SeaPerch Toolkit Tools Identification and Usage
Teacher Worksheet Key

Standard SeaPerch Toolkit

Learning to properly identify and use hand tools is important to the success of the SeaPerch project.

This worksheet is just for identifying the tools. Other resources are available to help demonstrate the proper and safe usage of the tools.

SeaPerch Tool Bag – List of Supplies

1 Tool Bag - Zippered Heavy Duty
1 Power Drill - Corded
1 Soldering Iron Stand
1 Sandpaper Sheet - 220 Grit
1 PVC Cutter - Ratcheting
1 Digital Multimeter
1 Wire Strippers
1 Adjustable Vice - Clamp-On
1 Krazy Glue
1 Alligator-Alligator Motor Test Leads
1 Soldering Iron - 25 Watts
1 Desoldering Pump
1 Nut Driver - 1/4" Non-Magnetized
1 Wire Cutters
1 Needlenose Pliers
1 Phillips Screwdriver - #2 x 4"
1 3/32" Drill Bit
1 1/4" Drill Bit
3 Alcohol Wipes
3 Threaded Insert Tee Nut
3 Nylon-Insert Hex Locknut
3 Propellers
3 Propeller Shafts
1 SeaSwitch Spare Parts

- 1 SeaSwitch - Complete
- 1 Modular Jack 8P8C
- 2 Fuseholders
- 2 Fuses 6.3A TE5 Radial Lead
- 2 Printed Circuit Boards

1 SeaPerch Construction Manual
2 SeaPerch Brochures

Identify the Tools

Name: Vise (Table Swivel Vise)

Usage: Clamping parts for drilling, cutting, and soldering.

Students will need the vise for the following:
- Cutting and drilling the pipes.
- Drilling the pipe Elbows.
- Soldering the wires on the motors.
- Assembling the propellers.

Name: Ratcheting pipe cutter

Usage: Cutting PVC pipe

Identify the Tools

Name: #2 Phillips screwdriver

Usage: Installing (tightening) and removing Phillips head screws. Screw drivers come in different sizes for different screw head sizes.

Name: ¼" Nutdriver

Usage: Tightening and loosening ¼" hex nuts.

Students will use the nutdriver for assembling the propellers.

Identify the Tools

Name: Diagonal cutting pliers

Usage: Cutting wires and cable ties.
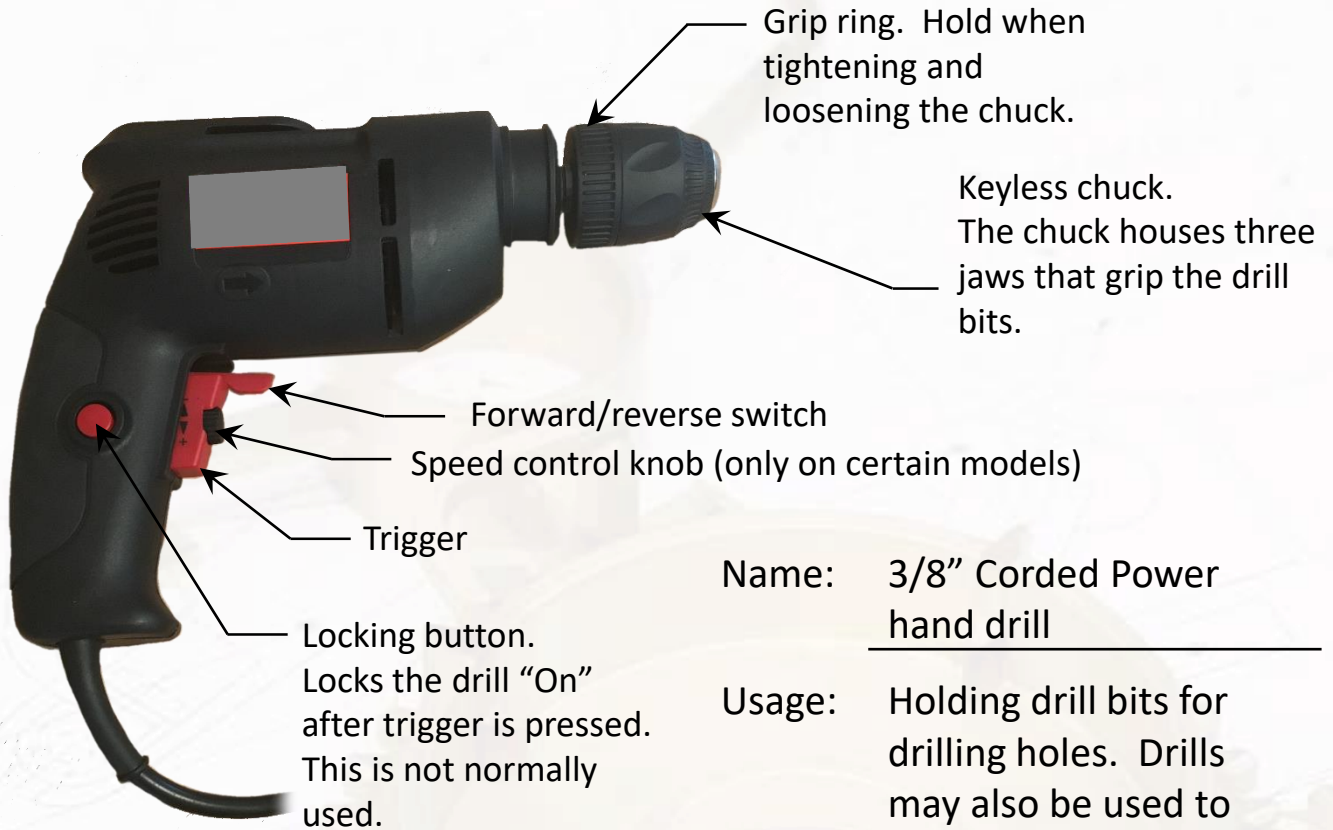
Name: Needle nose pliers

Usage: Holding and cutting.

Name: Wire strippers

Usage: Stripping (removing) wire insulation and cutting wire. Students will use the wire strippers to strip the tether cable wires. Can also be used to crimp terminals.

Identify the Tools

Grip ring. Hold when tightening and loosening the chuck.

Keyless chuck. The chuck houses three jaws that grip the drill bits.

Forward/reverse switch

Speed control knob (only on certain models)

Trigger

Locking button. Locks the drill "On" after trigger is pressed. This is not normally used.

Name:	3/8" Corded Power hand drill
Usage:	Holding drill bits for drilling holes. Drills may also be used to hold screwdriver bits for tightening and removing screws. The 3/8" size refers to the maximum drill bit size the drill can hold.
Name:	Drill bits. The SeaPerch tool kit comes with 3/32" and 1/4" diameter drill bits.
Usage:	Drilling holes in the pipes, pipe elbows, and motor cases.

Identify the Tools

Name: 25 watt Soldering iron

Usage: Soldering wires, electrical components, and other items together.
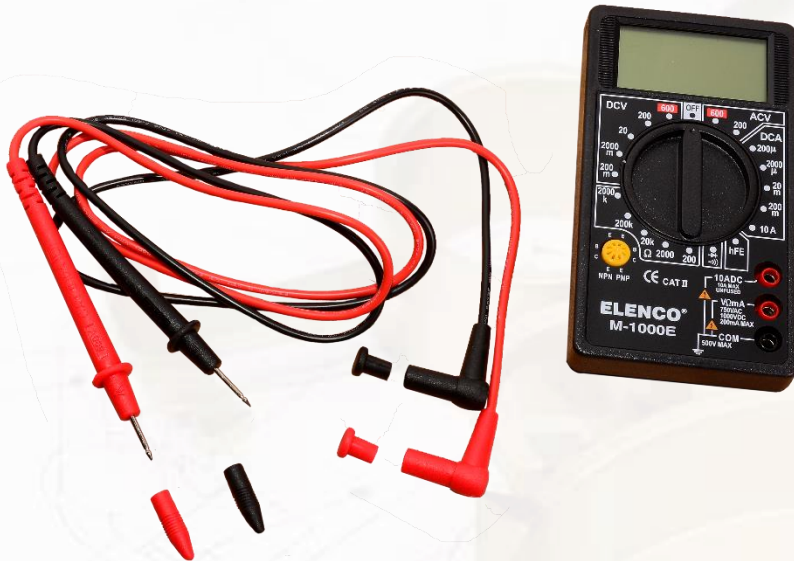
Name: Soldering iron stand

Usage: The soldering iron gets extremely hot and the stand provides a safe place to store it to prevent injuries and fires.

Name: Desoldering tool

Usage: Removing solder during circuit repair.

Identify the Tools

Name: Digital multimeter and test probes

Usage: Testing voltage, amperage, electrical resistance, and continuity.
Students will use the multimeter to test and troubleshoot the control box circuitry.

Name: Alligator test leads

Usage: One end clips on the test probes and the other end on the part being tested.

Identify the Tools

Name:	Abrasive paper (sandpaper)
Usage:	Removing burrs (sharp edges) from pipes after drilling. Abrading the motor shaft to help glue adhere better.

Tools from older tool kits

Name:	Channel lock pliers
Usage:	Multi use adjustable pliers.

Name:	Multi-bit screwdriver/nutdriver
Usage:	For Philipps and slotted head screws as well as 1/4" and 5/16" hex nuts.