This 4-H project is designed to help you explore the world of aerospace, from learning about rocket parts and how they fly to building a rocket and demonstrating to others what you have learned.

Here’s what you can do all year!

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- Build a rocket and identify rocket parts.
- Learn how birds and airplanes fly; compare birds to airplanes.
- Identify aerospace careers.
- Design and make a spacecraft.
- Make and read a map.
- Identify types of aircraft.
- Discover how weather affects flying.
- Understand the “angle of attack.”
- Identify parts of a hot-air balloon and make a hot-air balloon.
- Learn and use the International Phonetic Alphabet.
- Discover the effects of disorientation in space.
- Build a straw and balloon rocket.
- Make a paper flight simulator.
- Make a flying wing glider.
- Build a controllable glider.
- Build a Nagasaki Hata Fighter kite.
- Discover basic helicopter functions and parts.
- Make a hang glider.
- Build a Viking rocket.
- Construct and use an altitude tracker.
- Research how to qualify for a pilot’s certificate.
- Plan and teach an aerospace session.
- Evaluate and design navigation systems.
- Build a flat-style box kite.
- Complete a career profile.
- Build and sell kites.
- Organize a kite flight contest.
- Teach a class on model rocketry, kite building and model airplane flying.
- Open a small retail operation to sell airplane, kite and rocket kits.

Pass it on! Now that you know how, share it with others. Here are ideas to get you started.

**Communication**
- Prepare and give a speech about a model rocket exhibit at a science fair, club or achievement days.
- Demonstrate glider flight capabilities.
- Interview a pilot.

**Citizenship**
- Organize a rocket launch.
- Organize a kite-flying contest.
- Volunteer at a local airport or airshow.

**Leadership**
- Organize an airport tour for your 4-H club.
- Conduct an aerospace skillathon.
- Teach a workshop on aerospace.

**Entrepreneurship**
- Build and sell kites.
- Organize a kite flight contest.
- Teach a class on model rocketry, kite building and model airplane flying.
- Open a small retail operation to sell airplane, kite and rocket kits.

Learn more at [www.ndsu.edu/4h](http://www.ndsu.edu/4h) or contact your county NDSU Extension office.
Here are other opportunities to explore aerospace:

- Explore an aerospace career using online resources.
- Shadow an airline employee for one day.
- Attend an aerospace event or camp.
- Visit a local airport and have a pilot and/or mechanic talk about flying.
- Look for opportunities to take the ground school portion of a flight training class.
- Visit with an aircraft maintenance engineer to learn about aircraft maintenance.
- Take a flight with a flight instructor.

### 4-H Resources

- **National 4-H Curriculum Books**
  - State 1 — Preflight (Grades 1-3)
  - Stage 2 — Liftoff (Grades 3-5)
  - Stage 3 — Reaching New Heights (Grades 6-8)
  - Stage 4 — Pilot in Command (Grades 9-12)
  - Helper’s Guide—Flight Crew
  - Aerospace CD
- **Educational Trunk**
- **Pop Bottle Rocket Trunk** *(Reserve through your county Extension office)*
- **Aerospace Event**

### Other Resources

- **UND Aerospace**
- **Local airport**
- **Local pilots**
- **Basics of Rocketry** *(Educators area of NASA website)*
- **National Association of Rocketry**
- **NASA Science**
- **NASA Kids Club**
- **NASA Education for Students**
- **NASA Education for Educators**

### Recordkeeping

- **4-H Project Plan**
- **Planning for My Project Adventure** *(Ages 8-10)*
- **4-H Plan of Action** *(Ages 11-18)*
- **ND 4-H Participation Summary for 11- to 19-year-olds**

### Exhibit Ideas

- Build model rockets from a kit.
- Build model rocket from your own design.
- Build a model airplane from a kit or your own design.
- Create a display of aviation principles.
- Create a display of in-flight procedures.
- Create a poster with pictures of places you’ve visited, your first plane ride, programs you’ve participated in, types of planes, etc.
- Develop a booklet on specific types of planes; knowledge of how planes/rockets work.
- Do a report (could include interviews with people) on the history of space flight; history of space exploration or astronauts; careers; aerospace related to agriculture; how planes or rockets work; principles of flight or military air battles.
- Write a story about aerospace or space flights, rockets, etc. (can be science fiction).
- Create a booklet on specific types of planes; knowledge of how planes/rockets work.
- Build any other model (helicopter, etc.).

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