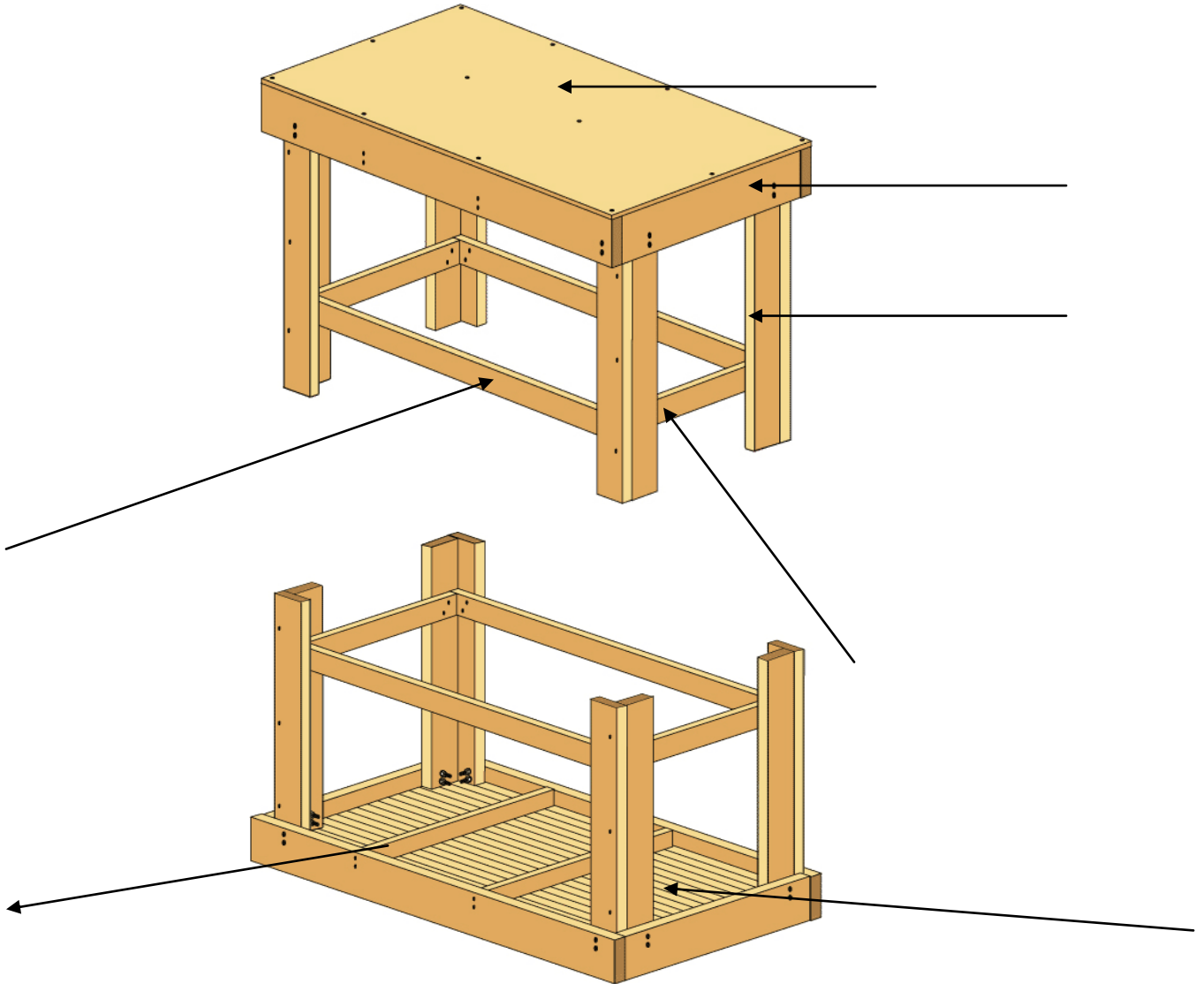
9. Calculate the length of the short 2x4 bottom rail by subtracting 9" from the overall depth of the bench. **Example:**  $30-9= 21''$  Regardless of other dimensions the bench will require two short 2x4 bottom rails.

## ***Workbench Parts Diagram Worksheet***

1. Record the overall *depth* of the workbench: \_\_\_\_\_
2. Record the overall *length* of the workbench: \_\_\_\_\_
3. Record the overall *height* of the workbench: \_\_\_\_\_
4. Calculate the *length* and *width* for the **plywood top** (Part #1) and record below.
5. Calculate the *length* of the 2 x 4's for the **top substrate** by subtracting 3" from the overall length (Part #2) and record below.
6. Calculate the *number* of 2 x 4's needed for the **top substrate** substrate by subtracting 3" from the depth and then dividing that number by 1.5 (Part #3) and record below.
7. Calculate the *length* of the two **long 2 x 8 top rails** (Part #4) and record below.
8. Calculate the *length* of the two **short 2 x 8 top rails** (Part #5) and record below.
9. Calculate the *length* of the two **2 x 4 rail stretchers** (Part #6) and record below.
10. Calculate the *length* of the four **2 x 4 legs** (Part #7) and record below.
11. Calculate the *length* of the two **long 2 x 4 bottom rails** (Part #8) and record below:
12. Calculate the *length* of the two **short 2 x 4 bottom rails** (Part #9) and record below.

## Workbench Parts Diagram Worksheet

13. Label the workbench diagrams (shown below) by identifying the parts shown on both sides of the bench. Use the lines provided to label and write the measurements.



## Workbench Cost Worksheet

Complete this cost sheet by inserting the materials you will need to build your workbench. You will need to determine the number of 2 x 4's and 2 x 8's required for the project. Remember each leg will require two pieces of wood. List every type of material you will need to purchase. Extend out the total cost for each type of material by multiplying the total pieces of wood by the prices given below. Add your state sales tax in the space provided and determine the final total cost for the project. The cost of screws has been inserted for you.

**Price List:**

3/4" Plywood Sheet:	\$ 25.00
2 x 4's:	\$ 6.00
2 x 8's:	\$ 12.00
3" Wood Screws:	\$ 20.00
16 3/8" x 4" carriage bolts with washers and nuts:	\$ 8.00
Wood glue:	\$ 4.00

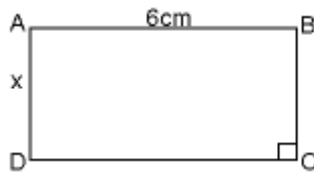
<i>Quantity</i>	<i>Description</i>	<i>Price</i>	<i>Total</i>
1	Box of 3" Wood Screws	20.00	20.00
		<b><i>Subtotal</i></b>	
		<b><i>Sales Tax</i></b>	
		<b><i>Total</i></b>	

## Finding the Perimeter and Area

Student Name \_\_\_\_\_ Date \_\_\_\_\_

Work in cooperative groups to solve the problems on this quiz. Share your ideas and use the student handout to assist you if needed. Ask your instructor for additional assistance if needed.

1. ABCD is a rectangle. The length of AB is 6cm. The area of ABCD is  $42\text{cm}^2$ . Use this information to calculate the following:
  - (a) the length of AD
  - (b) the perimeter of ABCD.



Suppose AD, the height, is  $x\text{cm}$ . The base is 6cm.  
Area = base  $\times$  height.

- a.) Calculate the height and write the answer here:

\_\_\_\_\_

- b.) Calculate the perimeter and write the answer here:

\_\_\_\_\_

2. Calculate the perimeter and the area of the shape below:

