

NINTH EDITION

EXPLORING WOODWORKING

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Introduction

Exploring Woodworking is designed to assist in learning the fundamentals of working safely and efficiently with hand tools and power tools. In addition, the book acquaints you with the different types of woods and their uses. It also introduces you to the industrial woodworking environment, and describes the technology used today to produce a variety of wood products.

The information included in *Exploring Woodworking* is presented in an easy-to-understand format. New terms are listed at the start of each section and are introduced within that section. This allows you to be introduced to a new term in context, resulting in the best understanding of the material being presented. Safety is stressed throughout the text and is highlighted using a predominant second color. This enables you to easily locate important information regarding the care and safe operation of tools and equipment.

Exploring Woodworking emphasizes the important role that wood and wood by-products play in our everyday lives. Wood is a vital part of our future. Improved technology, conservation, and recycling will be critical to ensuring an adequate supply of wood for the future.

The contents of this book are presented in an orderly and organized manner. Information

regarding the materials used in woodworking, safety, and product planning is presented first. Subsequent chapters focus on hand tools, portable power tools, and power woodworking machines, including information on safety and proper use. Updated information in the areas of project construction, wood finishing, lamination, wood bending, and adhesives is also covered. Chapters presenting information on automated manufacturing, entrepreneurship, and career opportunities are also included in this book. Many operations that occur in an industrial setting are different from those that occur in a wood lab. However, the theory and principles of operation remain the same.

The final chapter of *Exploring Woodworking* provides construction details of carefully selected new projects. These projects provide students with exciting, easy, first-time projects to build. A special section also shows simple-to-complex woodworking projects completed by students.

Exploring Woodworking is intended for students in middle schools, junior high schools, and high school career and technology education programs. Since this is a beginning level exploratory woodworking book, it could also be used for adult education classes and by the do-it-yourselfer.

About the Author

Fred W. Zimmerman was Professor Emeritus from Western Illinois University in Macomb, Illinois. Fred earned several degrees, including a bachelor of science degree from Southern Illinois University, a master of science degree from Kent State University, and a doctorate in Industrial Education from Bradley University in Peoria, Illinois. He had extensive experience as both an instructor and woodworker, and was active in the Illinois Vocational Industrial Clubs of America as a judge in the cabinetmaking and millwork areas. Fred was a member of the Illinois Woodworking Teachers Association and a Life Member of the International Industrial Education Association.

Larry J. McWard is a professor in the Industrial Education and Technology department at Western Illinois University. He has earned several degrees, including a bachelor of science degree in Industrial Education and Vocational Education, and a master of science degree in Instructional Technology (Media) from Southern Illinois University. He has also earned a doctorate in Vocational-Technical Education from The Ohio State University. Larry's work experience includes 20 years of teaching experience at the junior high, high school, and university levels. Courses taught include vocational building trades and cabinetmaking. Larry also has 12 years of work experience as a carpenter, cabinetmaker, and general contractor. Larry is actively involved in the National Association of Industrial and Technical Teacher Educators, Association for Career and Technical Education, and is past-president of the Illinois Woodworking Teachers Association.

Don L. Blazek received his bachelor of science degree in Industrial Education from Fort Hays State University in Hays, Kansas, and his master of science degree at Pittsburg State University in Pittsburg, Kansas. He taught in the Shawnee Mission School District #512, located in Overland Park, Kansas. He taught an exploratory industrial education program consisting of materials and processes (wood and plastics), visual communication (drafting, graphic arts, photography, and video production) and manufacturing processes. He served on two federally funded development projects for the development of pilot industrial education programs for middle/junior high schools for the state of Kansas. This SET (Secondary Exploration of Technology) helped lead to the development of the modular concept of teaching technology education. Don also taught woodworking adult education classes at the local community college and woodworking retail store. Over the span of his teaching career, he was actively involved with the Kansas Industrial Education Association, American Industrial Arts Association, and Skills USA. In 1978 he was selected the Outstanding Industrial Education Teacher for the state of Kansas.

Reviewers

The author and publisher wish to thank the following industry and teaching professionals for their valuable input into the development of *Exploring Woodworking*.

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Sauk Centre High School, ISD 743
Sauk Centre, MN

John G. Stearns

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Amity, OR

New to This Edition

The following changes have been made to the ninth edition of *Exploring Woodworking* to provide up-to-date information on the latest technology and industrial developments.

- Essential Questions at the beginning of each chapter have been added to get students thinking about the topic before reading the chapter.
- Going Green features have been added to emphasize conservation and recycling practices.
- Images have been updated and added to show current practices and tools.
- Woodworking projects have been updated to reflect current industry trends.
- End-of-Chapter material has been revised and updated to include a Summary and Critical Thinking questions, helping to extend student learning and understanding.

Guided Tour

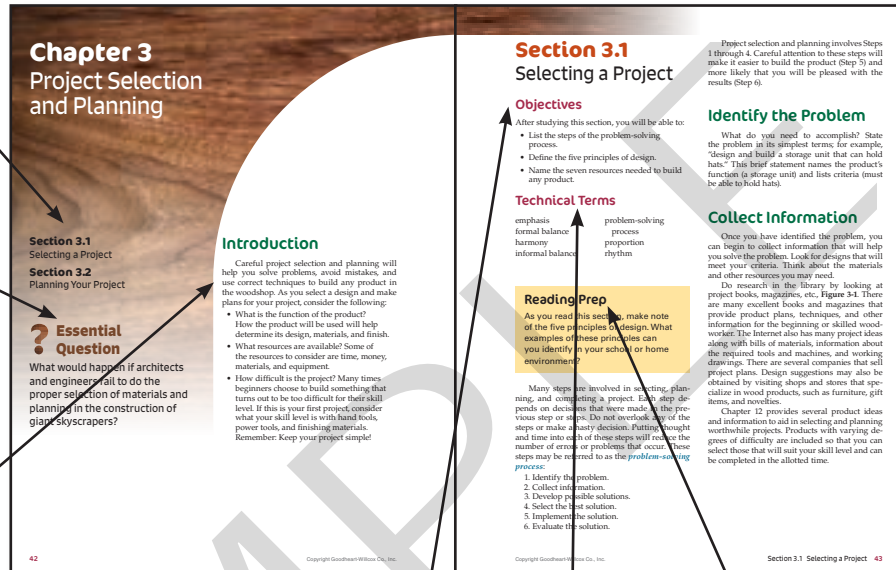
The instructional design includes student-focused learning tools to help students succeed. This visual guide highlights the features designed for the textbook.

Chapter Outline

summarizes the topics that will be covered in the chapter.

Essential Question helps you to connect what you are learning to real-world scenarios.

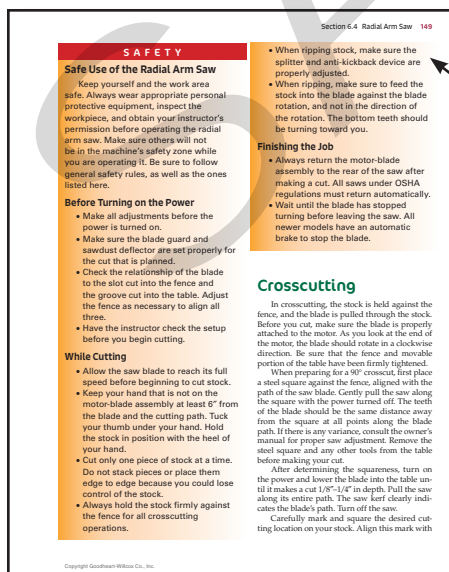
Introduction provides an overview and preview of the chapter content.



Objectives clearly identify the knowledge and skills to be obtained when the chapter is completed.

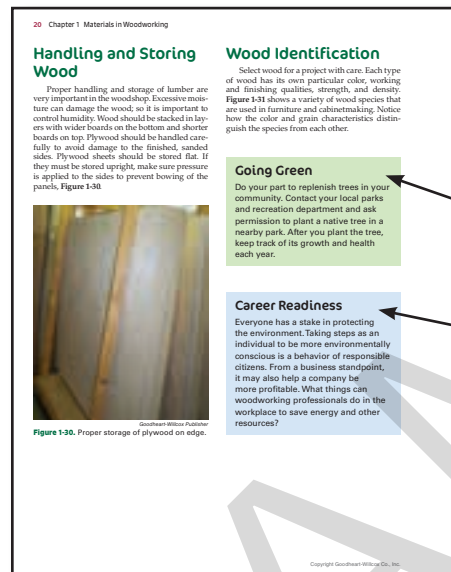
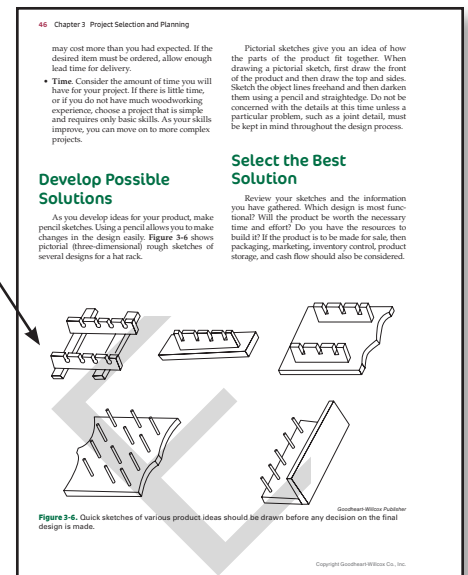
Technical Terms list the key terms to be learned in the chapter.

Reading Prep helps you prepare to understand the chapter.



Safety Notes alert you to potentially dangerous materials and practices.

Illustrations have been designed to clearly and simply communicate the specific topic.



Going Green notes highlight key items related to sustainability, energy efficiency, and environmental issues.

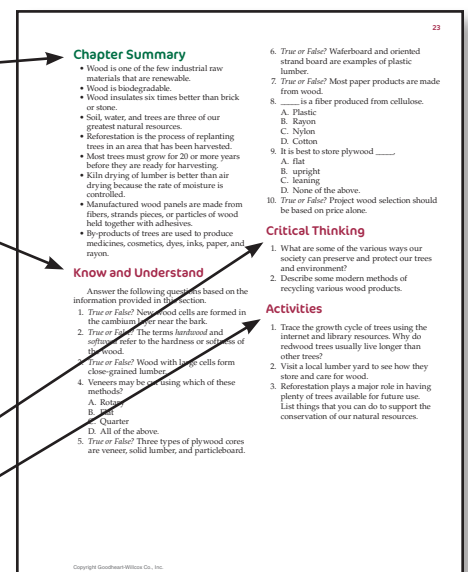
Career Readiness helps you understand what you can anticipate and expect in the workplace.

Chapter Summary provides an additional review tool for you and reinforces key learning objectives.

Know and Understand questions enable you to demonstrate knowledge, identification, and comprehension of chapter material. These review questions are provided both at the end of each section for immediate review of content and as a cumulative review at the end of each chapter.

Critical Thinking questions develop higher-order thinking and problem-solving, personal, and workplace skills.

Activities extend your learning and help you apply knowledge.



TOOLS FOR STUDENT AND INSTRUCTOR SUCCESS

Student Tools

Student Text

Exploring Woodworking provides the essential knowledge that beginning students require, introducing different woods and their characteristics in addition to basic techniques using hand and power tools.



Workbook

- Includes review questions to help students recall, review, and apply concepts introduced in the book.

G-W Companion Website

For digital users, e-flash cards and vocabulary exercises allow interaction with content to create opportunities to increase achievement.

Online Learning Suite

- Online student text and workbook, along with rich supplemental content, bring digital learning to the classroom.
- All instructional materials are accessible at home, at school, or on the go.

Instructor Tools

LMS Integration

Integrate Goodheart-Willcox content within your Learning Management System for a seamless user experience for both you and your students. EduHub LMS-ready content in Common Cartridge® format facilitates single sign-on integration and gives you control of student enrollment and data. With a Common Cartridge integration, you can access the LMS features and tools you are accustomed to using and G-W course resources in one convenient location—your LMS.

G-W Common Cartridge provides a complete learning package for you and your students. The included digital resources help your students remain engaged and learn effectively:

- **Digital Textbook**
- **Online Workbook content**
- **Drill and Practice vocabulary activities**

When you incorporate G-W content into your courses via Common Cartridge, you have the flexibility to customize and structure the content to meet the educational needs of your students. You may also choose to add your own content to the course.

For instructors, the Common Cartridge includes the Online Instructor Resources. QTI® question banks are available within the Online Instructor Resources for import into your LMS. These prebuilt assessments help you measure student knowledge and track results in your LMS gradebook. Questions and tests can be customized to meet your assessment needs.

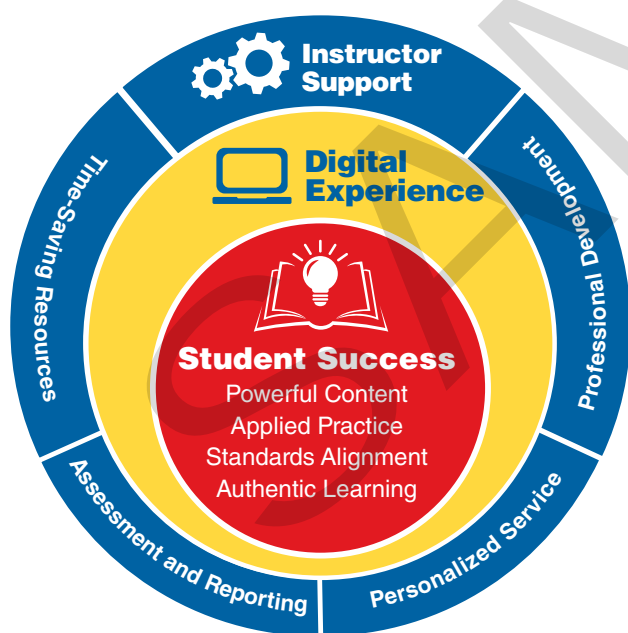
Online Instructor Resources (OIR)

- The **Instructor Resources** provide instructors with time-saving preparation tools such as answer keys, editable lesson plans, and other teaching aids.
- **Instructor's Presentations for PowerPoint®** are fully customizable, richly illustrated slides that help you teach and visually reinforce the key concepts from each chapter.
- Administer and manage assessments to meet your classroom needs using **Assessment Software with Question Banks**, which include hundreds of matching, completion, multiple choice, and short answer questions to assess student knowledge of the content in each chapter.

See www.g-w.com/exploring-woodworking-2024 for a list of all available resources.

Professional Development

- Expert content specialists
- Research-based pedagogy and instructional practices
- Options for virtual and in-person professional development



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SAMPLE