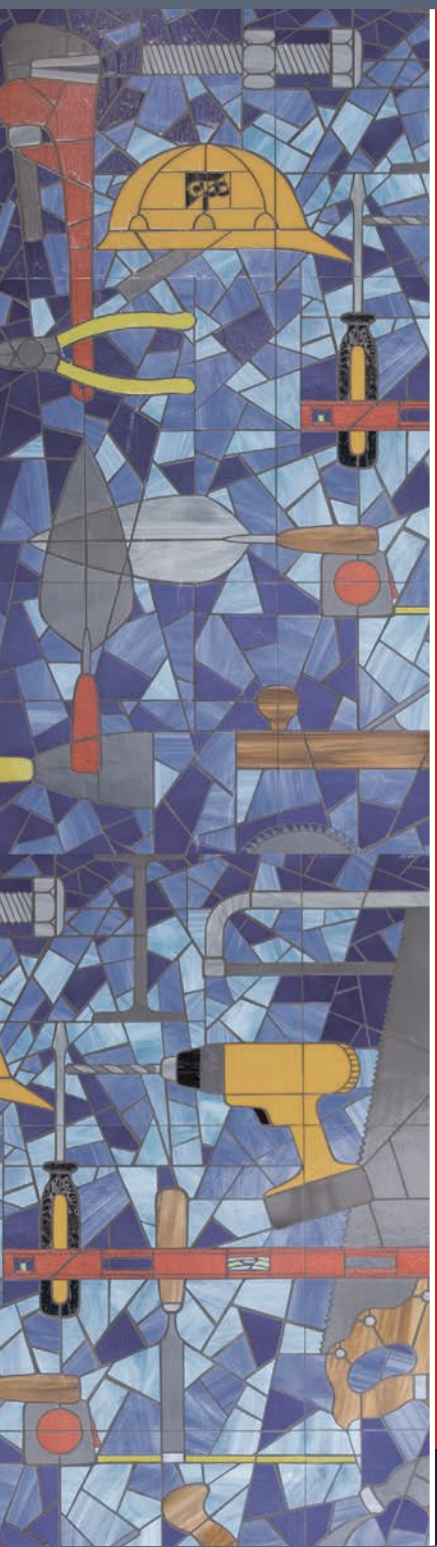
00104-15

Introduction to Power Tools



Core Curriculum

Lesson Plans for Instructors

Module Four

Trainees with successful module completions may be eligible for credentialing through the NCCER Registry. To learn more, go to **www.nccer.org** or contact us at **1.888.622.3720**. Our website has information on the latest product releases and training, as well as online versions of our *Cornerstone* magazine and Pearson's product catalog.

Your feedback is welcome. You may email your comments to **curriculum@nccer.org,** send general comments and inquiries to **info@nccer.org**, or fill in the User Update form at the back of this module.

This information is general in nature and intended for training purposes only. Actual performance of activities described in this manual requires compliance with all applicable operating, service, maintenance, and safety procedures under the direction of qualified personnel. References in this manual to patented or proprietary devices do not constitute a recommendation of their use.

Lesson Plans for Module 00104-15

Introduction to Power Tools

Module Four (00104-15) identifies and describes some of the power tools used by construction workers. The construction of each tool is discussed, along with information regarding the safe usage and typical maintenance requirements of power tools. **NOTE:** Trainees are required to successfully complete Module 00101-15, *Basic Safety (Construction Site Safety Orientation)* before studying this module.

Objectives

Learning Objective 1

- Identify and explain how to use various types of power drills and impact wrenches.
  a. Identify and explain how to use common power drills and bits.
  b. Identify and explain how to use a hammer drill.
  c. Identify and explain how to use pneumatic drills and impact wrenches.

Learning Objective 2

- Identify and explain how to use various types of power saws.
  a. Identify and explain how to use a circular saw.
  b. Identify and explain how to use saber and reciprocating saws.
  c. Identify and explain how to use a portable band saw.
  d. Identify and explain how to use miter and cutoff saws.

Learning Objective 3

- Identify and explain how to use various grinders and grinder attachments.
  a. Identify and explain how to use various types of grinders.
  b. Identify and explain how to use various grinder accessories and attachments.

Learning Objective 4

- Identify and explain how to use miscellaneous power tools.
  a. Identify and explain how to use pneumatic and powder-actuated fastening tools.
  b. Identify and explain how to use pavement breakers.
  c. Identify and explain the uses of hydraulic jacks.

Performance Tasks

Performance Task 1

(Learning Objectives 1 through 4)

- Safely and properly demonstrate the use of three of the following tools:
  – Electric drill
  – Hammer drill or rotary hammer
  – Circular saw
  – Reciprocating saw
  – Portable band saw
  – Miter or cutoff saw
  – Portable or bench grinder
  – Pneumatic nail gun
  – Pavement breaker

Teaching Time: 10 hours

(Four 2.5-Hour Classroom Sessions)

Session time may be adjusted to accommodate your class size, schedule, and teaching style.

Prerequisites

Core Curriculum Modules 00101-15; 00102-15; and 00103-15.

Before You Begin

As you prepare for each session, allow sufficient time to review the course objectives, content, visual aids (including the PowerPoint® presentation), and these lesson plans, and to gather the required equipment and materials. Consider time required for demonstrations, laboratories, field trips, and testing.

Using your access code, download the written examinations and performance profile sheets from **www.nccerirc.com**. The passing score for submission into NCCER's Registry is 70% or above for the written examination; performance testing is graded pass or fail.

Safety Considerations

This module requires that trainees handle and demonstrate the proper use of various power tools. Because this is likely the first module for new trainees that requires them to work with energized tools and equipment, it is essential to ensure that each trainee dons and uses the required PPE for these activities. Instructors must observe trainees carefully and consistently to ensure safety is maintained so that positive safety habits begin to form. Trainees are allowed to handle power tools—energized or non-energized—only under the direct supervision of the instructor.

Classroom Equipment and Materials

Whiteboard/chalkboard

Markers/chalk

Pencils and paper

Core Curriculum PowerPoint® Presentations

DVD player

LCD projector and screen

Computer

Internet access during class (*optional*)

Copies of the Module Examination and Performance Profile Sheets

Equipment and Materials for Laboratories and Performance Testing

Appropriate PPE:

- Safety glasses
- Face shields
- Work gloves
- Safety shoes
- Hard hats

One or more types of power drill, with chuck key

Hammer drill

Samples of fractional, metric, numbered, lettered, and masonry drill bits

Pneumatic drill

Pneumatic hose whip check

Impact wrench (pneumatic or electric)

Circular saw

Saber saw

Reciprocating saw

Portable band saw

Miter and/or cutoff saw

Angle grinder

Detail grinder

Bench grinder

Grinding wheel for a bench grinder

Pneumatic nail gun

Powder-actuated fastening gun

Pneumatic impact wrench

Pavement breaker

Hydraulic jack

A minimum of three of the following power tools are required to conduct the laboratory:

- One or more types of electric drill, with suitable bits
- Hammer drill or rotary hammer, with suitable bits
- Circular saw with blade(s)
- Reciprocating saw with blade(s)
- Portable band saw with blade(s)
- Miter and/or cutoff saw with blade(s)
- Angle grinder with grinding wheel(s)
- Bench grinder
- Pneumatic nail gun
- Pavement breaker
- Scrap wood and metal for drilling, sawing, grinding, etc.

Additional Resources

This module presents thorough resources for task training. The following resource material is suggested for further study.

29 CFR 1926, OSHA Construction Industry Regulations, Latest Edition. Washington, DC: Occupational Safety and Health Administration, U.S. Department of Labor, U.S. Government Printing Office.

All About Power Tools, Ortho books; Larry Johnston, ed. 2002. Des Moines, IA: Meredith Books.

Power Tool Institute, Inc. 1300 Sumner Avenue Cleveland, OH 44115-2851. **www.powertoolinstitute.com**.

There are a number of on-line resources available for trainees who would like more information on power tools and related safety practices, guidelines, and requirements. A search for additional information may be assigned as homework to interested trainees.

Instructors should view any videos that may be identified in the lesson plan before using them to ensure their suitability. The videos can provide teachable moments in both proper and improper work processes and behaviors. Be prepared to stop the videos at appropriate times to point out and discuss both proper and improper conduct and techniques.

Instructors are also encouraged to locate additional audiovisual aids available on the internet, make personal videos, and take still pictures related to the subject matter and add them to the PowerPoint® presentations throughout the program.

Session Outline for 00104-15

Introduction to Power Tools

The Lesson Plan for this module is divided into four 2.5-hour sessions.
This time includes 10 minutes for administrative tasks and a 10-minute break per session.

Session One

Session One introduces various types of power drills and several types of saws.

1. Show the Session One PowerPoint® presentation.
2. Use the Kickoff Activity to demonstrate the importance of safety in the use of power tools.
3. Identify and describe various types of power drills and impact wrenches.
4. Introduce circular saws and reciprocating saws.

Session Two

Session Two presents additional saws, including band saws and miter saws. Also introduced are grinders and miscellaneous power tools.

1. Show the Session Two PowerPoint® presentation.
2. Use the Kickoff Activity to demonstrate the importance of safety in the use of grinders.
3. Identify and describe various power saws.
4. Identify and describe pneumatic nailers and powder-actuated tools.
5. Identify and describe pavement breakers and hydraulic jacks.

Session Three

Session Three is a laboratory session devoted to the practice and completion of Performance Task 1.

1. Note that there is no PowerPoint® presentation associated with this session.
2. Demonstrate how to use a minimum of three power tools.
3. Trainees practice and/or complete the tasks associated with Performance Task 1 in this hands-on session.

Session Four

Session Four is a review and testing session. Have trainees complete the Module Review and Trade Terms Quiz. Go over the Module Review and Trade Terms Quiz in class prior to the exam and answer any questions that the trainees may have.

1. Have trainees complete the written examination. Any outstanding performance testing must be completed during this session as well.
2. Record the testing results on the Registration of Training Modules Form, and submit the report to your Training Program Sponsor.

Materials Checklist for Module 00104-15, Introduction to Power Tools

Equipment and Materials					
Personal protective equipment:		Hammer drill		A minimum of three of the following power tools are required to conduct the laboratory:	
Safety glasses		Pneumatic drill			
Face shields		Circular saw			
Work gloves		Saber saw		Pneumatic nail gun	
Safety shoes		Reciprocating saw		Circular saw with blade(s)	
Hard hats		Portable band saw		Bench grinder	
Whiteboard/chalkboard		Miter and/or cutoff saw		Pavement breaker	
Markers/chalk		Angle grinder		Portable band saw with blade(s)	
Pencils and paper		Detail grinder			
Core Curriculum PowerPoint® Presentation Slides		Grinding wheel for a bench grinder		Miter and/or cutoff saw with blade(s)	
DVD player		Bench grinder		Angle grinder with grinding wheel(s)	
LCD projector and screen		Pneumatic nail gun			
Computer		Powder-actuated fastening gun		Reciprocating saw with blade(s)	
Internet access during class (*optional*)		One or more types of power drill, with chuck key		Hammer drill or rotary hammer, with suitable bits	
Copies of the Module Examination and Performance Profile sheets		Pneumatic hose whip check Impact wrench (pneumatic or electric)		Scrap wood and metal for drilling, sawing, grinding, etc.	
		Pneumatic impact wrench		One or more types of electric drill, with suitable bits	
		Pavement breaker			
		Hydraulic jack			
		Samples of fractional, metric, numbered, lettered, and masonry drill bits			

To the extent possible, and as required for performance testing, provide a selection of the tools listed for each session; alternatively, photos may be used to teach tool identification.

Drills; Saws, Part One

Safety Considerations

The following safety considerations should be emphasized when introducing trainees to power tools:

Remind trainees that some forms of PPE may be required any time they are in the shop or on a job site.

Trainees will likely be handling de-energized power tools during this session. To develop good habits and initiate a mental connection between PPE and power tools, it is suggested that trainees don safety glasses and gloves to handle the power tools in the classroom, even in their de-energized state.

Safety Equipment

Safety glasses
Work gloves

Classroom and/or Lab Equipment

One or more types of power drill, with chuck key
Hammer drill
Samples of fractional, metric, numbered, lettered, and masonry drill bits
Pneumatic drill
Pneumatic hose whip check
Impact wrench (pneumatic or electric)
Circular saw
Saber saw
Reciprocating saw

Resources

No specific resources are required for this session.

Kickoff Activity

Visit the web site of the Power Tool Institute, Inc., located at **www.powertoolinstitute.com**. Use the Safety Video tab and locate the video entitled "Power Tool Accidents—They Can Be Prevented." This 19-minute video explores a variety of accident types that can occur with power tools and provides guidance in maintaining a safe work environment. Safety is discussed from different perspectives, including those of healthcare workers and injured power tool operators. Due to its length, instructors may wish to review the video and select only certain portions for viewing. Note that the videos are also available in Spanish.

Drills; Saws, Part One

Session Objectives

When trainees have completed this session, they should be able to do the following:

1. Identify and explain how to use various types of power drills and impact wrenches.
   a. Identify and explain how to use common power drills and bits.
   b. Identify and explain how to use a hammer drill.
   c. Identify and explain how to use pneumatic drills and impact wrenches.
2. Identify and explain how to use various types of power saws.
   a. Identify and explain how to use a circular saw.
   b. Identify and explain how to use saber and reciprocating saws.

Session Performance Requirements

Trainees will not complete a Performance Task during this session.

Instructional Outline

Research has shown that varying instructional methods periodically throughout class sessions helps to engage and hold trainees' attention. The *Core Curriculum* PowerPoint® presentation that you received with this lesson plan is keyed to the sections of the Trainee Guide indicated below and has been designed for use with this lesson plan.

Classroom: Section 1.0.0

Identify the various power sources available for power tools. Explain that a commitment to safety is required before picking up any power tool.

Discuss trigger locks and emphasize the safety hazard they represent.

Classroom: Section 1.1.0

Describe power drills and identify the types of power drills that will be presented. Talk about the operation of variable-speed models. Describe the different types of drill bits and how they are sized. Discuss drill chucks. Introduce right-angle drills.

Teaching Tip

As various types of drills and saws are discussed during this session, allow trainees to examine any samples you have on hand. It is suggested trainees wear safety glasses and gloves while handling power tools, to support the mental connection between power tools and PPE.

Classroom: Section 1.1.1

Introduce cordless drills. Talk about charging and explain that the health and longevity of the battery must be considered in its care and charging. Point out that many drills have adjustable clutches used for driving screws and similar hardware.

Classroom: Section 1.1.2

Describe an electromagnetic drill. Explain that the electromagnet must be powered electrically along with the drill. Use the figure to describe how it is operated.

Classroom: Section 1.1.3

Explain how to install a drill bit or other tool into a drill chuck. Point out that keyed chucks with three holes should be tightened by using all three key positions. Emphasize the need to remove the key from the chuck. Review the guidance provided for drilling holes in wood and metal. Explain that drill sound and speed are good indicators of the load placed upon it. Discuss how to handle the drill as it exits the workpiece. Describe the use of a keyless chuck on cordless models.

Classroom: Section 1.1.4

Discuss the importance of GFCI use. Explain how a GFCI device works. Stress the need to confirm what is on the opposite side of the workpiece or wall before drilling. Remind trainees that the chuck key must be removed from the chuck. Emphasize that a stable stance is required to properly control the drill. Review the safety concerns specifically related to electromagnetic drills.

Classroom: Sections 1.2.0–1.2.1

Explain how a hammer drill works. Point out that special bits are required for masonry drilling.

Introduce rotary hammers; compare and contrast the two different tools. Use the figure to show the different bit shank designs needed for rotary hammers.

Talk about the safe operation of a hammer drill. Explain that the hammering action often does not take place until the bit is pressed against a hard surface.

Classroom: Sections 1.3.0–1.3.1

Discuss the use of compressed air to power a tool.

Identify when a pneumatic drill might be chosen. Identify the common pneumatic drill sizes.

Classroom: Sections 1.3.2–1.3.4

Describe pneumatic impact wrenches and how they are used.

Explain that the compressed air supply must be set to the proper pressure. Describe how to connect the air source and install a whip check.

Review the safety considerations for working with pneumatic drills.

Classroom: Sections 2.0.0–2.1.0

Identify the types of power saws that will be discussed in this section.

Describe a circular saw and identify other names for this tool trainees may hear. Discuss the blade sizes available for circular saws. Talk about the construction of a circular saw. Review the list of common saw blade types.

Classroom: Section 2.1.1

Discuss the proper PPE for circular saw use. Explain that the saw must be set to allow the blade to penetrate the material, but not extend through the workpiece farther than necessary. Describe how to properly mark cutting lines, considering the kerf. Talk about how to properly guide and control the saw.

Classroom: Section 2.1.2

Emphasize that the saw blade should be properly installed and the guards must be in place before energizing a saw. Point out that the saw should not be forced into the material and that the material must be well-secured. Discuss the need for cleaning specific parts of the saw. Discuss the importance of a clean, sharp blade. Note that oil and grease should be avoided.

Classroom: Sections 2.2.0–2.2.1

Introduce saber and reciprocating saws and explain they provide the same sawing action. Describe the saber saw and talk about its versatility in detailed work. Point out that the cutting action only occurs in one direction, and that it is when the blade is moving toward the tool. Discuss the different types of blades available. Explain how to make use of variable- or multi-speed models.

Classroom: Section 2.2.2

Compare and contrast saber saws and larger reciprocating saws. Point out that the reciprocating saws are excellent for demolition work. Describe variable- and multi-speed models. Discuss the two types of baseplates encountered.

Classroom: Section 2.2.3

Emphasize the need for securing the workpiece, pointing out that saber and reciprocating saws are often used to cut fixed construction components as well. Explain that the saw blades may dull quickly. Discuss the need to apply the right amount of pressure to the saw.

Classroom: Section 2.2.4

Discuss the safe operation of saber saws and reciprocating saws. Stress that sharp blades are required to make good, fast cuts. Emphasize that the operator must be aware of any objects inside or on the opposite side of walls before cutting. Stress that the power supply must be disconnected before performing any maintenance. Describe the blade teeth and note which blades should be used on various materials. Discuss blade breakage and replacement; note that the blade can be easily broken if the tool is misused.

Wrap Up

Consider a role reversal; have trainees guide you. Describe some basic tasks to be done with a drill or saw that was presented in this session. Ask trainees to provide you with verbal step-by-step guidance to complete each of the tasks properly and safely, while you manipulate the de-energized power tool.

Homework

Assign the reading of Sections 2.3.0 through 4.3.1. Have trainees complete the 1.0.0, 2.0.0, 3.0.0, and 4.0.0 Section Reviews as they complete the reading assignment.

Safety Considerations

The following safety consideration should be emphasized when introducing trainees to power tools:

Remind trainees that some forms of PPE may be required any time they are in the shop or on a job site.

Safety Equipment

Safety glasses
Work gloves

Classroom and/or Lab Equipment

Portable band saw
Miter and/or cutoff saw
Angle grinder
Detail grinder
Bench grinder
Grinding wheel for a bench grinder
Pneumatic nail gun
Powder-actuated fastening gun
Pneumatic impact wrench
Pavement breaker
Hydraulic jack

Resources

No specific resources are required for this session.

Kickoff Activity

Return to the web site of the Power Tool Institute, Inc., located at **www.powertoolinstitute.com**. Use the Safety Video tab and locate the video entitled *Angle Grinder Safety*. This 22-minute video explores the use of angle grinders and their safe use. Due to its length, instructors may wish to review the video and select only certain portions for viewing. Note that this video is also available in Spanish.

Session Objectives

When trainees have completed this session, they should be able to do the following:

2. Identify and explain how to use various types of power saws.
   c. Identify and explain how to use a portable band saw.
   d Identify and explain how to use miter and cutoff saws.
3. Identify and explain how to use various grinders and grinder attachments.
   a. Identify and explain how to use various types of grinders.
   b. Identify and explain how to use various grinder accessories and attachments.

Session Objectives (*continued*)

4. Identify and explain how to use miscellaneous power tools.
   a. Identify and explain how to use pneumatic and powder-actuated fastening tools.
   b. Identify and explain how to use pavement breakers.
   c. Identify and explain the uses of hydraulic jacks.

Session Performance Requirements

Trainees will not complete a Performance Task during this session.

Instructional Outline

Research has shown that varying instructional methods periodically throughout class sessions helps to engage and hold trainees' attention. The *Core Curriculum* PowerPoint® presentation that you received with this lesson plan is keyed to the sections of the Trainee Guide indicated below and has been designed for use with this lesson plan.

Review

Review the answers to the 1.0.0 through 4.0.0 Section Reviews.

Classroom: Section 2.3.0

Introduce the portable band saw and explain that it is primarily used for cutting metal. Describe the blade and point out that band saws operate at relatively low speeds.

Teaching Tip

As various types of saws are discussed during this session, allow trainees to examine any samples you have on hand. It is suggested trainees wear safety glasses and gloves while handling power tools, to support the mental connection between power tools and PPE.

Classroom: Sections 2.3.1–2.3.2

Stress that the band saw stop must be against the workpiece before starting the saw. Explain that the weight of the saw is all that is needed for cutting to occur; added pressure wears the blade. Stress that the stop should never be removed from the saw.

Classroom: Sections 2.4.0–2.4.1

Introduce miter and cutoff saws.

Explain the difference between standard miter saws and compound models. Describe the compound sliding miter saw.

Classroom: Sections 2.4.2–2.4.3

Explain that abrasive cutoff saws are used for hard materials. Point out that they do not slice, but burn their way through the material.

Discuss the setup of a miter saw to make a proper cut. Point out that abrasive cutoff saws create sparks when cutting material.

Classroom: Section 2.4.4

Review the safety hazards of improper clothing when using saws. Emphasize that the saw should always be disconnected from its power supply during maintenance or adjustments. Tell trainees to use a helper as needed for cutting long or awkward materials.

Classroom: Sections 3.0.0–3.1.0

Introduce the category of grinding tools.

Describe the uses of angle grinders and their construction. Point out that detail grinders have the tool operating in-line with the motor shaft. Define and describe points. Discuss the use of bench grinders. Emphasize the importance of using wheels with the proper ratings.

Classroom: Section 3.1.1

Explain how to hold and use an angle grinder. Explain that pressure on the tool must be controlled and light. Discuss the adjustments made to a bench grinder. Emphasize the importance of keeping the workpiece cool.

Classroom: Section 3.1.2

Discuss the PPE required for grinding. Talk about grinding disc and wheel selection. Describe and demonstrate how to do a ring test on a grinding wheel.

Classroom: Section 3.2.0

Describe different types of accessories and their uses. Point out that some grinders offer a vacuum port. Discuss sanding discs, buffing pads, wire wheels and cups, stones, and flap discs. Describe burr bits and how they are best used. Remind trainees of the importance of matching tool rpm to that of the grinder.

Classroom: Sections 4.0.0–4.1.0

Introduce some of the miscellaneous power tools used in construction.

Describe pneumatic nailers and how they work. Point out the safety features. Describe powder-actuated tools. Explain that certification is required to operate them.

Classroom: Section 4.1.1

Explain that nail compatibility is important for nailers. Discuss the required air pressure and the importance of testing on scrap material. Describe how to use the tool. Explain how powder-actuated tools work. Emphasize that they fire a charge much like a bullet.

Classroom: Section 4.1.2

Stress to trainees that pneumatic nailers should never be pointed at any body part or towards another person. Emphasize that the air source must be removed before working on the nailer. Point out that nails can completely penetrate soft materials. Talk about the certification process for powder-actuated tools. Describe all the related hazards.

Classroom: Section 4.2.0

Describe pavement breakers. Point that they are heavy tools. Describe their operation and the use of available attachments.

Classroom: Sections 4.2.1–4.2.2

Explain how to connect the air source to a pavement breaker. Emphasize that a whip check should be used. Describe the PPE required when using a pavement breaker. Explain the importance of knowing what is below the pavement before using the tool.

Classroom: Section 4.3.0

Discuss the exceptional force of hydraulic tools. Describe the construction of a hydraulic jack. Explain that the pump can be internal or a separate component. Describe jack characteristics such as capacity and stroke.

Classroom: Section 4.3.1

Discuss safety considerations when using a jack. Discuss jack inspection. Explain that loads must be centered and balanced. Discourage the use of any type of additional leverage. Explain that, once raised to the proper height, the load must be relieved from the jack.

Wrap Up

Role reversal; have trainees guide you. Describe some basic tasks to be done with a miter saw, grinder, or other tool presented in this session. Ask trainees to provide you with verbal step-by-step guidance to complete each of the tasks properly and safely, while you manipulate the de-energized power tool.

Homework

Assign trainees a review of the complete module to prepare for the upcoming power tool laboratory.

Safety Considerations

The following safety considerations should be emphasized when introducing trainees to power tools:

Remind trainees that some forms of PPE may be required any time they are in the shop or on a job site.

Trainees will be handling and working with a variety of energized power tools during this session. All work with power tools must be carefully and consistently supervised by the instructor. Ensure that all trainees use the proper PPE for these activities, and exhibit safe behavior when working with energy sources and tools. Correct any safety-related errors immediately.

Since most workers must wear hard hats in the workplace, it is suggested that trainees wear hard hats for this laboratory, regardless of the overhead environment.

Safety Equipment

Safety glasses
Face shields
Work gloves
Safety shoes
Hard hats

Classroom and/or Lab Equipment

A minimum of three of the following power tools are required to conduct this laboratory:

One or more types of electric drill, with suitable bits
Hammer drill or rotary hammer, with suitable bits
Circular saw with blade(s)
Reciprocating saw with blade(s)
Portable band saw with blade(s)
Miter and/or cutoff saw with blade(s)
Angle grinder with grinding wheel(s)
Bench grinder
Pneumatic nail gun
Pavement breaker
Scrap wood and metal for drilling, sawing, grinding, etc.

Compressed air source (if pneumatic tools will be used)

Resources

No specific resources are required for this session.

Session Objectives

This laboratory is designed to support and emphasize the content of Learning Objectives 1 through 4.

Session Performance Requirements

By the end of this session, trainees should have completed, or be able to complete, the following Performance Tasks under the supervision of the instructor:

Safely and properly demonstrate the use of three of the following tools:

- Electric drill
- Hammer drill or rotary hammer
- Circular saw
- Reciprocating saw
- Portable band saw
- Miter or cutoff saw
- Portable or bench grinder
- Pneumatic nail gun
- Pavement breaker

Instructors are reminded that trainee performance during practice and laboratory sessions can be used for verification of Performance Task completion.

Instructional Outline

This laboratory is devoted to the practice and completion of Performance Tasks required for this module. As a result, no PowerPoint® slides have been developed for this session. Throughout these activities, ensure that trainees wear the proper PPE and exhibit safe working habits.

Demonstration

Select the three power tools that trainees will use to complete the Performance Task. Trainees are not required to all use the same three tools; the selection of tools is at the discretion of the instructor. Demonstrate the safe, correct use of each chosen tool.

Laboratory/Performance Task

Have the trainees practice the use of the power tools demonstrated by performing drilling, sawing, grinding, and other related tasks. Observe each trainee carefully at all times to ensure their safety. Failure to use the proper PPE should result in failure of the task. Ensure that each trainee practices with three of the power tools. This activity corresponds to Performance Task 1.

Wrap Up

Discuss the laboratory session as a class, and use any errors observed as teachable moments. Ask if trainees have any questions regarding any of the power tools presented in this module. Emphasize the importance of safety at all times when working with power tools in the construction environment.

Homework

Assign a review of the complete module to prepare for the module exam. Have trainees complete the Module Review and Trade Terms Quiz.

Review and Testing

This session is reserved for a brief review of the module, administering the module examination, and any incomplete performance testing.

Safety Considerations

The following safety consideration should be emphasized when introducing trainees to power tools:

Remind trainees that some forms of PPE are required any time they are in the shop or on the job site.

Safety Equipment

The use of specific safety equipment is not anticipated during this session.

Classroom and/or Lab Equipment

Copies of the Module Examination and Performance Profile Sheets

Have the Review Question and Trade Terms Quiz answer keys available for review prior to administering the module exam.

Resources

No specific resources are required for this session

Review

Ask the trainees if they wish to review any particular information from the module. Have the trainees complete the Module Review and Trade Terms Quiz. Alternatively, if the Module Review and Trade Terms Quiz were assigned as homework, have them retrieve their answers. Review the answers to the Module Review and Trade Terms Quiz prior to administering the module exam. Ask again if the trainees need clarification on any particular knowledge areas.

Examination and Performance Testing

Administer the Module Exam. As they begin, remind trainees that they must answer at least 70 percent of the questions correctly to pass the module exam.

Administer any outstanding performance tasks and complete the Performance Profile Sheet for each trainee.

Wrap Up

Ask the trainees if there were any trouble areas on the exam and to identify a favorite and least favorite part of this module. As an alternate or if time allows, briefly introduce the next topic in your planned teaching sequence.

Homework

Assign the reading of the next module in the teaching sequence.

Instructor

Record the testing results on the Registration of Training Modules Form, and submit the report to your Training Program Sponsor.

SECTION REVIEW ANSWER KEY

SECTION 1.0.0

Answer		Section Reference	Objective
1.	b	1.1.0	1a
2.	d	1.2.1	1b
3.	c	1.3.2	1c

SECTION 2.0.0

Answer		Section Reference	Objective
1.	a	2.1.1	2a
2.	d	2.2.1	2b
3.	c	2.3.0	2c
4.	b	2.4.1	2d

SECTION 3.0.0

Answer		Section Reference	Objective
1.	c	3.1.0	3a
2.	a	3.2.0	3b

SECTION 4.0.0

Answer		Section Reference	Objective
1.	d	4.1.0	4a
2.	b	4.2.0	4b
3.	d	4.3.1	4c

ANSWERS TO REVIEW QUESTIONS

	Answer	Section Reference
1.	a	1.0.0
2.	c	1.1.0
3.	d	1.1.0
4.	b	1.1.0
5.	c	1.1.2
6.	b	1.2.0
7.	a	1.3.3
8.	d	2.1.1
9.	c	2.2.2
10.	b	2.2.3
11.	a	2.2.4
12.	d	2.3.2
13.	b	2.4.1
14.	c	2.4.2
15.	d	3.1.0
16.	a	3.1.0
17.	b	4.1.0
18.	a	4.2.1
19.	c	4.3.0
20.	b	4.3.0

TRADE TERMS QUIZ ANSWERS

1. Trigger lock
2. Alternating current (AC)
3. Reciprocating
4. Arbor
5. Carbide
6. Abrasive
7. Chuck key
8. Revolutions per minute (rpm)
9. Countersink
10. Direct current (DC)
11. Auger bit
12. Grit
13. Chuck
14. Ground fault protection
15. Forstner bit
16. Masonry bit
17. Kerf
18. Ring test
19. Shank
20. Ground fault circuit interrupter (GFCI)

NCCER CURRICULA — USER UPDATE

NCCER makes every effort to keep its textbooks up-to-date and free of technical errors. We appreciate your help in this process. If you find an error, a typographical mistake, or an inaccuracy in NCCER's curricula, please fill out this form (or a photocopy), or complete the online form at **www.nccer.org/olf**. Be sure to include the exact module ID number, page number, a detailed description, and your recommended correction. Your input will be brought to the attention of the Authoring Team. Thank you for your assistance.

Instructors – If you have an idea for improving this textbook, or have found that additional materials were necessary to teach this module effectively, please let us know so that we may present your suggestions to the Authoring Team.

NCCER Product Development and Revision
13614 Progress Blvd., Alachua, FL 32615

Email: curriculum@nccer.org
Online: www.nccer.org/olf

❑ Trainee Guide ❑ Lesson Plans ❑ Exam ❑ PowerPoints Other _____

Craft / Level: Copyright Date:

Module ID Number / Title:

Section Number(s):

Description:

Recommended Correction:

Your Name:

Address:

Email: Phone: