

AEROSPACE

PROJECT SUPERINTENDENT:	Elvina Beals, 317-502-3503, bealsem@gmail.com Darryl Beals, 317-606-0012, dbeals@applied-e-s.com
EXHIBIT CHECK-IN:	Sunday, July 11, 4-6 PM
JUDGING:	Monday, July 12, 1 PM Open Judging Monday July 19, 1 PM Rocket Launch (optional)
RELEASE:	Tuesday, July 20, 9-11 AM, and 5-7 PM
STATE FAIR ENTRIES:	One (1) rocket, remote control aircraft, or drone and one (1) poster/display board per level

Project Description:

The excitement and dreams participants experience in sending a rocket into space, making the first solo flight, becoming an astronaut or perhaps someday visiting other planets is never ending. The 4-H Aerospace project provides members countless hours of fun and excitement. No "Ready to Fly" or E2X rockets are acceptable in the 4-H Aerospace project.

Levels:

<u>Beginner</u>	Grades 3-5
<u>Intermediate</u>	Grades 6-8
<u>Advanced</u>	Grades 9-12

Project Guidelines:

- Complete a minimum of three (3) new activities (regular or optional) each year.
- Complete a minimum of one (1) new learning experience each year.
- Complete the Record Sheet and have it signed by your club leader.
- If your records are incomplete, you will NOT be considered for a Champion and you will NOT be considered for State Fair.
- Aerospace Card: 4-H members enrolled in Aerospace must complete and attach an Aerospace card to their exhibit. Cards are available in the Extension Office, online on the Extension website, or through your club leader.
- All posters, notebooks, and display boards must include a reference list indicating where information was obtained, giving credit to the original author.
- Rockets may be exhibited with a base, but launch pads are not permitted. All rockets must weigh less than 3.3 pounds and considered an amateur rocket according to FAA regulations.
- Remote control aircraft, or drones, may be constructed from a kit or purchased ready-to-fly.

Exhibit Requirements:

Beginner: Grades 3-5

Rocket of your choice, Estes Skills Level 1, 2, or comparable difficulty or a poster, display board on any topic in the manual (i.e., construct a paper airplane with a poster board explaining why you designed it the way you did). Cluster engine rockets and rockets that take an engine D or above are not permitted in this level.

Remote control aircraft or drone of your choice that is age/grade appropriate and compliant with FAA regulations, federal and state laws, and local ordinances. This exhibit choice is to include a notebook or poster including how the aircraft/drone was used and Aerospace skills learned. Displaying the aircraft or drone is optional.

Intermediate: Grades 6-8

Rocket or other aerodynamic object of your choice, Estes Skills Level 2, 3, or comparable difficulty or poster, display board on any topic in the manual (i.e., glider plane (page 18) with poster explaining design). Cluster engine rockets and rockets that take an engine E or above are not permitted in this level.

Remote control aircraft or drone of your choice that is age/grade appropriate and compliant with FAA regulations, federal and state laws, and local ordinances. This exhibit choice is to include a notebook or poster including how the aircraft/drone was used and Aerospace skills learned. Displaying the aircraft or drone is optional.

Advanced: Grades 9-12

Rocket of your choice, Estes Skills Level 3 or above, a Box kite or other aerodynamic object of your choice which illustrates principles of flight or poster, display board on any topic in the manual (i.e., Box kite (page 20) with poster explanation). Rockets that take an engine G or above are not permitted.

Remote control aircraft or drone of your choice that is age/grade appropriate and compliant with FAA regulations, federal and state laws, and local ordinances. This exhibit choice is to include a notebook or poster including how the aircraft/drone was used and Aerospace skills learned. Displaying the aircraft or drone is optional.

NOTE: No engines should be included in rockets.

OPTIONAL: A rocket launch is held during the fair for 4-H Aerospace exhibitors. You must exhibit an Aerospace project at the fair in order to participate in the rocket launch. You should make an additional rocket to launch. Exhibits will not be released for launching. You must inform project leader at check-in if you wish to participate in the launch.

Suggestions for your exhibit:

- Read the directions all the way through before starting your project.
- 4-H'ers in Beginner level may want to use an easy to assemble rocket with plastic fins and pre-painted body tube. More experienced Aerospace participants should choose a more difficult project.
- Do not try anything too difficult for your ability. Master each level before going on to the next. There are many things you can do, i.e. kit bashing (using parts from more than one (1) kit) or changing the size or shape of the fins or tubes (keep in mind that the rocket must be flyable).
- Make sure fins are straight and tightly attached. Do not over glue (make sure glue does not get on the body tube or fins) and make sure you do not have glue bubbles or holes at the places where fins and launch lug(s) are attached.
- Even if the rocket is already painted, paint the body tube and/or fins and nose cone if possible. Use spray paint with a length-wise motion (end to end). Stay at least 15 inches away from the rocket and use thin coats (too close or too heavy gets bubbly, mottled look).
- A smooth look is what you want. This means you sand and prime on wood parts and use spackling or other filler on body tubes and cardstock. Be sure to trim away flashing from plastic parts and sand until smooth.
- Make sure air bubbles are out of stickers and decals. If there are no decals with the kit and you would like to use some, you may find them in other kits you have at home, in car model kits, or bought at the hobby store.
- Make sure launch lugs are lined up properly and engine mounts are fixed.
- Make sure your shock cord is attached to the nose cone and the body tube (unless your instructions are different).
- Make sure there is wadding in the body tube and that the parachute is properly packed.
- Ask your parents, older 4-H member, or project leader for help if you don't know what to do.