

# 272-Q01

## BCTHS MECHATRONICS TECHNOLOGY

NAME: \_\_\_\_\_

START DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

COMPLETION DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

**TASK:** Hand tool identification and safety

**PERFORMANCE OBJECTIVE:** Given various Hand Tools used in the Electronics Industry, the Student will identify the tool and give a very brief description of its use with 80% accuracy.

**TOOLS REQUIRED:** Flash cards, Hand Tools, Screwdrivers, Cutters, Pliers, etc.

**SAFETY FACTORS:** Prerequisite – Safety lesson and safety interview  
Observe all school and classroom safety rules at all times

**ACADEMIC ANCHORS:**

*R11.A.1.3.5 Demonstrate after reading understanding of non-fiction text*

*R11.A.2.1.2 Identify meaning of content specific words used in text*

**CAREER & WORK ANCHORS:**

*13.2.11.E – Demonstrate essential workplace skills.*

**PERFORMANCE CHECKLIST:**

<b>STUDENT CHECK</b>	<b>TASK TO BE COMPLETED</b>	<b>TEACHER SIGN OFF</b>
	1. Identify academic anchors and complete learning guide AA01.	_____
	2. Review Safety Guidelines on OSHA information Sheet	_____
	3. Complete tool/safety lessons @ <a href="https://www.learnamatrol.com/lms/">https://www.learnamatrol.com/lms/</a>	_____
	4. Complete hand-tool Kahoot activity.	_____
	5. View video @ <a href="https://youtu.be/STvvWjWMA8I">https://youtu.be/STvvWjWMA8I</a>	_____
	6. Score 80% or higher on Amatrol safety test	_____

**PERFORMANCE LEVEL:**

**MASTERY**

**SATISFACTORY**

**FAMILIARIZATION**

**INSTRUCTED/CANNOT PERFORM**

BUCKS COUNTY TECHNICAL SCHOOL – August 22, 2021

\_\_\_\_\_  
**INSTRUCTOR'S SIGNATURE**

## **272-Q01      INFORMATION SHEET**

**Review OSHA Hand tool guide at  
<https://www.osha.gov/Publications/osa3080.pdf>**

### **GENERAL HAND/POWER TOOL SAFETY RULES**

1.      Keep the work area clear of clutter.
2.      Keep work area well-lighted.
3.      Maintain and keep tools sharpened, oiled, and stored in a safe, dry place.
4.      Wear ear and eye protection when cutting, sawing, drilling, or grinding.
5.      Wear eye protection when soldering or cutting wires.
6.      If you are not sure of safety procedures on a tool or piece of equipment, see Instructor before using them.
7.      Report any injuries to the teacher – NO MATTER HOW MINOR!
8.      Inspect tools, cords, and accessories regularly.
9.      Notify Instructor of broken, damaged, worn, or problem equipment or tools immediately.
10.     Use three prong (3) electric plugs, double insulated tools, and safety switches.
11.     Machine guards must be in place and not removed.
12.     Do not wear jewelry or loose clothing when operating equipment, soldering, troubleshooting, performing voltage measurements, or working on energized equipment.
13.     Install and repair equipment only if you are qualified.
14.     Use the right tool for the job; for example, do not use a screwdriver as a hammer.
15.     Carry a sharp tool pointed downward or place in tool belt or tool box.
16.     Protect a sharp blade with a shield.

17. Store tools in drawers or chests with cutting edge down.
18. When using power tools, do not wear jewelry or loose clothing. Use safety glasses, dust masks, hard hats, etc., as needed.
19. All hand-held power-driven tools must be equipped with “dead-man” control, so power will automatically be cut off upon release of the control by the operator.
20. Never leave a running tool unattended.
21. All fuel-operated tools such as propane and soldering irons shall be stopped and allowed to cool prior to being refueled, serviced, or maintained, and proper venting exercised when used in enclosed spaces.
22. Power-grinding machines shall have proper grounding. Work rests must be kept at a distance not to exceed 1/8 inch from the wheel surface.
23. All persons using abrasive wheels shall use approved eye-protective devices.
24. Avoid repetitive motion, hold tools in neutral position.

#### SCREWDRIVERS/NUTDRIVERS

1. Most screwdrivers are not designed to be used on electrical equipment. Use an insulated screwdriver when working on energized equipment.
2. Do not hold an object in the palm of one hand and press a screwdriver into it, place it on a bench or a table.
3. Never hammer with a screwdriver or use a screwdriver as a chisel or prying device.
4. Check for broken handles, bent blade, etc.

#### PLIERS/WIRE STRIPPERS

1. Do not use pliers/strippers as a substitute for hammers or wrenches.
2. Use insulated pliers/strippers when doing electrical work.
3. Inspect insulation frequently to make certain that it is free of breaks or cracks.
4. Be careful not to pinch fingers when using pliers and strippers.

## HAMMERS

1. Use the correct hammer for the type of work to be done.
2. Have an unobstructed swing when using a hammer and watch for overhead interference.
3. Check for defects before using.
4. Let the weight of the hammer do the work – don't use excessive force with the hammer.
5. Check the hammer handle for a tight fit and cracks before using.

## WRENCHES

1. Never use a pipe as a wrench handle extension.
2. Too much leverage can ruin a tool and cause injury.
3. To avoid sudden slips, stand in a balanced position and always pull on the wrench instead of pushing against the fixed jaw.
4. Select the proper sized wrench for the job.

## SPRAYS AND CHEMICALS

1. Always wear safety glasses when spraying tuner spray, flux stripper, freeze spray, and other chemicals.
2. Be sure to use sprays and chemicals in an adequately ventilated area.
3. All electrical equipment must be turned off and unplugged before spraying cleaners/chemicals into equipment.
4. Some chemicals can be absorbed into the skin-avoid prolonged contact and wash hands when done.
5. Some chemical cleaners and lubricants are flammable- be careful where you spray them and store away from heat or flames. They should be stored in the proper cabinet.

## UTILITY KNIVES AND STRIPPERS

1. Always cut away from the body.
2. Keep hands and body clear of the knife stroke.
3. Keep blades sharp.

## PORTABLE ELECTRIC EQUIPMENT

1. Do not raise or lower equipment using the cord.
2. Do not use staples to fasten a cord.
3. Do not damage the equipment's casing or the cord insulation.
4. Inspect before use and check for external and internal defects.
5. Remove damaged equipment from service, attach a "do not use" sign, and give to your supervisor.
6. Guards shall be used on all hand and power tools that are designed to accommodate such guards.

## LADDERS

1. Place a ladder at an angle so the horizontal distance between the foot of the ladder and the support where it has been placed is not more than one-quarter the length of the ladder from the top point of support to its base.
2. Do not place ladders in front of doors unless the door is blocked open or locked.
3. Use a barrier and place warning signs conspicuously to prevent people from walking into the ladder.
4. Ladders should extend 3 feet above the top of the roof contact area.

## GRADING RUBRIC

	Instructed/Cannot 0 points	Familiarization 1 point	Satisfactory 2 points	Mastery 3 points
Safety	Student rarely follows industry standard safety rules	Student needs to be frequently reminded to follow industry standard safety rules	Follows all industry standard safety rules, but required one reminder.	Student always follows all industry standard safety rules
Task	Student is unable to complete task	Student requires frequent assistance to complete task, and/or is familiar with some parts of the task	Student requires very little assistance to complete task, or has only completed task once or twice, but completed it satisfactorily with little to no assistance	Student can perform task with no assistance and has completed the task many times with no errors.

Mastery = 6 points

Satisfactory = 4-5 points

Familiarization = 2-3 points

Instructed cannot perform = <2 points