Finishing Up

Woodworking Youth Activity Guide

Name ____________________________

County __________________________

National 4-H Curriculum
BU-06678
Notes to the Helper

Thank you for helping youth learn and do woodworking activities in Finishing Up, the final level of curricula in Woodworking Wonders. As a helper, you’re providing a valuable service to young people. Teens need the support of concerned adults. It is important for you to be a resource for teens as they learn how to use power tools and learn technical skills. The experiential learning process is the basis for this curriculum. It provides youth with an opportunity to learn by doing activities. While learning about woodworking, youth also learn vital life skills such as planning and organizing, communicating, decision-making, relating to others and learning to learn.

Woodworking Wonder Series

This series uses four youth guides:
- Measuring Up, for grades 2–4;
- Making the Cut, for grades 4–6;
- Nailing It Together, for grades 6–8; and
- Finishing Up, for grades 9–12.

The books were written for specific age groups, but they can be used, with the helper’s discretion, with youth of different ages based on abilities and experience. Each of the books includes an achievement program. It is important that you encourage youth to complete the achievement program. Questions at the end of activities reinforce woodworking and learning skills plus suggest ways youth can apply these skills to other aspects of their lives. Helpers play a vital role in helping youth answer questions.

- **Finishing Up**
  This book is for youth who have a working knowledge of basic tools including a few power tools such as the jig saw, scroll saw, router, circular saw and oscillating sander. The book covers dovetail, mortise, and tenon joints plus exotic woods, veneers, inlays, overlays and finishing techniques. Safety is emphasized throughout the book.

- **Woodworking Helper’s Guide**
  This book provides additional learning-by-doing activities that can be adapted for youth groups, classrooms or home learning. You’ll find helpful information about characteristics of youth, life-skill development, experiential learning, meeting ideas and, of course, answers needed for the youth guides.

**Your Responsibilities**

- Assisting youth as they complete the activities in this book.
- Helping youth understand how mathematics and science happen—what they didn’t learn in school.
- Helping youth choose woodworking projects that are appropriate for their skill level.
- Helping youth do difficult tasks without doing it for them.
- Helping youth evaluate the quality of their work.
- Emphasizing safety rules for youth.

Your enthusiasm and encouragement will mean more to youth than you can imagine. Encourage youth to ask questions and see how they can apply new knowledge not only to woodworking, but also to their lives. With your help, youth can set goals, identify resources, practice communication skills and evaluate their own progress.

Each chapter is filled with activities so that youth can practice what they read. The lessons are short, but the activities may take some time. We encourage you to teach and practice all safety rules. The Experiential Learning Model is used to construct the curriculum (Figure 1). The idea behind the model is to help youth learn by doing. Research has found that experiential learning is one of the best ways to teach skills.

With that, we leave you to a task that will be a learning experience for you as well as the youth under your guidance.

Acknowledgements

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For more on woodworking, look for these other guides in this set:

**Measuring Up**
- Chapter 1: Introductory
  - The Right Tools
  - Finding Your Place
  - Tools and Equipment
  - Safety Is No Accident
- Chapter 2: Working With Wood
  - What's Wood?
  - Chapter 3: Measuring
  - Taking Measures
  - Marking
  - Cutting

**Making the Cut**
- Chapter 1: Getting Started
  - The Right Tools
  - Safety First
  - Chapter 2: Exploring
  - Woodworking Careers
  - Chapter 3: How to Make
  - Seating a Project
  - Making Decisions

**Finishing Up**
- Chapter 1: Planning and Doing
  - Tools for the Expert
  - Wood 'n Money
- Chapter 2: Power Tools
  - Tools of the Trade
  - Taking the Edge Off
  - Cutting With Power
- Chapter 3: Joinery
  - Dovetail Joints
  - Mortise and Tenon Joints
- Chapter 4: Exotic Woods
  - Woods of the World
  - The Art of Veneer
  - Overlays and Inlays
- Chapter 5: Advanced Finishing Techniques
  - Sanding With Power
  - Sticking Together
  - Refinishing
- Project Plans
  - Step Stool/Chair
  - Table Hockey Game
- Glossary/Resources

Table of Contents

**Introduction**
Notes to the Helper ...................................... Inside Front Cover
How to Use This Book ..................................... 2
My Plans .................................................. 3
Achievement Program ..................................... 4
Certificate of Completion ................................. 5

**Chapter 1 - Planning and Doing**
Tools for the Expert ..................................... 6
Wood 'n Money ............................................ 8

**Chapter 2 - Power Tools**
Tools of the Trade ..................................... 11
Taking the Edge Off ..................................... 13
Cutting With Power ..................................... 15

**Chapter 3 - Joinery**
Dovetail Joints .......................................... 17
Mortise and Tenon Joints ............................... 19

**Chapter 4 - Exotic Woods**
Woods of the World ..................................... 21
The Art of Veneer ....................................... 23
Overlays and Inlays ..................................... 25

**Chapter 5 - Advanced Finishing Techniques**
Sanding With Power ..................................... 27
Sticking Together ........................................ 29
Refinishing ............................................... 31

**Project Plans**
Step Stool/Chair ........................................ 33
Table Hockey Game ..................................... 34

**Glossary/Resources** ................................... 36
How This Book Works

Woodworking is a valuable skill that can enhance your life, be a hobby or provide you extra income. Woodworking is also an important job skill if you make it a career. There will inevitably be a need for builders and woodworkers. To get the most out of this book, familiarize yourself with how it is organized.

Each chapter teaches new woodworking skills or refines skills you have already acquired. After reading about a skill, you will practice it through the activities. Following the activities you will find questions that emphasize important points you’ve learned and help you think about how to apply the skills to other areas of your life.

Here are the categories you’ll be seeing in the book:

About Woodworking: this will be a skill you learn from the activity
About Yourself: this will be how you might apply the skill to your life

Toolbox
This will tell you what tools and supplies you’ll need to complete the activity.

Activities
Activities are usually a lot of fun because they let you learn by doing things yourself. You’re required to do seven activities each year to complete the Achievement Record.

Safety Rules or Tips
Clovers tell you to look for safety rules or tips that are necessary to keep you and others safe while doing activities and using tools.

Talk It Over
Questions at the end of activities will help you think through what you’ve learned and how it applies to your life.

More Challenges
More Challenges will give you ideas on how to learn more or how you can apply what you’ve learned to you or your community. More Challenges are optional, but you’ll want to do some of them!

Interesting Facts
Occasionally you’ll see tidbits of information that will expand the lesson’s information.

So, fill out My Plans and your Achievement Program on the next two pages and get ready for more adventures in Woodworking Wonders!
My Plans

Check these off as you complete them.

☐ Select your woodworking project helper, if you don’t already have one.
☐ Complete the four steps on this page.
☐ Do at least four woodworking leadership experiences each year you use this book.
☐ Do at least seven activities each year you use this book. The activities are listed in the Achievement Plan on the next page.

Name: ____________________________

My project helper is: ____________________________

Phone: ____________________________ E-Mail: ____________________________

1. Project Goals

I plan to make these woodworking projects while I use this book:

________________________________________________________________________

________________________________________________________________________

I plan to complete Finishing Up Achievement Program by (date) ____________________________

2. Leadership Experiences

<table>
<thead>
<tr>
<th>Experiences</th>
<th>Plan to do</th>
<th>Date</th>
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<tbody>
<tr>
<td>Give a woodworking demonstration.</td>
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<td>Write a newspaper or newsletter story about woodworking.</td>
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<td>Judge or assist judges at a woodworking competition.</td>
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<td>Give a speech at a community or service organization promoting woodworking.</td>
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<td>Conduct a woodworking workshop or project meeting.</td>
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<td>Help someone complete a woodworking project.</td>
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<td>Organize a community service project involving woodworking.</td>
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<tr>
<td>Other activities</td>
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3. Project Highlights

Record and date the most fun things you learn. Include what you make, repair, paint or refinish.

________________________________________________________________________

________________________________________________________________________

4. Project Review

When you’ve completed Finishing Up, arrange a project review with your parent, guardian or woodworking helper. You’ll need to have this page complete as well as the Achievement Program and the Talk It Over sections of this book.
Finishing Up Achievement Program

☐ Do at least seven of the required activities each year you use this book, or 21 within three years.
☐ Complete some of the More Challenges.
☐ Have your woodworking helper initial the activities as you complete them.

<table>
<thead>
<tr>
<th>Required Activities</th>
<th>Date</th>
<th>Helper's Initials</th>
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<tbody>
<tr>
<td><strong>Chapter 1 – Planning and Doing</strong></td>
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<tr>
<td>Looking Ahead</td>
<td></td>
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<tr>
<td>Me, an Entrepreneur?</td>
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<td>The Price Must be Right</td>
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<td>Marketing Creates Interest</td>
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<td>Creating an Order</td>
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<td><strong>Chapter 2 – Power Tools</strong></td>
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<td>A Ripping Good Time</td>
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<td>Making Push Sticks</td>
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<td>Edges and Grooves</td>
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<td>Power Cutting</td>
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<td><strong>Chapter 3 – Joinery</strong></td>
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<td>Making a Dovetail Joint</td>
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<td>Blind Mortise and Tenon Joint</td>
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<td><strong>Chapter 4 – Exotic Woods</strong></td>
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<td>Researching Exotic Woods</td>
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<td>Exotics in Use</td>
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<td>Using Veneers</td>
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<td>Making a Name</td>
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<tr>
<td><strong>Chapter 5 – Advanced Finishing Techniques</strong></td>
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<tr>
<td>Power Sanding Action</td>
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<tr>
<td>The Name is Bond</td>
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<tr>
<td>Strip Ease</td>
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<th>Optional Activities</th>
<th>Page #</th>
<th>Date</th>
<th>Helper's Initials</th>
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<td>Write your own activity here.</td>
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<th>Activity</th>
<th>Date</th>
<th>Helper's Initials</th>
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<td>Write your own activity here.</td>
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<th>Activity</th>
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<th>Activity</th>
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<td>Write your own activity here.</td>
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</table>
Finishing Up

Achievement Program Certificate

I certify that

[Blank Line]

has successfully completed the requirements of the
Finishing Up Achievement Program.

Name

Date

Picture of my woodworking project and me

Helper

Date
Chapter 1

Tools for the Expert

Now that you are in the fourth level of Woodworking Wonders you probably feel that your woodworking skills are pretty good, or at least much better than they were. You, like most woodworkers, realize the value of the tools you have and you probably want to add to your tool cache so you can expand the range of what you can build. This activity encourages you to look at new technologies in tools, as well as safety features.

Getting Started

Many new advances in tools and building materials are available to the woodworker. Many of the advances can be found in building products manufactured from wood. New plywood products or chip products are being made that increase strength and lower the price of materials. Also, veneer products are easier to use today than ever before. For instance, veneer is manufactured in convenient forms such as pre-glued edging. Advances have also been made in adhesives. Adhesives offer stronger and more waterproof bonding.

Cordless and powered tools were the last significant revolution in manufacturing tools. However, safety features are added regularly and ergonomic designs are becoming more common. Ergonomics is an applied science that takes into consideration how people use objects. The idea is to help people interact with an object in a most effective and safe manner. For instance, tool hammer handles may have soft rubber indentations that fit human hands and curves that make using them easier on the human body. Ergonomics is sometimes called human engineering.

Planning and Doing

In this chapter you’ll think about tools — those you have and those you would like. You’ll also be introduced to entrepreneurship, a way to make your woodworking skills profitable.

What You’ll Learn

About Woodworking explore the latest woodworking technology

About human problem solving

Looking Ahead

If money were not a limitation, what tools would you like to add to your collection of woodworking equipment? Look through woodworking magazines, Internet sites, catalogs or other research material and select your top five choices for tools you’d like to own and use. Dream big! Write your choices down and tape or glue pictures of the tools next to your choices. Also, make a note of safety features for each tool. Rank your choices from one to five.

In the space below, give your reasons for your rankings. For example, why is number one more important than number two? Share your choices and reasons with your teacher, class, family member or helper.

Explain your rankings:
Make a list of each tool or piece of equipment you now own or can use on a regular basis. If you need more room, use a separate piece of paper. This is a good chance to inventory your tools.

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<tr>
<th>Tool</th>
<th>Own</th>
<th>Borrow</th>
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**Share it**

- What tools did you select?
- What sources of information did you find?
- What did you learn about making an inventory list?

**Process it**

- What factors did you consider when you decided what future tools to add to your tool chest?
- What affect did safety features have on your decisions?

**Generalize it**

- Why is it important to set goals and plan ahead?

**Apply it**

- What did you learn about problem solving that will help you in the future?
Wood 'n Money

You can earn extra money by selling projects you make. You can become an entrepreneur, someone who organizes and manages his or her own business. This activity will help you think about what you might make and sell on your own. You may be able to gain extra income now and perhaps a career later by considering the entrepreneurial aspects of woodworking.

What You'll Learn

About Woodworking: starting your own business
About yourself: organizing, planning

Me, an Entrepreneur?

Here are some points that will help you decide if you want to become an entrepreneur:

- Will people buy my product?
- Do I have the ability, knowledge, and skill to make the product?
- Do I have the tools and space available to make the product?
- Do I have the time to make the product?
- Can I consistently make a quality product?
- Is my project original, or am I infringing on a copyright?

Next, make a list of products you could sell.

__

__

__

The Price Must be Right

For each project, consider cost. Over pricing means you won't sell the project; under pricing means you won't make a profit. Include the following when you determine a price for something you make:

- Materials for the project (wood, glue, sandpaper, paint, nails etc.)
- Tools involved
- Delivery of the product to a customer
- Office supplies (paper, envelopes, stamps, fliers, business cards etc.)

Once you have determined the basic cost of producing your product, factor in your personal production time and decide how much you want to make an hour. You will also need to research tax and business laws in your state.

Rank the list of possible projects you might sell from the list you made. Project a cost for each using the tips above.

<table>
<thead>
<tr>
<th>Project to sell</th>
<th>Cost To Make</th>
<th>Projected Retail Cost</th>
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Entreprenuers must know who their customers are. Your first customers might be family and friends. They may be more willing to buy your first products and can give you suggestions for improvement. Hopefully, friends and family members will tell others about your products. This is called word-of-mouth advertising. You can make a list of specific groups or organizations that might be interested in buying your products.

Marketing your products can include creating fliers and brochures to increase your business. Post them on public bulletin boards, or pass them out to people who seem interested.

Think of other ways to advertise your product and list them here:

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**Creating an Order**

Use the following information to prepare a work order and an invoice:

Your neighbor, Talisha Browning, visited your workshop last Monday afternoon and viewed the projects you make for sale. She selected a toolbox for her young nephew as a birthday present. She wants the toolbox to be painted red with the boy’s name: Jackson. She wants it big enough to hold a small handsaw. Her nephew’s birthday is in one month. Her address is 107 Krystal Lane. Her email is browning@anyplace.com. Her phone number is 814-000-4343. You have agreed to charge her $20 for the project.

---

**Taking Orders and Keeping Records**

You'll need to know how to take orders to have a successful business. Follow these steps for completing an order:

- Check state and local laws on starting a home-based business. Attorneys can be a necessary part of the entrepreneurial process to protect personal and business assets.
- Develop an organizational system—you don’t want to lose an order, nor do you want to have to search for records.
- Keep a record of customers’ names, addresses, phone numbers and e-mail addresses so you can reach your customer in a number of ways. You might even collect birthdays (not years) and send cards to your customers.
- Keep detailed records of all expenses and sales.
- Discuss payment method. Be certain your customers know the cost of the product and when payment is due.
- It is good business to prepare a detailed invoice for customers. It should contain a description of the project, when delivery of the project occurred; the price of the project and any taxes that apply; and it should have your name, company name and address. Make sure you keep a copy for your records.
- Set a delivery time. Let your customer know when you will be able to have the order delivered. If they need it by a certain date, put it in your order book as a priority.
- Be prompt. Make sure you deliver on time. Nobody likes to wait. If the customer has any questions, respond as soon as you can. This is good customer relations.
- Be courteous and friendly. Thank your customer for the order.
- Smile and be conversational. Think of how you would like to be treated when you buy something. Look at customers as individuals and not just people who buy your products.
TIPS for Woodworking Projects

• BE OPEN TO NEW IDEAS – Pay attention when others have a suggestion. Your goal is to make a product that others will buy.

• CREATE SALE OPPORTUNITIES – Look for craft shows, bazaars, consignment opportunities, garage sales and other places you could market and sell.

• DON'T COMPROMISE QUALITY – Produce a quality product. A reputation for quality will bring more sales.

• TIME IS MONEY – Look for ways to reduce production time and cost without reducing quality. Shop around for materials to make sure you are getting the best price. Don’t forget catalogs and buying in bulk.

Talk it Over

Share it
What products are being sold in your community? Should you create a new product?

Process it
Why is it important to use a work order? What is the value of using an invoice?

Generalize it
Why are planning and budgeting important in a business? What is the significance of being organized?

Apply it
Why is record keeping important for a business?

More Challenges

1. Talk to your local Chamber of Commerce. How many entrepreneurial businesses exist in your community? What types of goods or services do they cover? Find out what laws pertain to creating a business in your community? Write down your findings and make a poster that illustrates the main facts you’ve found.

2. What is a business plan? Visit with local offices of the Small Business Development Organization and gather information about writing a business plan. What problems might a teenager encounter that an adult would not encounter? Organize your information and prepare a talk about it. The Chamber of Commerce might be interested in what you have to say!