Unit 5: Drilling and Boring Tools

Content Area: **Applied Technology**
Course(s):
Time Period: **Marking Period 1**
Length: **2 Weeks**
Status: **Published**

Suggested Strategies for Modification

https://docs.google.com/spreadsheets/d/1gk0WLBehVNuQkRKLMYATvY5Zk0vpdBKbdrcODZS_YFw/edit?usp=sharing

Brief Summary of Unit

Students will learn the various purposes and methods of drilling and boring holes in wood. They will learn safe operation procedures for using drilling and boring tools, including the drill press, electric hand drill, and cordless battery drill. The students will learn how to accurately drill and bore holes in a variety of materials using the correct method and tool. Students will learn about many types of drilling and boring tools, bits, and accessories available on the market today and be able to make educated decisions when purchasing or using them.

Essential Questions/Enduring Understandings

Essential Questions:

What tools are available to drill holes in wood?

What part does the operator play in working safely with drills?

Enduring Understandings:

Density of the wood often dictates the speed and the type of bit that may be used.

It is important to follow all safety rules and manufacturers directions at all times.

Objectives

Students will know:

ey terms and tool names.

the most common types of drill bits currently available on the market.

how to recognize drilling and boring tools including the Spade bit, Twist bit, forstner bits, and expansion bits.

how to select the correct drilling or boring tool for the intended use.

how the drill press is used in the industry

what types of drill bit can be used in the drill press.

what features and quality to look for when purchasing a drill press for personal use.

any tool is inherently dangerous and safety must be number one on the mind.

extra care must be exercised when using electric tools.

tools that are properly maintained and not abused will last a lifetime.

when purchasing tools, invest in quality.

care must be exercised not to exceed the design limits of the drill or the drill bit.

material must be held securely in place before attempting to drill into it.

concentration is key to operating the drill press.

the drill press can be used for many types of operations.

simple attachments can extend the versatility of the drill press.

all machines as well as operators have their limitations.

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Students will be skilled at:

using drilling and boring tools safely.

caring for and maintaining boring and drilling tools.

following the safety rules pertaining to the operation of the drill press.

Learning Plan

Preview the essential questions and connect to learning throughout the unit.

Introduce new vocabulary

Present lesson on drilling and boring tools

Display and have students examine the various types of drill bits available in the shop and have students pair them with the corresponding drill.

Have students demonstrate the insertion and removal of drill bits into the manual and electric drill.

Demonstrate the safe and proper use of a drill.

Read and answer questions in the relevant sections of the woodworking textbook.

Have students design a poster emphasizing safety with electric tools.

Allow students to work independently drilling the holes on their projects.

Have students self–evaluate their accuracy in drilling and compensate accordingly.

Have students research the prices and features of various drills and report their recommendations for purchase to the class.

Present lesson on using the drill press.

Demonstrate the safe and proper use of the drill press.

Demonstrate the procedures for attaching jigs and fixtures to the drill press table.

Discuss and display the attachments available in the shop for the drill press.

Read and discuss relevant selections from the woodworking textbook.

Discuss the use of the drill press in industry today.

Present and discuss the video on operating the drill press safely.

Quizzes & unit test

Writing prompts as homework, in class discussion and evaluation.

Allow students to work independently to drill the required holes in their project.

Have student's research using the Internet, features of various drill presses on the market and prepare a price comparison.

Have students search the Internet and prepare a chart showing how technology has impacted how holes are made in industry today.

Assessment

Formative Assessment

Participation in class discussion on the drill press and boring tools.

Writing Prompt on drill press uses

Do Now

Exit Ticket

Teacher evaluation of project progress

Demonstrates proper safety

Summative Assessment

Quiz

Practicum on the drill press

Unit Test

Completed project graded with a rubric

Benchmark Assessment

Mid Term Exam

Final Exam

Alternative Assessment

Presentation on proper drill press safety

Materials

Woodworking Textbook

Safety Equipment

Internet

Drilling and Boring Tools: drill press, electric hand drill, and cordless battery drill

Standards

MA.K-12.5	Use appropriate tools strategically.
LA.RST.11-12.2	Determine the central ideas, themes, or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
LA.RST.11-12.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.
LA.RI.11-12.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
LA.RI.11-12.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
LA.RST.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.
TECH.9.4.12.CT	Critical Thinking and Problem-solving
	With a growth mindset, failure is an important part of success.