

**DEPARTMENT 126**  
**4-H AND VOCATIONAL**  
**ENGINEERING PROJECTS**  
Becky Sellers - 570-726-0022

**PREMIUMS:**   \$3.00           \$2.50           \$2.00           Ribbon

**ELECTRIC - UNIT 1** - Exhibit one of these items made through your project experience

- 1     Flashlight
- 2     Switch
- 3     Electromagnet
- 4     Galvanometer
- 5     Electric Motor

**ELECTRIC - UNIT 2** - Exhibit a Poster or a Display showing that you built:

- 8     A circuit and measured the voltage
- 9     A parallel circuit and took measurements
- 10    A momentary switch and used it to send Morse Code
- 11    A three-way switch
- 12    A rocket launcher
- 13    A burglar alarm

**ELECTRIC - UNIT 3** -Exhibit a Poster or a Display that shows

- 15    The electrical tool box and supply kit you put together
- 16    How to decipher the wires and cables.
- 17    How to identify what's on each circuit in a home
- 18    How to replace a switch

**ELECTRIC - UNIT 4** - Exhibit a Poster or a Display that shows:

- 19    How to solder a part
- 20    How to control the brightness of a bulb with a transistor
- 21    The process of how a photocell activates an alarm
- 22    How to build and test a simple light meter
- 23    How to make a SCR intruder alarm
- 24    How to make a 6 - 8 watt amplifier to power a speaker
- 25    **Self Determined**

**SMALL ENGINES**

- 30    Exhibit a Poster or Display showing something learned and accomplished through the completion of Small Engines Unit 1
- 31    Exhibit a Poster or Display showing something learned and accomplished through the completion of Small Engines Unit 2
- 32    Exhibit a Poster or Display showing something learned and accomplished through the completion of Small Engines Unit 3
- 33    **Self Determined**

**ROCKETRY**

- 35    Display a Poster no smaller than 14 by 22 inches showing something learned through completing this project, AND your rocket that you have launched

**WOOD SCIENCE**

**MEASURING UP - LEVEL 1**

- 40    A Display showing different types of nails. Give the name of each nail and explain the kind of job for which it would be used.

- 41 Four pairs of pieces of scrap lumber, each glued together with a different type of glue. Identify the glue and tell what the benefit for using it is.
- 42 A Display showing 2 types of joints
- 43 Different types of sandpaper with their names and the jobs for which they are used.
- 44 Other

**AND Exhibit one of these:**

- 46 Flower Box
- 47 Napkin or letter holder
- 48 Picture frame
- 49 Other

**MAKING THE CUT - LEVEL 2**

Exhibit a Poster (no smaller than 14 by 22 inches) or a Display that shows what you have learned about the following...Exhibit at least one of these

- 52 Wood Working Safety
- 53 Wood Grains
- 54 Differences in species of lumber
- 55 How to chisel
- 56 Finishes
- 57 Other

**AND Exhibit at least one of the following:**

- 60 Tool Box
- 61 Bird house
- 62 Saw horse
- 63 Whistle
- 64 Foot stool
- 65 Other

**NAILING IT TOGETHER - LEVEL 3**

Exhibit a Poster (no smaller than 14 by 22 inches) or a Display that shows what you have learned about the following...Exhibit at least one of these

- 67 Wood Science Careers
- 68 Using a T-Bevel
- 69 Making a Dado Joint
- 70 Types of hinges
- 71 Making a dowel joint
- 72 Different stains
- 73 Other

**AND Exhibit at least one of the following:**

- 75 Boomerang
- 76 Belt Buckle
- 77 Puzzle
- 78 Book Case
- 79 Other

**FINISHING UP - LEVEL 4**

Exhibit a Poster (no smaller than 14 by 22 inches) or a Display that shows what you have learned about the following...Exhibit at least one of these.

- 81 Designing a Wood Shop
- 82 Using a router
- 83 Dove-tail joints
- 84 Mortise and Tenon joints

- 85 Using adhesives
- 86 Chemical strippers
- 87 Other

**AND Exhibit at least one of the following"**

- 88 Off road vehicle
- 89 Table top hockey
- 90 Step Stool/Chair
- 91 Wooden doggie
- 92 Door knocker
- 93 Other
- 94 **Self Determined**

**AEROSPACE ADVENTURES**

**Pre-Flight Stage 1 Exhibit one or more of these:**

- 100 The rocket from the activity on page 4 in your Project Book
- 101 The Space Buggy from the activity on page 12 in your project book.
- 102 Other

**LIFT-OFF Stage 2 Exhibit one or more of these:**

- 103 The straw rocket that you constructed through this project
- 104 A Poster (at least 14 by 22 inches) showing aircraft identification
- 105 The Diamond Kite built during this project.
- 106 The helicopter you made
- 107 Other

**REACHING NEW HEIGHTS Stage 3 Exhibit one or more of these:**

- 108 The balloon rocket that you designed
- 109 The Wright Brothers front rudder airplane you made
- 110 A Poster or Display on model rocket safety
- 111 A paper flight simulator
- 112 A paper glider
- 113 Your own Nagasaki Hata Fighter Kite
- 114 Other

**PILOT IN COMMAND Stage 4**

- 115 Exhibit a Poster at least 14 by 22 inches showing something learned through the completion of this project.
- 116 Exhibit a Display showing something learned through the completion of this project
- 117 Other

**BICYCLE ADVENTURE - LEVEL 1 Exhibit a Poster or Display showing something you learned through completing this project in one of these categories:**

- 120 Bicycle Maintenance
- 121 Parts of a Bike
- 122 Road Rules
- 123 Planning a trip
- 124 Other

**BICYCLE ADVENTURE - LEVEL 2**

**Exhibit a Poster or Display showing something you learned through completing this project in one of these categories:**

- 126 Bicycle Maintenance
- 127 Parts of a Bike
- 128 Tire valves and appropriate pressure
- 129 Chain maintenance

- 130 Proper procedure (Rules/Safety)
- 131 Planning a trip
- 132 Other

**BICYCLE ADVENTURE - LEVEL 3**

**Exhibit a Poster or Display showing something you learned through completing this project in one of these categories:**

- 135 Maintenance and Repair
- 136 On-The-Road Skills
- 137 Growth and Community Service
- 138 Other

**140 Self Determined**