

**DEPARTMENT 123**  
**SECTION A**  
**ENGINEERING PROJECTS**

|       |  | 1 <sup>ST</sup>  | 2 <sup>ND</sup> | 3 <sup>RD</sup> | 4 <sup>TH</sup> | 5 <sup>TH</sup> |        |
|-------|--|--|-----------------|-----------------|-----------------|-----------------|--------|
| CLASS | DESCRIPTIONS   | PREMIUMS   | \$5.00          | \$4.50          | \$4.00          | \$3.00          | \$2.00 |
|       | <b>Electricity</b>   |  |                 |                 |                 |                 |        |
| 1.    | Any article made in “Magic of Electricity”   |  |                 |                 |                 |                 |        |
| 2.    | Any article made in “Investigating Electricity”  |  |                 |                 |                 |                 |        |
| 3.    | Any article made in “Wired for Power”  |  |                 |                 |                 |                 |        |
| 4.    | Any display demonstrating an aspect of the Unit 4 Electric curriculum  |  |                 |                 |                 |                 |        |
|       | <b>Woodworking Projects</b>  |  |                 |                 |                 |                 |        |
|       | <b>Small item (15” or under)</b>   |  |                 |                 |                 |                 |        |
| 5.    | Ages 8-9   |  |                 |                 |                 |                 |        |
| 6.    | Ages 10-11   |  |                 |                 |                 |                 |        |
| 7.    | Ages 12-13   |  |                 |                 |                 |                 |        |
| 8.    | Ages 14-16   |  |                 |                 |                 |                 |        |
| 9.    | Ages 17-19   |  |                 |                 |                 |                 |        |
|       | <b>Large item (over 15 inches)</b>   |  |                 |                 |                 |                 |        |
| 10.   | Ages 8-9   |  |                 |                 |                 |                 |        |
| 11.   | Ages 10-11   |  |                 |                 |                 |                 |        |
| 12.   | Ages 12-13   |  |                 |                 |                 |                 |        |
| 13.   | Ages 14-16   |  |                 |                 |                 |                 |        |
| 14.   | Ages 17-19   |  |                 |                 |                 |                 |        |
|       | <b>For the Experienced Woodcrafter</b>   |  |                 |                 |                 |                 |        |
| 15.   | Item made with wood combined with other media  |  |                 |                 |                 |                 |        |
|       | <b>Small Engines</b>   |  |                 |                 |                 |                 |        |
| 16.   | Exhibit displaying small engines   |  |                 |                 |                 |                 |        |
|       |  | \$10   | \$8             | \$6             | \$4             | \$3             |        |
| 20.   | Refurbished AG Equipment with description of work done attached  |  |                 |                 |                 |                 |        |
| 21.   | Engine Overhaul with description of work done attached   |  |                 |                 |                 |                 |        |
|       | <b>Tractors</b>  | \$5.00   | \$4.50          | \$4.00          | \$3.00          | \$2.00          |        |
| 24.   | Poster or exhibit displaying safety with tractors (age 8-13)   |  |                 |                 |                 |                 |        |
| 25.   | Poster or exhibit displaying the history of the tractor (age 8-13)   |  |                 |                 |                 |                 |        |
|       | <b>Bicycle Adventures</b>  | <b>Ribbons (1<sup>st</sup> – 5<sup>th</sup> Place)</b> |                 |                 |                 |                 |        |
| 26.   | Poster depicting helmet safety   |  |                 |                 |                 |                 |        |
| 27.   | Poster depicting anatomy of a bike   |  |                 |                 |                 |                 |        |
| 28.   | <b>Special Needs</b> (includes Dept. 123 Sec. A and Dept. 123 Sec. B) – Leader’s signature required on entry form  |  |                 |                 |                 |                 |        |
|       | <b>Self Determined Engineering</b>   | \$4.00   | \$3.50          | \$3.00          | \$2.50          | \$2.00          |        |
|       | <b>Lego Design:</b> The Lego design will be judged on <b>originality</b> , stability, moveable parts (if present), design and degree of difficulty for age of exhibitor. Size limitation is 150 square inches and must be displayed on a stable base of wood, heavy cardboard, or other building material. |  |                 |                 |                 |                 |        |
| 29.   | Ages 8 –10   |  |                 |                 |                 |                 |        |
| 30.   | Ages 11 – 12   |  |                 |                 |                 |                 |        |
| 31.   | Ages 13 - 19   |  |                 |                 |                 |                 |        |

**DEPARTMENT 123  
SECTION B  
ROCKETRY**

- Open to 4-H and FFA members only.
- A member may exhibit two rockets but only one entry per class.
- No live engines.

|              |   | 1 <sup>ST</sup> | 2 <sup>ND</sup> | 3 <sup>RD</sup> | 4 <sup>TH</sup> | 5 <sup>TH</sup> |
|--------------|---|-----------------|-----------------|-----------------|-----------------|-----------------|
|              | <b>PREMIUMS</b>   | \$5.00          | \$4.50          | \$4.00          | \$3.00          | \$2.00          |
| <b>CLASS</b> | <b>DESCRIPTIONS</b>   |                 |                 |                 |                 |                 |
| 1.           | Skill Level I – Age 8-11  |                 |                 |                 |                 |                 |
| 2.           | Skill Level I – Age 12 and over   |                 |                 |                 |                 |                 |
| 3.           | Skill Level II – Age 8-11   |                 |                 |                 |                 |                 |
| 4.           | Skill Level II – Age 12 and over  |                 |                 |                 |                 |                 |
| 5.           | Skill Level III – Age 8–11  |                 |                 |                 |                 |                 |
| 6.           | Skill Level III – Age 12 and over   |                 |                 |                 |                 |                 |
| 7.           | Skill Level IV – Age 8-11   |                 |                 |                 |                 |                 |
| 8.           | Skill Level IV – Age 12 and over  |                 |                 |                 |                 |                 |
| 9.           | Skill Level V – limited to third year and older project members   |                 |                 |                 |                 |                 |
| 10.          | Original Design – limited to third year and older project members   |                 |                 |                 |                 |                 |
| 11.          | <p><b>Bottle Rocket – Display</b><br/>Bottle Rockets are to be designed using only 2 liter bottles described in the “4-H Rockets Away” Booklet.</p> <ul style="list-style-type: none"> <li>• To be eligible for altitude and accuracy classes, rockets must have been exhibited in a construction class.</li> <li>• Members must be present to launch rocket and need to provide appropriate type engine.</li> <li>• Member may only enter one altitude class.</li> <li>• Altitude and accuracy will be evaluated with one launch.</li> </ul> |                 |                 |                 |                 |                 |
| 20.          | Greatest Altitude – A, B Engine   |                 |                 |                 |                 |                 |
| 21.          | Greatest Altitude – C, D Engine   |                 |                 |                 |                 |                 |
| 22.          | Greatest Altitude – E, F Engine   |                 |                 |                 |                 |                 |
| 23.          | Accuracy – Age 8-11   |                 |                 |                 |                 |                 |
| 24.          | Accuracy – Age 12 and over  |                 |                 |                 |                 |                 |
| 25.          | Bottle Rocket – launch  |                 |                 |                 |                 |                 |
| 26.          | Space Buggy with a description of how the design would be appropriate for space use   |                 |                 |                 |                 |                 |
| 27.          | Altitude Tracker with explanation of how to find altitude from calculations   |                 |                 |                 |                 |                 |
|              | <p><b><u>Kites</u></b></p> <ul style="list-style-type: none"> <li>• Judged on construction and originality</li> <li>• Not kits or models</li> </ul>   |                 |                 |                 |                 |                 |
| 28.          | Diamond Kite  |                 |                 |                 |                 |                 |
| 29.          | Nagasaki Kite   |                 |                 |                 |                 |                 |
| 30.          | Box Kite  |                 |                 |                 |                 |                 |

**DEPARTMENT 123  
SECTION C  
ROBOTICS PROJECTS**

- Open to 4-H members only.
- A member may enter a maximum of 3 classes plus a poster.
- Classes 1-9 reflect the activities in the Junk Drawer Robotics 4-H project.
- Junk Drawer 4-H Notebook must accompany entries.
- Classes will be judged on design, functionality and durability on the first Saturday of the fair.
- Member must be present to demonstrate their project at 10 a.m. in the Show Arena.

|              |  | 1st  | 2nd  | 3rd  | 4th  | 5th  |
|--------------|--|------|------|------|------|------|
|              | <b>PREMIUMS</b>  | 5.00 | 4.50 | 4.00 | 3.00 | 2.00 |
| <b>CLASS</b> | <b>DESCRIPTIONS</b>  |      |      |      |      |      |
|              | <b>Level 1: Junk Drawer Robotics-</b> All classes reflect the activities in this 4H project. Classes will be judged on design, functionality and durability. Member must be present to demonstrate their project at the above designated place and time. |      |      |      |      |      |
| 1.           | Marshmallow Catapult (Activity E)  |      |      |      |      |      |
| 2.           | Robotic Arm (I)  |      |      |      |      |      |
| 3.           | Pneumatic Arm (Q)  |      |      |      |      |      |
|              | <b>Level 2: Junk Drawer Robotics-</b> All classes reflect the activities in this 4H project. Classes will be judged on design, functionality and durability. Member must be present to demonstrate their project at the above designated place and time. |      |      |      |      |      |
| 4.           | Clipmobile (C)   |      |      |      |      |      |
| 5.           | Can-Can Robot (H)  |      |      |      |      |      |
| 6.           | Es-Car-Go Robot (N)  |      |      |      |      |      |
|              | <b>Level 3: Junk Drawer Robotics-</b> All classes reflect the activities in this 4H project. Classes will be judged on design, functionality and durability. Member must be present to demonstrate their project at the above designated place and time. |      |      |      |      |      |
| 7.           | Double Pole Throw with Switch (E)  |      |      |      |      |      |
| 8.           | Wall Follower Robot (J)  |      |      |      |      |      |
| 9.           | Design A Robot To Do A Specific Task (T)<br>(Task identified on entry card & displayed with robot.)  |      |      |      |      |      |
|              | <b>POSTERS: To be no larger than 14"X22", depicting some aspect from the 4-H Virtual Robotics Project.</b>   |      |      |      |      |      |
| 10.          | Ages 8-11  |      |      |      |      |      |
| 11.          | Ages 12-15   |      |      |      |      |      |
| 12.          | Ages 16-18   |      |      |      |      |      |
| 13.          | <b>Club Exhibit :</b> Displaying How Robots Function In Our World  |      |      |      |      |      |