DEPARTMENT 024 – MECHANICAL SCIENCES

Fair Year: 2023

Entries must be made by July 31 of exhibit year.

Face-to-face judging the Saturday before the Fair, 9:00 am-2:00 pm, Youth Building.

Exhibitors are limited to ten (10) entries in Dept. 024.

Poster size: 14"x22". Tri-fold displays are not allowed.

Premiums: $2.00 - $1.75 - $1.50 - $1.25

DIVISION 200 – TRACTORS

Open to youth enrolled in the 4-H Tractor project or youth of other groups doing equivalent work.

Restoration posters must include a series of pictures showing before, during, and after restoration process.

Class No.
1. Poster on tractor or machine safety
2. Poster on tractor or machine operation or maintenance
3. Poster or display on how engine runs
4. Display on damaged or worn out parts, with written explanation of causes
5. Model tractor restoration poster
6. Medium scale tractor (lawn or garden tractor) restoration poster
7. Full scale tractor restoration poster
8. Full scale farm implement restoration poster
9. Any other tractor project related exhibit

DIVISION 201 – SMALL ENGINES

Open to youth enrolled in the 4-H Small Engines project or youth of other groups doing equivalent work.

Class No.
1. Panel exhibit of small engine parts with identification of parts
2. Poster illustrating steps in a small engine service job
3. Poster showing correct steps in preparing small engine for off-season storage
4. Small engine safety poster
5. Panel exhibit showing diagram of ignition, fuel, or lubrication system (actual parts may be used)
6. Panel showing worn or faulty engine parts with a statement as to cause and prevention
7. Poster showing the events in a four-cycle engine with a brief explanation
8. Poster showing events in a two-cycle engine with a brief explanation
9. Panel exhibit of carburetor parts with explanation of function of parts, float, or diaphragm type
10. Poster listing preventive maintenance measure recommended for two-cycle engine
11. Safety poster on chain saw use, outboard motors, or motorcycles or motorbikes
12. Any other small engine exhibit not listed

DIVISION 202 – BICYCLE

Open to youth enrolled in the 4-H Bicycling project or youth of other groups doing equivalent work.

Class No.
1. Helmet types poster or display
2. Bike safety check poster or display
3. Locating bike hazards poster or display
4. Bike scrapbook
5. Group ride report
6. Bike parts poster or display
7. Tire inflation poster
8. Planning a bike trip poster or display
9. How to be a safe, courteous cyclist exhibit
10. Bike adventure journal
11. Price comparison of bikes to buy
12. How to fix a flat tire display
13. How to replace bike cables display
14. Riding safely at night, in bad weather display
15. Bike activism or community service report
16. Any other bicycle exhibit

DIVISION 203 – AEROSPACE

Open to youth enrolled in the 4-H Aerospace project or youth of other groups doing equivalent work.

Class No.
1. Model airplane (no kit)
2. Model airplane (made from kit)
3. Airplane – hand launched glider model
4. Airplane – gas engine or rubber power model
5. Airplane – control line model
6. Poster – basic parts of model airplane
7. Poster – model airplane safety
8. Rocket – single stage
9. Rocket – multi-stage
10. Rocket – exotic design
11. Rocket – previously fired
12. Poster – basic parts of model rocket
13. Poster – model rocket safety
14. Any other exhibit related to the aerospace project

DIVISION 204 – SCALE MODELS

Open to youth enrolled in the 4-H Scale Model project or youth of other groups doing equivalent work.

All models should be properly assembled with glue or snap fitted approach. Models should be painted and may have decals.

All models should be mounted on an appropriate sized base or platform, etc. (maximum size of 2'x3'). Models that exceed this size will be judge for ribbon only and sent home.

Class No.
1. Building structure from a kit
2. Vehicle from a kit
3. Railroad car/locomotive from kit
4. Military vehicle
5. Any other model from a kit
6. Pinewood derby car/vehicle
7. Farm scene model
8. Other scene model
9. Model constructed using Legos, K-NEX, N-tec's, Steel-tec's, etc.
10. Original creation, using Legos, K-NEX, N-tec's, Steel-tec's, etc.
11. Poster related to scale model project
12. Any other scale model exhibit

DIVISION 205 – ROBOTICS

Open to youth enrolled in the 4-H Robotics project or youth of other groups doing equivalent work.

Exhibitors MUST bring all equipment needed to demonstrate robotics design and/or programming, either via a (A) live presentation, or (B) a prerecorded video, including equipment to display the video for the judge.

Robots will not be left on display during the fair. Instead, exhibitors MUST provide a picture of the robot or print out of the programming commands used, to which the exhibitor tag can be attached and left on display.

Class No.
1. Basic LEGO robot, exhibitor designed and built; must have the robot for judging, but may leave a picture of the robot for display
2. Any other robot, exhibitor designed and built
3. Demonstrate a robot that goes forward for 4 seconds
4. Demonstrate a robot that goes left 3 different ways
5. Demonstrate a robot that stops using a sensor
6. Demonstrate a robot that follows a path for a length of time
7. Demonstrate a robot that determines distance, using rotational sensor
8. Demonstrate a robot that completes a maze or challenge course
9. Demonstrate a robot that does multiple tasks at same time
10. Demonstrate any other robotics programming by exhibitor
11. Poster showing activities and involvement in robotics project from the current year
12. Poster explaining the differences among machines, computers, and robots
13. Poster on the parts of a robot
14. Poster on robotics related careers or industries
15. Any other robotics related poster

DIVISION 206 – GEOSPATIAL

Open to youth enrolled in the 4-H Geospatial project or youth of other groups doing equivalent work in GIS, GPS, compasses, maps, or globes.

Class No.
1. Display – essential geographical data on my house
2. Poster – types of geographical tools
3. Poster – uses of geographical tools
4. Poster – coordinated-grid reference system
5. Map of my neighborhood with list of features
6. Poster – differences between geographic and geospatial data
7. Display – differences between population and road maps
8. Display – my thematic map
9. Display – my general purpose map
10. Display – types of G2 data about my community
11. Any other geospatial exhibit