Tools Identification and Usage Worksheet

Legacy SeaPerch Resource   *www.seaperch.org*

Standard SeaPerch Tools and Toolkit

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

1 Tool Bag – Zippered Heavy Duty	1 – 3/32" Drill Bit
1 Power Drill – Corded	1 – 1/4" Drill Bit
1 Soldering Iron Stand	3 Alcohol Wipes
1 Sandpaper Sheet – 220 Grit	3 Threaded Insert Tee Nut
1 PVC Cutter – Racheting	3 Nylon-Insert Hex Locknuts
1 Digital Multimeter	3 Propeller Shafts
1 Wire Strippers	1 SeaSwitch Spare Parts
1 Adjustable Vice – Clamp On Style	1 SeaSwitch Complete
1 Super Glue	1 Modular Jack 8P8C
1 Alligator – Alligator Motor Test Leads	2 Fuseholders
1 Soldering Iron – 25 Watts	2 Fuses 6.3A TE5 Radial Lead
1 Desoldering Pump	2 Printed Circuit Boards
1 Nut Driver – ¼" Non-Magnetized	1 SeaPerch Construction Manual
1 Wire Cutters	2 SeaPerch Brochures
1 Needlenose Pliers	
1 Phillips Screwdriver - #2	

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: Racheting Pipe Cutter

Usage: Cuttting 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

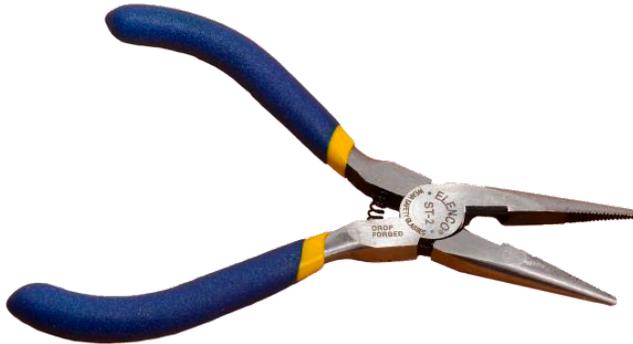**Usage:** Tightening and loosening ¼" hex nuts.

Students will use the nutdriver for assembling the propellers.

Identify the Tools

Name: Diagonal Cutting Pliers

Usage: Cutting wires and cable ties.

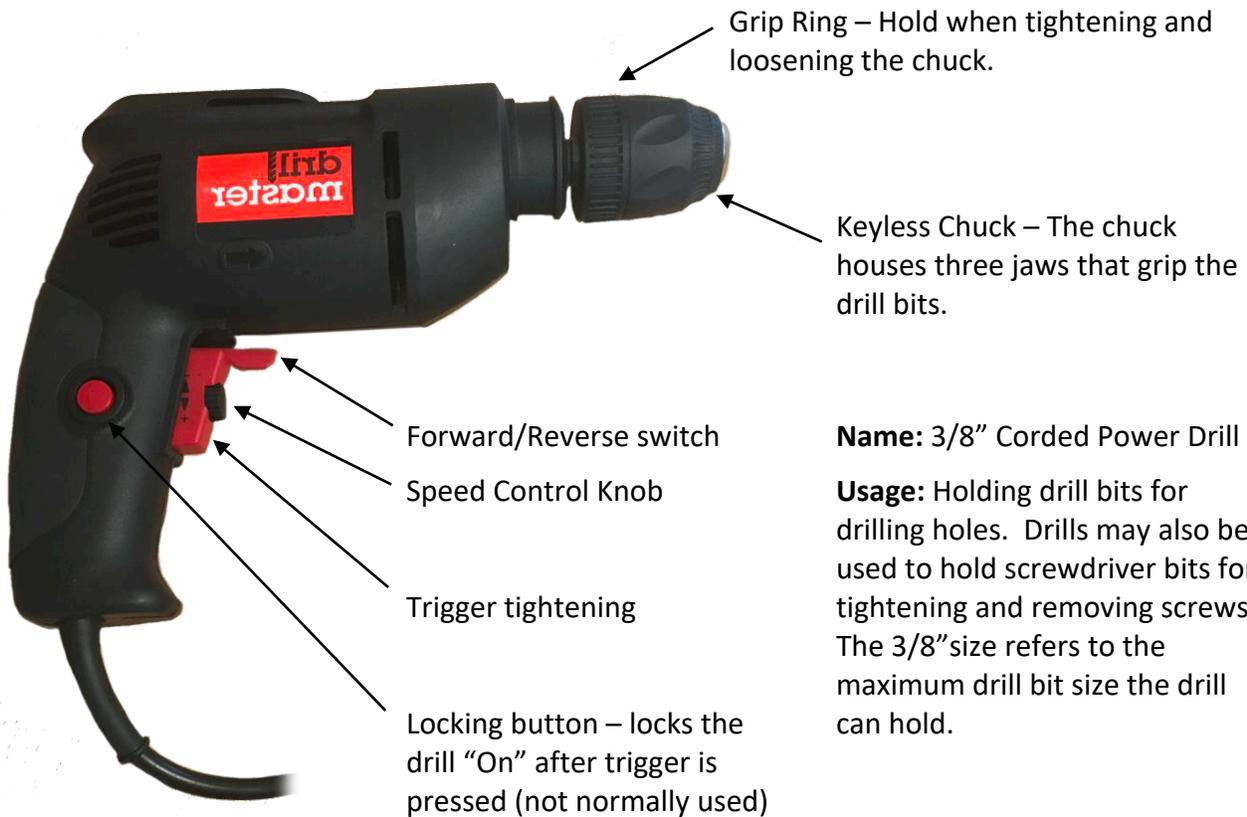**Name:** Needle Nose Pliers

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

Trigger tightening

Locking button – locks the drill "On" after trigger is pressed (not normally used)

Name: 3/8" Corded Power 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

Usage: The SeaPerch toolkit comes with a 3/32" and ¼" diameter drill bits. Drill bits are used for drilling holes in the pipes, pipe elvows, and motor cases.

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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 provdes a safe place to store it to prevent injuries and fires.

Name: Desoldering Tool

Usage: Removing solder

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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.

Name: Abrasive Paper (Sandpaper)

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

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Identify Common Household Tools (*not included in SeaPerch Tool Kits*)

Name: Channel Lock Pliers

Usage: Multi-use adjustable pliers.

Name: Multi-bit screwdriver / nutdriver

Usage: For Phillips and slotted head screws as well as ¼" and 5/16" hex nuts.