

## DEPARTMENT 24-J Junior Fair MECHANICAL SCIENCE

### Entry Requirements:

1. All exhibits larger than 3' squared and/or need a special display space must contact the Extension office by July 15th.
2. Exhibits must be work of exhibitor.

	<b>Danish Judging</b>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
<b>Class A Exhibitor Grades 3-6</b>		\$2.00	\$1.75	\$1.50	\$1.25
<b>Class B Exhibitor Grades 7-9</b>		\$2.50	\$2.25	\$2.00	\$1.75
<b>Class C Exhibitor Grades 10 &amp; over</b>		\$3.00	\$2.75	\$2.50	\$2.25

### Aerospace

1. Limited to exhibitors enrolled in the Aerospace Project or Model Rocketry project
2. A recovery parachute must be included with all rockets.
3. All models must have an attached **3x5 inch card** explaining type of material used (plastic, wood, etc.), type of paint used and number of hours required for assembly

#### Lots

Basic part of a rocket and their functions

Exhibit or rocket built by member - Skill Level 1 or 2 (indicate if kit was used)

Rocket built by member - Skill Level 3 or over

Rocket created from original design (example—Duct tape, etc.)

### Automotive

1. Limited to exhibitors enrolled in the Automotive Projects.
2. Exhibits must have attached **3x5 inch card** explaining details of exhibit.

#### Lots

Automotive, any other

Conditions which may be caused by improper care of an automobile

Different car costs (gasoline consumption, oil consumption, tire services, seasonal services etc.)

Formulate a maintenance schedule for a vehicle

How to buy a car

Operation of any one working unit of an automobile engine

Preparation of an engine for storage

Restoration of an automobile part or parts, explain changes made

## **Bicycling**

1. Limited to exhibitors enrolled in the Bicycling Project.
2. Each exhibitor may exhibit three posters (14 x 22-inches maximum size).
3. All posters must have a title.
4. Exhibits must have an attached **3x5-inch card** explaining details of exhibit.

### **Lots**

A scrapbook on how your bike works and how to care and maintain it  
Bicycle parts and descriptions of their functions  
Bicycle safety or safety gear - Exhibit  
Bicycle traffic signals and or signs  
Bicycling project, any other  
Fitting and or purchasing a personal bicycle  
How to perform a bicycle safety check  
Rebuilt Bike  
Written plan or log for a bicycle trip

## **Engineering**

1. Limited to exhibitors enrolled in the STEM or STEM Exploring Project.
2. Exhibits must have an attached **3x5-inch card** explaining details of exhibit.

### **Lots**

Bridge designed or built by exhibitor  
Catapult or trebuchet designed or built by exhibitor  
Engineering Project, any other  
Rollercoaster designed or built by exhibitor  
Rube Goldberg machine designed and built by exhibitor  
Transportation vehicle designed or built by exhibitor

## **Legos and K'Nex**

1. Limited to exhibitors enrolled in the Scale Models Project or Legos Project.
2. Materials used can be Legos, K'Nex, or similar building materials.

### **Lots**

Airplane or helicopter  
Boat or watercraft  
Building  
Car or truck  
Lego, K'Nex, any other, from a kit  
Lego, K'Nex, any other, original

## **Robotics**

1. Limited to exhibitors enrolled in the Robotics Project.
2. Exhibits must have attached **3x5-inch card** explaining details of exhibits.

### **Lots**

Basic robot from kit (ex. Lego tankbot)  
How exhibitor designed a robot to perform a task or to entertain  
"Junkdrawer" robot that exhibitor designed and built  
Original program design with explanation  
Other robotics exhibit  
Parts of an RCX (robot's brain)  
Robot of any platform designed and created by exhibitor that performs simple task  
Types of gears

## **Scale Models**

1. Limited to exhibitors enrolled in the Scale Models Project.
2. All models must have an attached **3 x 5 inch card** explaining type of material used (plastic, wood, etc.), type of paint if used, number of hours for assembly, description of original design if not a kit.

### **Lots**

Airplane or helicopter, hand - painted and glued  
Airplane or helicopter, snap-fit and/or pre - painted  
Building, hand - painted and glued  
Building, snap-fit and/or pre - painted  
Car or truck, hand - painted and glued  
Car or truck, snap-fit and/or pre - painted  
Scale Model, hand-painted and glued, any other  
Scale Model, snap-fit and/or pre-painted, any other

## **Small Engines**

1. Limited to exhibitors enrolled in the Small Engines Project.
2. Exhibit must have an attached **3x5-inch card** explaining details of exhibit.

### **Lots**

Correct steps in preparing a small engine for off - season storage  
Events of a 2-cycle or a 4-cycle engine with brief explanation  
How to disassemble a small engine  
Panel exhibit showing diagram of ignition, fuel or lubrication systems (actual parts may be used)  
Panel of small engine parts with identification and explanation of function of parts  
Panel showing worn or faulty engine parts with a statement as to cause and prevention  
Small Engine Project, any other  
Small engine safety  
Spark plug maintenance  
Steps in small engine service job  
Tools for working with small engines and their uses

## **Tractors**

1. Limited to exhibitors enrolled in the Tractors Project.
2. All posters and charts should be 14 x 22-inches.
3. All posters and charts must have a title.
4. Exhibits must have an attached **3x5-inch card** explaining details of exhibit.

### **Lots**

Basic tool kit  
Exhibit of preparing tractor, farm machinery for winter  
Restoration of a tractor part or parts, explain changes made  
Tractor engine types  
Tractor Project, any other