AEROSPACE

PLEASE NOTE: Any changes/updates from the previous year will be BOLDED and ITALICIZED! Pay special attention to any projects with BOLD, ITALICIZED WORDS because they have changed from last year.

The 4-H aerospace program provides youth with educational information about aerospace that develops project skills (i.e., principles of flight, model rocket construction, model rocket safety) and life skills (i.e., decision-making, using science and technology, developing communication skills).

Completion, exhibition participation, and State Fair information for Aerospace			
Division/Level	**Grades (suggested)**	**Completion Activities Needed**	**Maximum State Fair Entries**
Beginner	Grades 3-5	EXHIBITION –or– RECORD SHEET	1 rocket and 1 poster
Intermediate	Grades 6-8	EXHIBITION –or– RECORD SHEET	1 rocket and 1 poster
Advanced	Grades 9-12	EXHIBITION –or– RECORD SHEET	1 rocket and 1 poster

***Remember*:** **All** posters, notebooks, and display boards **MUST** include a reference list indicating where information was obtained, giving credit to the original author, to complete the 4-H member's exhibit. This reference list should/might include web site links, people and professionals interviewed, books, magazines, etc. It is recommended this reference list be attached to the back of a poster or display board, be the last page of a notebook, or included as part of the display visible to the public. A judge is not to discredit an exhibit for the way references are listed. Reference Sheets are available at the Extension Office for use if needed. For personal safety, do not include personally identifiable information such as mailing address or phone numbers on posters/displays/exhibits.

SUGGESTED REFERENCE MATERIALS (available for purchase in Extension Office or shop4-h.org)
- Level 1: Aerospace Adventures Level 2: Lift Off
- Level 2: Aerospace Adventures Level 3: Reaching New Heights
- Level 3: Aerospace Adventures Level 4: Pilot in Command

GUIDELINES

1. Refer to the Hendricks County 4-H Policies, Entry & Exhibit Guidelines for poster and general display guidelines.
2. ***Artificial Intelligence (AI) may be used, with parent permission, when creating this exhibit and is to be documented as a reference. A majority of the work to create this exhibit is to be the 4-H member's original work.***
3. Be sure to enroll in the project on 4-HOnline and enter exhibit information into FairEntry by designated date. ***2025 designated FairEntry Deadline is Tuesday, July 1st at 11:59 p.m.***
4. Complete the Record Sheet (if not exhibiting at the Hendricks County 4-H Fair).
5. 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. The power source (rocket engine, battery pack, etc.) is to be removed before being placed in public exhibition. Rockets will not be launched, and remote-control aircraft or drones will not be flown at the state fair. There is an option to participate in a rocket launch at the COUNTY Fair, but not required.
6. No "Ready to Fly" or E2X rockets are acceptable in the 4-H Aerospace project.
7. Complete the activities as indicated in the project manual and complete the aerospace record sheet.
8. Be sure to enroll in the project on 4-HOnline and enter exhibit information into FairEntry by designated date.
9. Remote Control aircraft or drones may be constructed from a kit or purchased ready-to-fly.
10. Documentation of the level of rocket and the size of the engine must be presented at time of judging. Examples of documentation include rocket box, print out from computer of rocket information, instructions, etc.

EXHIBITS

Beginner (grades 3-5 suggested) – choose one or more of the following to exhibit:

- Construct a rocket of your choice designed for a new model rocket enthusiast with a difficulty level that is appropriate for suggested grade level, or a poster or display board on any topic in the manual. Similar topics not included in the manual are permissible. Rockets cannot be ready-to-fly (RTF) or have plastic fins. Cluster engine rockets and rockets that take an engine D or above are not permitted in this level.
- Learn to fly a 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. Other topics could include how a quadcopter operates, controls used to fly a quadcopter, UAV regulations administered by Federal Aviation Administration, commercial and emergency uses of UAVs, and more.

Intermediate (grades 6-8 suggested) – choose one or more of the following to exhibit:

- Construct a rocket of your choice designed for a model rocket enthusiast with a difficulty level that is appropriate for suggested grade level, or a poster or display board on any topic in the manual. Similar topics not included in the manual are permissible. Rockets cannot be ready-to-fly (RTF) or have plastic fins. Cluster engine rockets and rockets that take an engine E or above are not permitted in this level.
- Construct or learn to fly a 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. Other topics could include interviewing a certified UAV pilot who works in law enforcement, EMS, fire, Purdue Extension, commercial or other application. Other options could include creating a flight plan or interfacing with other computer software.

Advanced (grades 9-12 suggested) – choose one or more of the following to exhibit:

- Construct a rocket of your choice designed for a model rocket enthusiast with a difficulty level that is appropriate for suggested grade level, or a poster or display board on any topic in the manual. Similar topics not included in the manual are permissible. Rockets cannot be ready-to-fly (RTF) or have plastic fins. Cluster engine rockets and rockets that take an engine G or above are not permitted in this level.
- Construct or learn to fly a 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. Other topics could include using "stitching" software to produce an orthomosaic map for a research purpose, identifying Department of Transportation Aeronautical Chart features and explain how these are important to a drone pilot, how to obtain a drone pilot license, or more. If 16 years of age or older, the member could obtain a license by completing and passing the official FAA Part 107 UAV licensing test.

Optional Aerospace / Rocketry Activity

Members are invited to participate in the 4-H Rocket Launch at the Hendricks County 4-H Fair. All divisions in the project may participate in this OPTIONAL activity. However, each division will use the same size engine. Multi-stage rockets may be launched using only one stage. Engines and launch pads will be provided at the Fair. Launch date, time, and location will be listed in the fair schedule. Participants are encouraged to bring a different rocket to launch other than the one being exhibited during the County Fair. i.e. previous year's rockets, practice rockets, etc.