

## 2017 Approved Fair Changes

### Open Class Poultry, pg. 14

- Change Classes to 4-H Classes

### Open Class Ladies & Shepherd's Lead, pg. 16

- Delete Department

### 4-H Pet Show, pg. 42

- Add H-127: Amphibians Class; Change H-128: Any Other Pet

### 4-H and FFA Poultry, pg. 42-43

- H-131 Standard Breeds; Large Fowl; One young bird of either sex
- H-132 Standard Breeds; Large Fowl; One old bird of either sex
- H-133 Standard Breeds; Bantams; One young bird of either sex
- H-134 Standard Breeds; Bantams; One old bird of either sex
- H-135 Production Pullets –Pen of 3. Standard Bred, crossbred or strain crosses pullets to be judged on egg production qualities.
- H-136 Production Hens – Pen of 3. Standard Bred, crossbred or strain cross hens to be judged on egg production qualities.
- H-137 Dual purpose pullets; Pen of 3. Such as Rhode Island Reds, New Hampshire, Plymouth Rocks, etc.
- H-138 Dual purpose hens; Pen of 3. Such As Rhode Island Reds, New Hampshire, Plymouth Rocks, etc.
- H-139 Turkeys, All Breed; one bird of either sex
- H-140 Ducks; Call or Bantam; all breeds, one bird of either sex
- H-141 Ducks; all breeds, one bird of either sex
- H-142 Geese; all breeds, one bird of either sex
- H-143 Guineas; all breeds, one bird of either sex (Not a State Fair Class)
- H-144 Poultry Showmanship
  - A. Beginner 7-8
  - B. Junior 9-11
  - C. Intermediate 12-13
  - D. Senior 14-18

### 4-H Bicycle, pg. 54

- Make Registration from 2-3pm on Saturday.

### 4-H and FFA Crops & Garden, pg. 54-55

- Add class: H-371 Misc. Fruit

#### **4-H Rocketry, pg. 57-58**

##### Rules:

1. Read General Regulations and General Regulations 4-H and FFA Department.
2. The Exhibitor must be enrolled in the 4-H SpaceTech Project.
3. Exhibitor is limited to 4 entries.
4. All Exhibits must be made during the current 4-H year.
5. If a fire burn ban is in effect for any county in Kansas, exhibitors in any Kansas County are not required to launch their rocket(s). All requirements for launching of rockets for the state fair and the documenting of the launching are suspended for the duration of the ban.
6. For the purposes of Kansas 4-H SpaceTech a high powered rocket is defined as a rocket that meets any of the following criteria:
  - a. Is 2 inches or greater in diameter (not including fins) and taller than 3 feet (36 inches including fins)
  - b. Weighs more than 3.3125 pounds (53 ounces or 1500 grams) at the time of launch;
  - c. Uses an 'E' engine or larger to launch (2D's, 4C's, 8B's, etc.)
  - d. The total impulse of all engines used in the rocket is greater than 20.01 Newton-seconds of thrust.
  - e. Models powered by rocket motors not classified as model rocket motors per NFPA 1122, e.g.;
    - i. Average thrust in excess of 80.01 Newtons
    - ii. Contains in excess of 2.2 ounces (62.5 grams) of propellant and are limited to only H and I motors.
7. For the purposes of Kansas 4-H SpaceTech, NO rocket may be launched using engines totaling more than an "I" impulse engine or 640 Newton-seconds of total thrust.
8. The report that accompanies the rocket must be limited to the 4-H SpaceTech Rocket Exhibit Information Form which is affixed to a 10"x13" envelope. This form may be downloaded from [www.KansasSpaceTech.com](http://www.KansasSpaceTech.com) or from the Extension Office and must be the current year's form. Any rocket exhibit not including this completed envelope will receive an automatic participation ribbon.
9. Plans (or a photocopy) must be place inside the envelope
  - a. This includes original design rockets
  - b. If a rocket kit has been modified structurally, notations need to be given indicating the changes made, either by notations on the Rocket Exhibit Information Form or by placing notes in the plans.
10. One or more photographs of the rocket at the launch site are required.
  - a. Photographs showing the rocket at the moment of ignition are preferred.
  - b. Photographs must be mounted on one side of 8½" x 11" page(s).
  - c. There must be at least 1 page of photos and no more than 5 pages of photos.
  - d. Include at least one photo showing rocket construction, preferable with the exhibitor included.
  - e. Do not include photos of members catching their rockets as they return to earth. This is an unsafe practice, and we do not recommend or condone this practice.

11. To exhibit in this division:
  - a. The rocket must have been flown. (Unless Rule 5 is in effect.)
  - b. Support rods must not extend past the tip of the highest nosecone on the model.
  - c. Support rods must remain in the upright position, 90 degrees to the display base, DO NOT ANGLE. If support rods are not perpendicular to the base, the judge should deduct two ribbon placings.
  - d. No model may be exhibited on a launch pad.
12. **Launches should not be conducted in winds above 20mph, and will constitute disqualifications of rocket exhibit.**
13. All rockets must have a safe method of recovery, e.g., parachute, streamer, or tumble recovery. **Any rocket without a recovery system will be disqualified.**
14. The altitude achieved by the rocket is to be determined using a method other than estimation. Examples of accepted methods include altimeter, computer software, range finders, etc. If additional space is need to show calculations of how the altitude was achieved one additional page may be added to the rocketry information pack.
15. Flight damage is to be documented by the participant on either the construction plans or the 4-H SpaceTech Rocket Exhibit Information Form.
16. The judging of flight damage is to be secondary to all other aspects of the model and only then may it even be considered. However under no circumstance may flight damage be grounds for disqualification.
17. **Engines and ignitors ARE NOT permitted with the exhibit and will be immediately disqualified.** If an engine become stuck, jammed, wedged, or in any other way permanently affixed in or to a rocket and cannot be removed from the rocket, the rocket will be disqualified.
18. Engines may not be used as display stands hollowed out or otherwise. **Engines used as display stand will be disqualified.**
19. Rocket engines should not be used to join multi-stage rockets together.
  - a. Multi-stage rockets can be displayed without having the stages connected together.
  - b. The different stages must be included to complete the rocketry exhibit, incomplete exhibits will be deducted at least one ribbon placing.
  - c. **Use of any engines to join the stages together will be subject to immediate disqualification.**
20. Multi-stage rockets can be flown using just the final stage and be considered fully flown.
21. **If a safety violation is noted by the judges, superintendent, or other staff, the exhibitor's rocket, at the judges' discretion, will receive a participation ribbon.**
22. Rockets are to be properly assembled according to the assembly instructions.
23. **Beginner kits with prefabricated fin assemblies and pre-finished rockets requiring no painting are not acceptable, and will be disqualified.**
24. **Plastic snap together fins and prefabricated fin assemblies that do not require fin alignment are not acceptable, and will be disqualified.**
  - a. This rule does not apply to plastic fins that must be manually aligned and do not utilize a fin alignment mechanism, including, but not limited to fin alignment rings or spacing blocks.

- b. This rule does not apply to fiberglass, Kevlar, extruded foam, composite, or wood fins; especially when used for “through-the-wall” fin attachment techniques that are common in larger rockets.
  - c. In addition, plastic parts for decorative and mechanical purposes (i.e. decorative nozzles and moving landing struts) are not considered fins and can consist of plastic. Decorative nozzles, etc. need to be securely fastened and not pose a safety hazard.
- 25. Angles of fins must fall within a plus or minus 2 degree variation using an approved fin alignment guide (such as KSSTAC10). An official fin guide is available from [www.KansasSpaceTech.com](http://www.KansasSpaceTech.com).
- 26. Fins should be rounded or streamlined to reduce drag.
- 27. Fins and body tubes are to be sealed with sanding sealer and/or primer to eliminate the appearance of body grooves and wood grain.
- 28. Fins and launch lugs are to be filleted to reduce drag and properly secure them to the model.
- 29. Any seams on plastic parts are to be sanded smooth.
- 30. Body tubes/airframes/engine mounts can be made from suitable materials, including, but not limited to: reinforced paper, cardboard, phenolic resin, specialized polymer resins, fiberglass, Kevlar, or other suitable structural materials.
- 31. The nose cone is to fit snugly but still allow for easy removal.
- 32. Exhibits must be uniformly painted and smoothly finished or finished as per rocket instructions, and have decals applied smoothly.
- 33. Non-standard surfacing (such as textured paint) may be used if directed by the instructions, this includes scratch build rockets.
- 34. Models may not be judged based on their paint scheme (colors and placement on the rocket), with the exception of rockets that fit the definition of a “scale model.” All other rockets do not have to follow the suggested paint scheme, allowing the 4-H'er to display maximum creativity in the finishing of their rocket.
- 35. As defined by the National Association of Rocketry (NAR), a scale model is “any model rocket that is a true scale model of an existing or historical guided missile, rocket vehicle, or space vehicle.” The intent of scale modeling is “to produce an accurate, flying replica of a real rocket vehicle that exhibits maximum craftsmanship in construction, finish, and flight performance”. Scale Model Rockets are to be finished and completed with a majority (greater than 70%) of decals.
- 36. Model Rocketry Guidelines: Model rockets are generally small-to-medium sized rockets that can be purchased at hobby stores or are small-to-medium sized rockets that an individual builds from parts similar to those found in model rocket kits.
  - a. Rocket classified as high powered may not be entered in this category.
  - b. Each rocket must be able to stand freely by itself or be supported by a solid base, not to exceed 4 ¼ inch thick and 8 inch square. The exhibitor’s name, district, and age must be labeled on the top of the base.
  - c. If the model rocket is greater than 4 feet tall it can be displayed without a base, or displayed parallel to the ground with up to 3 notched blocks not to exceed 4” in height

width and depth. The exhibitor's name, district, and age must be labeled on the top of the base.

- d. All exhibitors must comply with the National Association of Rocketry (NAR) Model Rocket Safety Code that is in effect as of October 1<sup>st</sup> of the current 4-H year.

37. Original Design Rocket Guidelines (ages 11 and up):

- a. Original designed rockets cannot be a modification of a pre-existing kit and must be of original design.
- b. Original design rockets must be designed by the exhibitor.
- c. Original design rockets must include detailed instructions, so that someone could construct the original designed rocket just like a kit purchased at a store. Instructions can be as many pages as needed to convey full and complete construction techniques.
- d. Original design rocket instructions should not include copies of instructions in part or in whole from existing kits.
- e. Original design rockets include a summary of how the rocket was tested for stability prior to flying.
- f. Up to 4 additional pages can be added to the rocketry information pack detailing the test(s) performed to insure stability. Provide as much detail as possible. **Failure to provide adequate written documentation will be disqualified.**

38. Alternate Skins (ages 14 & up): Alternative skins are thin covering over a supporting skeleton that serve as the finish of a rocket as opposed to painting.

- a. Use of alternative skins used for model aircraft is permitted on rockets of original design provided adequate provisions are made to prevent the rocket from catching fire during all phases of flight.
- b. When used in construction, the alternative skins should not be used as the primary structure for the rocket. The rocket should still be sound design and construction to insure safety for personnel performing launch activities as well as others who are in nearby vicinity.
- c. Types of Covering: Plastic shrink type coatings used for radio control model aircraft are permitted. These can be obtained from various manufacturers and hobby supplies. Other types of fabric coverings such as cloth types using coatings for stiffness are permitted as long as all of the rules set forth above are met.
- d. Seams and transition areas will be uniform and even.
- e. Gaps and holes are not permitted in the covering especially where the fins or other stabilizing devices meet the main body of the rocket.
- f. Omission of these skins from the bottom of the rocket is permissible. Paints and other types of coatings currently used for rocketry may be substituted in these areas.

39. High Power Rocketry Guidelines:

- a. In addition to the information packet completed for all rockets, a high power information form is to be completed and placed inside of the information packet. This may be downloaded from [www.kansaspacetechnology.com](http://www.kansaspacetechnology.com)
- b. The NAR High Power Rocket Safety Code applies to the construction and launching of all rockets in this class. As such all exhibitors must comply with the NAR High Power Rocket

Safety Code that is in effect as of October 1<sup>st</sup> of the current 4-H year. However in the event that there is a modification in this code, the SpaceTech Action Team may review and implement the modified code.

- c. All rockets in this division are to be launched under adult supervision by the 4-H member who constructed the rocket.
- d. If a rocket is launched using an engine(s) that has 160.1 Newtons-second or larger ('H' engine or equivalent amount of smaller engines), adult supervision must be provided by an individual having at least a level 1 high power certification. The 4-H member should also hold or be attempting to attain their level 1 high power certification, and should include supporting documentation of such (a copy of Level 1 card).
- e. If according to the Federal Aviation Regulations Part 101, a waiver is required to fly the rocket, a copy of that waiver is to be attached to the High Power Information Form. In the case where the launch was a public event, a substitute to a copy of the waiver is the Range Safety Officers (RSO's) contact information.
- f. High power rockets may be displayed without a supporting stand. If a supporting stand is used, it is not to exceed 4 ¼" thick and 8" square. The exhibitor's name, district, and age must be labeled on the base.

#### 40. Educational Exhibit Guidelines:

- a. Exhibits may not consist of only a rocket, but must contain substantial supporting educational material in the form of poster, notebook or display boards.
- b. Displays should be creative and showcase something specific you have learned in the Rocketry project during the current 4-H year. For example, rockets that have crashed and/or are highly damaged that can't be launched again may be made into an educational display or poster that tells a great story with many lessons learned.
- c. Follow copyright laws, citing all sources of information in a standard notation on the "4-H Educational Rocketry Exhibit Information Form." Additional pages can be added inside the information Packet and should be labeled "Citations". Sources of scientific information must be cited on the front of your exhibit, including all posters and educational display boards.
- d. Educational Displays are not to exceed a standard commercial 3'x4' tri-fold display board. No cardboard table exhibits will be allowed. Care should be taken to use durable materials that will withstand the fair.
- e. "Construction Kits" that are part of the educational display must be contained in cases (tackle boxes, sealable containers, etc.) that may not be larger than 1'x2'x2' and must have a latch which securely keeps all components contained in the box. Other components are to adhere to appropriate dimensions as stated in Rule 40d.
- f. Educational Notebooks must be organized in 3-ring binders.
- g. Educational Posters must be no larger than a 20"x30" poster board.
- h. Engines and igniters ARE NOT permitted with the Educational Exhibit and will be disqualified. Includes both live and spent engines.
- i. Exhibitor's name, district, age and year(s) in project must be labeled in a prominent location on the educational display, notebook, "Construction Kit" and/or poster.

- j. Exhibits should possess the following qualities:
  - i. A central theme
  - ii. What you want others to learn
  - iii. Be designed and constructed in a manner befitting the exhibit.
  - iv. Be something you are interested in
  - v. Be related to model or high power rocketry

H-399 Rocket made from kit. Include plans

H-400 Rocket designed by exhibitor: not merely a modification of an existing kit. Include original plans. Exhibitors must be 11 and over by Jan. 1<sup>st</sup> of current year.

H-401 Rocket designed by exhibitor that use alternative skins; not merely a modification of an existing kit. Include original plans. Exhibitors must be 14 and over by Jan. 1<sup>st</sup> of current year.

H-402 Rocket designed and built by 2 or more exhibitors: not merely a modification of an existing kit. Include original plans. Exhibitors must be 11 and over by Jan. 1<sup>st</sup> of current year.

H-403 High power rocket made from kit or original design. Exhibitors must be 14 and over by Jan. 1<sup>st</sup> of current year.

H-404 Rocketry Education Exhibit (Poster, Notebook or Display)

#### **4-H Robotics Department, pg. 58**

1. Read General Regulations and General Regulations 4-H and FFA Department.
2. The exhibitor must be enrolled in the 4-H SpaceTech Project
3. Exhibitor is limited to 4 entries.
4. Each Robot must be free-standing, without the need for additional supports in order to be moved or exhibited.
5. Each exhibit must be made during the current 4-H year.
6. Robot dimensions should not exceed 2 feet high, by 2 feet wide, by 2 feet deep. Weight may not exceed 15 pounds.
7. All electric components of the robot must be adequately covered or concealed with a protective enclosure. Paper is not considered an adequate enclosure or covering.
8. Robots may be powered by an electrical, battery, water, air or solar source only. Junk drawer robots may be powered by a non-traditional power source. Robots powered by fossil fuels/flammable liquids will be disqualified. Robots that include weaponry of any kind will be disqualified. Weaponry is defined as any instrument, possession or creation, physical and/or electrical that could be used to inflict damage and/or harm to individuals, animal life, and/or property.
9. Remote controlled robots are allowed under certain conditions provided that the robot is not drivable. Remote controlled cars, boats, planes, and/or action figures, etc. are not allowed.
10. Each robot must be in operable working condition. The judge will operate each robot to evaluate its workmanship.
11. Each exhibitor is required to complete the "4-H SpaceTech Robotics Exhibit Information Form" which is available through <http://www.kansasspacetech.com/robotics/> or the extension office. This form must be attached to the outside of a 10"x13" manila envelope.

12. The exhibit must include written instructions for operation, construction plans, one to three pages of project photographs or a 5 minute CD, DVD, or video presentation, and robot programming information, if applicable. This information should be placed inside the 10" x 13" manila envelope mentioned above. You must provide a tablet or computer to show your CD or video to the judge.
13. Exhibitor's name and district must be labeled in a prominent location on the robot, educational display, notebook and/or poster. Sources of scientific information must be cited on the front of your exhibits, including all posters and educational display boards.
14. Educational displays are not to exceed a standard commercial 3'x 4" tri-fold display board. No card board table exhibits will be allowed. Care should be taken to use durable materials that will withstand State Fair conditions. No electricity will be provided.
15. Educational posters must be no larger than 20"x30"
16. Individuals in the robotics challenge will be allowed three attempts in rotation to navigate the specified course. Programming corrections may be made between attempts. Practice will be between 2-3pm on Monday with the challenge starting at 3pm. This is held in conjunction with the 4-H R/C Car Challenge.

H-393 Robot made from a commercial (purchased) kit.

H-394 Robot designed and constructed by exhibitor. The robot must not be a mere modification of an existing robot kit or plan.

H-395 Programmable robot made from a commercial (purchased) kit.

H-396 Junk Drawer Robotics –based curriculum robot

H-397 Robotics Educational Exhibit (Poster, Display or Notebook)

H-398 Individual Robotics Challenge (Held on Monday afternoon in Bldg. #3) See Rule #16

#### **4-H R/C Car Challenge, pg. 58**

- Delete: **It is not for speed but control of the vehicle.**
- It is Building #3
- Change Class Number to H-392