

DEPARTMENT JJ – ENGINEERING

4-H

Open to 4-H club members

1. Neatness, methods of presentation and electrical requirements for use and safety will be considered in judging.
2. Educational Poster information is in Department Q.

4-H Engineering Award

Sponsored by Knight Construction

\$20.00 for Best General Engineering or Electrical

ELECTRICITY Department JJ Enter at least 3 classes.

DIVISION 4111 Primary, K - 2nd grades

DIVISION 4112 Junior, 3rd - 5th grades

DIVISION 4113 Intermediate, 6th - 8th grades

DIVISION 4114 Senior, 9th - 12th grades

Class No. Blue 20, Red 15, White 10

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|--|---|
| 1. Plug-in showing underwriter's knot | 10. Electromagnet |
| 2. Display of 3 electrical hazards | 11. Permanent magnet |
| 3. Chart of various types of wiring or size of wire | 12. Properly wired convenience outlet |
| 4. Rewire a lamp or make a lamp | 13. Properly wired single pole switch |
| 5. Circuit chart, giving description of wire and fuse size | 14. Build a crystal radio |
| 6. Simple motor | 15. Build a SCR motor and light control |
| 7. Tool chest or work apron for electric tools | 16. Make a small motor portable |
| 8. Test lamp | 17. Knock down of motor |
| 9. Chart showing how a battery works | 18. Other or self-determined |

COMPUTERS - Department JJ Open to all 4-H members Enter at least 2 classes: project book and 1 other class.

DIVISION 4121 Primary, K - 2nd grades

DIVISION 4122 Junior, 3rd - 5th grades

DIVISION 4123 Intermediate, 6th - 8th grades

DIVISION 4124 Senior, 9th - 12th grades

Class No. Blue 20, Red 15, White 10 Complex Entries Blue 40, Red 20, White 10

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|---|---|
| 1. Project book | 18. Internet of Things Complex |
| 2. Educational poster or chart showing basic parts and function | 19. Computer Animation Simple |
| 3. Program by exhibitor | 20. Computer Animation Complex |
| 4. How to use program in 4-H Record book or public presentation | 21. Computer Aided Design Simple |
| 5. Use of software or hardware | 22. Computer Aided Design Complex |
| 6. Use of word processing | 23. Digital Artwork Simple |
| 7. Computer Ethics | 24. Digital Artwork Complex |
| 8. Glossary of words and meanings | 25. Website Design Simple |
| 9. Artwork | 26. Website Design Complex |
| 10. Email or Internet and how it works | 27. CNC Industrial Arts Simple (Cutting, Machining, 3D Printing) |
| 11. File system | 28. CNC Industrial Arts Complex (Cutting, Machining, 3D Printing) |
| 12. Show basics of building and repairing computers | 29. Analog Circuit Design Simple |
| 13. Applied Robotics Simple | 30. Analog Circuit Design Complex |
| 14. Applied Robotics Complex | 31. Digital Circuit Design Simple |
| 15. Home/Farm Automation/Control Simple | 32. Digital Circuit Design Complex |
| 16. Home/Farm Automation/Control Complex | 33. Other or Self-Determined |
| 17. Internet of Things Simple | |

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SMALL ENGINE - Department JJ Open to all 4-H members Enter at least 2 classes.

DIVISION 4131 Primary, K - 2nd grades

DIVISION 4132 Junior, 3rd - 5th grades

DIVISION 4133 Intermediate, 6th - 8th grades

DIVISION 4134 Senior, 9th - 12th grades

Class No. Blue 20, Red 15, White 10

1. Small engine project book of current year
2. Component parts of small engine in detail - display carburetor, magneto, etc., separately
3. Small engine display naming parts
4. Home-made projects power fed by small engines, 2 or 4 cycle
5. Show how to maintain
6. Show how to store
7. Show safety when using
8. Other or self determined

AUTOMOTIVE - Department JJ Open to all 4-H members All divisions enter at least 3 classes.

DIVISION 4141 Primary, K - 2nd grades

DIVISION 4142 Junior, 3rd - 5th grades

DIVISION 4143 Intermediate, 6th - 8th grades

DIVISION 4144 Senior, 9th - 12th grades

Class No. Blue 20, Red 15, White 10

1. One chart describing a highway safety practice
2. Chart describing highway hazards
3. Display of what makes a car go and stop
4. Display of a part or parts of engine, naming parts
5. Display of car care
6. Display of car costs
7. Display of traffic codes and your responsibilities
8. Display of car safety check
9. Display of Engine as Power Unit
10. Display of Engine that needs Clean Air
11. Display of How Fuel System Works
12. Display of Igniting Air-Fuel Mixture
13. Display of How Engine Temperature is controlled
14. Display of Lubrication
15. Display of Tires and Their Care
16. Other or self-determined

SNOWMOBILING - Department JJ Open to all 4-H members

DIVISION 4151 Primary, K - 2nd grades

DIVISION 4152 Junior, 3rd - 5th grades

DIVISION 4153 Intermediate, 6th - 8th grades

DIVISION 4154 Senior, 9th - 12th grades

Class No. Blue 20, Red 15, White 10

1. Safety Display
2. Engine Care Display
3. Outdoor Survival Techniques
4. Maintenance, Care and Storage
5. Other or self-determined

AEROSPACE SERIES - Department JJ Open to all 4-H members Enter at least 2 classes.

DIVISION 4161 Primary, K - 2nd grades

DIVISION 4162 Junior, 3rd - 5th grades

DIVISION 4163 Intermediate, 6th - 8th grades

DIVISION 4164 Senior, 9th - 12th grades

Class No. Blue 20, Red 15, White 10

1. Display of what it is like to be weightless.
2. How gravity affects our lives on earth.
3. How space suits are made
4. What foods astronauts eat in space and why
5. Build a rocket
6. Rocket safety
7. Show rocket equipment
8. Other or self-determined

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BICYCLE SERIES - Department JJ Open to all 4-H members Enter at least 2 classes.

DIVISION 4171 Primary, K - 2nd grades

DIVISION 4172 Junior, 3rd - 5th grades

DIVISION 4173 Intermediate, 6th - 8th grades

DIVISION 4174 Senior, 9th - 12th grades

Class No. Blue 20, Red 15, White 10

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|--------------------------------------|--|
| 1. Bicycle safety | 4. Display showing proper maintenance/repair |
| 2. What traffic signs mean | 5. Display of plan for bicycle trip/route |
| 3. State laws that apply to bicycles | 6. Other or self-determined |

WOOD SCIENCE – Department JJ Open to all 4-H members

DIVISION 4181 Primary, K - 2nd grades

DIVISION 4182 Junior, 3rd - 5th grades

DIVISION 4183 Intermediate, 6th - 8th grades

DIVISION 4184 Senior, 9th - 12th grades

Class No. Blue 20, Red 15, White 10

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|--------------------------------------|----------------------------|
| 1. How to mark, measure and cut wood | 5. Safety practices |
| 2. Use hand and power tools | 6. Lumber dimensions |
| 3. Types of fasteners and use | 7. Other or self-determine |
| 4. How to apply finishes | |

WIND ENERGY PROJECT – Department JJ Open to all 4-H members

DIVISION 4191 Primary, K - 2nd grades

DIVISION 4192 Junior, 3rd - 5th grades

DIVISION 4193 Intermediate, 6th - 8th grades

DIVISION 4194 Senior, 9th - 12th grades

Class No. Blue 20, Red 15, White 10

1. Show 4 ways wind can be used to do work
2. Show 4 ways wind can be harmful
3. Where does the wind come from? Show how this can be done.
4. Show how geography affects wind power
5. Show wind power projects in various parts of the United States
6. Show factors of successful wind power projects
7. Can wind power work in our area? How?