

## DEPARTMENT WOODWORKING

PREMIUMS: Purple-\$4.50; Blue-\$4.00; Red-\$3.50; White-\$2.50

- NOTE: Exhibitors may only enter projects in the Unit for which they are enrolled with a limit of (2) two entries per Unit.
- The ability to build objects as designed by another person is an important life skill. Professional woodworkers often are hired to build objects to exact specifications as laid out in a written plan.
- REQUIREMENTS: All articles exhibited **must include a plan (with drawings or sketch or blueprint)** stating dimensions and other critical instructions a builder would need to know to build the project. **Plans may include narrative instructions in addition to the dimension drawings and include any alterations to the original plan.** Part of the score depends on how well the project matches the plans. If the plans are modified, the changes from the original need to be noted on the plans. All plans used for making the article must be securely attached and protected by a clear plastic cover.
- *4-H'ers must be in Unit 3 or Unit 4 for the exhibit to be considered for State Fair.* All projects must have appropriate finish. If the project (i.e. picnic tables, wishing wells, swings, chairs, bridges, doghouses, etc.) is designed to be used outside, it will be displayed outside at State Fair.

### DIVISION 910 - WOODWORKING UNIT 1 & 2

#### MEASURING IT UP – UNIT 1

- H910001. **WOODWORKING ARTICLE** – Item made using skills learned in the Measuring Up Project. Examples include: flower box, letter or napkin holder, or picture frame.
- H910002. **WOODWORKING DISPLAY** – Display exemplifying one of the principles learned in the Measuring Up Project. Examples include: butt joint, measuring, sanding.

#### MAKING THE CUT – UNIT 2

- H910003. **WOODWORKING ARTICLE** – Item made using skills learned in the Making The Cut Project. Examples include: letter or napkin holder, birdhouse, footstool.
- H910004. **WOODWORKING DISPLAY** – Display exemplifying one of the principles learned in the Making The Cut Project. Examples include: wood types, angle cutting, liquid finisher.

### DIVISION 911 - WOODWORKING UNITS 3 & 4

#### NAILING IT TOGETHER – UNIT 3

- H911001.\* **WOODWORKING ARTICLE** – Item should be made using either joints, hinges, dowels, or a dado joining made using skills learned in the Nailing It Together Manual. Item is required to be appropriately finished. Examples include: bookcase, coffee table or end table.
- H911003.\* **RECYCLED WOODWORKING DISPLAY** - Article made from recycled, reclaimed or composite wood. Article must be appropriately finished **and/or** sealed and utilize one or more woodworking techniques from page 2 of the Unit 3 manual. Exhibit must include the woodworking plan and a minimum one-page report of how the engineering design process was used to develop the woodworking plan.
- Engineering Design Process
- 1) State the problem (Why did you need this item?)
  - 2) Generate possible solutions (How have others solved the problem? What other alternatives or designs were considered?)
  - 3) Select a solution (How does your solution compare on the basis of cost, availability, and functionality?)
  - 4) Build the item (What was your woodworking plan, and what processes did you use to build your item?)
  - 5) Reason for article finish (What type of finish, how did you finish or why you choose this finish?)
  - 6) Evaluate (How does your item solve the original need?)
  - 7) Present results (How would you do this better next time?)
- H911004.\* **COMPOSITE WOOD PROJECT** - (SF96) - 60% of the project must be wood and 40% made from other materials such as metal, rubber, resin, etc. All plans and plan alternations must be attached to the article. Protect plans with a cover. If project is designed to be outside it is required to have appropriate outdoor finish because project may be displayed outside.
- H911005.\* **OUTDOOR WOOD PROJECT MADE WITH TREATED WOOD** - (SF97) - Treated wood projects DO NOT have to have a finished coating. All plans and plan alternations must be attached to the article. Protect plans with a cover. If project is designed to be outside. Examples include: picnic tables, planters, outdoor furniture, etc.

## FINISHING UP – UNIT 4

- H911006.\* **WOODWORKING ARTICLE** – Item made using skills learned in the Finishing It Up Project. Examples include: dovetailing, making a pen using lathe, overlays, using a router, etc. Item is required to be appropriately finished.
- H911008.\* **RECYCLED WOODWORKING DISPLAY** - Article made from recycled, reclaimed or composite wood. Article must be appropriately finished **and/or** sealed and utilize one or more woodworking techniques from page 2 of the Unit 4 manual. Exhibit must include the woodworking plan and a minimum one-page report of how the design and engineering process was used to develop the woodworking plan.
- Engineering Design Process
- 1) State the problem (Why did you need this item?)
  - 2) Generate possible solutions (How have others solved the problem? What other alternatives or designs were considered?)
  - 3) Select a solution (How does your solution compare on the basis of cost, availability, and functionality?)
  - 4) Reason for article finish (What type of finish, how did you finish or why you choose this finish?)
  - 5) Build the item (What was your woodworking plan, and what processes did you use to build your item?)
  - 6) Evaluate (How does your item solve the original need?)
  - 7) Present results (How would you do this better next time?)

## DEPARTMENT WELDING

This category helps 4-H'ers learn the basics of welding. In addition, 4-H'ers get the opportunity to present their knowledge on the topic and display what they have made. Involvement in SET Welding gives participants a first-hand experience in a skill that can be used for a lifetime. For help getting started with this project contact your county 4-H office.

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### 4-H WELDING PROJECT TIPS AND SUGGESTIONS

#### CLASS 1

- All welds should be made with the same electrode/wire/rod size and number.
- Welds should be made only on one side of metal so penetration can be judged.
- Welds should be cleaned with chipping hammer and wire brush. Apply a coat of light oil (penetrating oil) to the metal to prevent rusting. Wipe off excess oil.
  - ◆ It is suggested that all welds be on the same size and thickness of metal. These pieces, referred to as coupons, should be 1.5 to 2 inches wide and 3.5 to 4 inches long. A good way to get this size is to buy new cold rolled strap iron and cut to length.
  - ◆ The extra width is needed to provide enough metal to absorb the heat from the welding process and prevent the coupons from becoming too hot before the bead is completed. Narrower coupons will become very hot, making an average welder setting too cold at the bead start, just about right in the middle, and too hot at the end. The correct way to weld narrow strips is to make short beads and allow time to cool, however this project requires a full length bead.
- Stick welding
  - ◆ Suggested coupon thickness - 1/4" if using 1/8" rod
  - ◆ Suggested rod - AC and DC straight or reverse polarity - first E-7014, second E-6013
- MIG welding
  - ◆ Suggested coupon thickness - 1/4" if using .035 wire and 1/8" if using .023 wire
- Oxy-Acetylene
  - ◆ Suggested coupon thickness - 1/8"
  - ◆ Suggested rod - 1/8" mild steel rod