

Technology Learning Activity: Safety Design Briefs

We've updated our Safety Design Briefs TLA with a new format and new tools. Full-color teacher and student pages are all included on one CD, allowing you to print as needed. Safety rules and pretests/posttests for every tool are also included in Microsoft Word format for easy customization.

Tools covered include:

- ◆ Air Nailer
- ◆ Band Saw
- ◆ Basic Lab Safety
- ◆ Belt Sander
- ◆ Biscuit Joiner
- ◆ Circular Saw
- ◆ Dremel® Rotary Tool
- ◆ Drill Press
- ◆ Jigsaw
- ◆ Jointer
- ◆ Portable Drill
- ◆ Router
- ◆ Scroll Saw
- ◆ Sliding Compound Miter Saw
- ◆ Table Saw
- ◆ Wood Lathe

Safety Design Briefs covers the following career clusters and pathways:

- ◆ Architecture and Construction cluster: Construction, Maintenance and Operation, TechConnect plus carpentry
- ◆ Manufacturing cluster: Production, TechConnect



Technology Learning Activity:
Safety Design Briefs
2010
Teacher/Student Edition on CD:
TE8107

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www.okcimc.com/catalog

Design Brief Portable Drill

Assignment Checklist

At the end of this Design Brief, you should have completed the following activities. You may check them off as you complete them.

- Safety Pretest
- Safety Posttest
- Portable Drill operation checklist

Safety Pretest Directions

Get the Safety Pretest questions from your instructor. Follow his or her instructions to finish the pretest. When you finish, return all test materials to your instructor.

Goals and Objectives

The portable drill Design Brief will help you learn how to use a portable drill safely.

In this Design Brief, you will complete the following activities:

1. Complete the Safety Posttest for the portable drill with a score of 100%.
2. Demonstrate safe use of the portable drill by completing the portable drill operation checklist.

Label the Parts of the Portable Drill

Watch either the portable drill video or a demonstration by your teacher. Label the parts of the portable drill. Use the picture below or get a picture of the tool you will be using from your teacher.



This portable drill is cordless, or battery powered. There are also portable drills that have cords.

Design Brief Portable Drill

Introduction

The portable drill is used with a drill bit to bore holes of a selected size into wood and metal. Its size and portability makes it easy to use and take from place to place.

If you would like to know more about portable drills, see one or more of the following websites. Your instructor may assign specific sites to visit.

<http://www.youtube.com/watch?v=SwazHacw3jc>

<http://www.youtube.com/watch?v=p0yyOyb3XXE>

http://www.ehow.com/videos-on_4743_use-electric-hand-drills.html
(This link takes you to a video series about portable drill use and maintenance; there are 12 videos in the series.)

<http://www.youtube.com/watch?v=BCyy7R6wzmg>

http://www.ehow.com/how_2300193_handle-electric-hand-drills.html

http://www.ehow.com/how_2303723_use-electric-hand-drill-trigger.html

http://www.ehow.com/how_2279407_maintain-electric-hand-drills.html

http://www.youtube.com/watch?v=UClankD_lck

Words You Should Know

bit—the part of a drill that bores holes

chuck key—removable piece that locks the drill bit into place

stock—lumber already cut to standard sizes (such as a 2 by 4)

Portable Drill Safety Rules

The following is a list of safety procedures for using the portable drill. Study these procedures carefully. These safety rules are for your protection and should be followed at all times.

- ★ Wear safety glasses or goggles at all times while operating the portable drill.
- ★ Make sure you are dressed correctly for the job—remove ties, scarves, jewelry, and gloves, and keep long hair tied back.

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- ★ Never allow yourself to be distracted. Stay focused on what you are doing; distractions can cause accidents. Don't look around or talk to others.
- ★ Finish what you are doing before responding to a tap on the shoulder or answering a question.
- ★ Never use the portable drill, or any other power tool, unless your instructor is with you.
- ★ Remove the chuck key, if it has one, before starting the drill.
- ★ Use a clamp or vise to hold stock pieces while drilling. Do not hold small pieces by hand while drilling.
- ★ Always use a sharp drill bit.
- ★ Make adjustments to the drill with the power turned to OFF and the power cord unplugged.
- ★ Back up workpiece with scrap to prevent breakout.
- ★ Do not lock the drill into the ON position (only an option on older drills).
- ★ Use the correct drill speed—you will generally use a slower speed when drilling into metal or using a larger drill bit.
- ★ If the drill stalls, turn the power to OFF and pull the drill out. Do not try to restart the drill by turning the power on and off.



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- ★ Never carry the drill by the cord or with your finger on the power switch.
- ★ Do not jerk the cord from the wall.
- ★ Hold the drill firmly with both hands.
- ★ Do not force the drill into the work.
- ★ When finished, clean it according to your instructor's directions. Store it in its proper place.
- ★ Visit one of the websites listed in the introduction to this design brief, or if you have your instructor's permission, search for information on your own. Your instructor may tell you which to look at or may let you choose. After studying the information or video, answer the following:

The web url and/or movie title _____

Did you notice any mistakes or things done incorrectly? If so, explain below. If not, list five things you learned or that interested you.

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Portable Drill Safety Posttest

Objective 1: Complete the Safety Posttest for the portable drill with a score of 100%.

TOOLS AND MATERIALS

- ◆ Safety Posttest for the portable drill
- ◆ pencil
- ◆ score card, answer sheet, or notebook paper

INSTRUCTIONS

For this objective you will complete the Safety Posttest for the portable drill with a score of 100%.

Get the Safety Posttest questions from your instructor. Follow his or her instructions to finish the posttest. When you finish, return all test materials to your instructor.

You have one class period to complete this test. You must score 100% to pass the test—you cannot miss any questions! If you do miss a question, you must study the safety rules again and take the test on a new computer score card or blank sheet of paper.

Get Posttest Questions from your instructor.

Remember you must pass the portable drill Safety Posttest with a score of 100% before continuing the Design Brief activities.

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Portable Drill Checklist

Objective 2: Demonstrate safe operation of the portable drill.

TOOLS AND MATERIALS

- ◆ portable drill
- ◆ safety glasses or goggles
- ◆ wood stock
- ◆ vise or clamps
- ◆ drill bits (various sizes)
- ◆ mallet or hammer
- ◆ punch
- ◆ brush

FOLLOW THESE STEPS

As you complete each step, check the box. When you have successfully completed every step, give the completed checklist to your instructor.

STEP 1:

Tell your instructor you are ready to see a demonstration of how to properly operate the portable drill using the procedure described in this Design Brief.

Important: Watch this demonstration carefully. If you are confused about any part of the demonstration, ask your instructor to show that part of the demonstration again. When you understand how to operate the portable drill, tell your instructor you are ready to demonstrate the proper operation of the portable drill.



WARNING

MOVING PARTS can catch hair, jewelry, and loose clothing. DRESS PROPERLY.

- STEP 2: Remove jewelry. Fasten loose hair. Dress properly for operating the portable drill.



WARNING



FLYING OBJECTS can put out eyes. WEAR SAFETY GLASSES OR GOGGLES.

- STEP 3: Put on safety glasses or goggles before operating drill.
- STEP 4: Use clamps, vise, or jig to fasten the stock to the work surface.
- STEP 5: Choose the correct speed for your project.
- STEP 6: Choose the correct size drill bit for your project. Be sure it is sharp.
- STEP 7: Back up the workpiece with a scrap of material to prevent breakout.



CAUTION

FLYING PARTS. Adjusting key can fly out of chuck and strike people. REMOVE KEY FROM CHUCK.

Portable Drill Checklist

- STEP 8: Remove the adjusting key from the chuck, if necessary.
- STEP 9: Use the mallet and center punch to punch the stock where the hole is to be drilled.
- STEP 10: Use a firm, but comfortable, grip on the drill. Check out where all the switches are.
- STEP 11: Turn on the drill and select the correct speed.
- STEP 12: Hold the drill firmly with both hands and drill the hole. Use gentle pressure on the drill.
- STEP 13: If stock gets caught on drill bit, turn off drill.
- STEP 14: When you have finished drilling, back the bit out of the hole while the drill is still on.
- STEP 15: Turn off the drill.
- STEP 16: Use a brush to remove shavings from work area.
- STEP 17: When you are finished with the demonstration, clean up your work area and return tools to their proper places.

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