



Aerospace Project Brief

Learning Objectives

- Learn how airplanes "fly"
- Learn about aerospace careers
- Learn how to build a rocket and identify the parts
- Build your own spacecraft
- Learn navigation skills
- Make and fly your own kit
- Interview someone whose career is in aerospace
- Gather information about different types of planes and their parts
- Build other forms of flight such as kites, helicopters and hot air balloons

Fair Projects

- Edible rocket
- Homemade space helmet
- Display of different types of aircraft
- Poster on how weather affects flying
- Hot air balloon model
- Paper helicopter
- Drinking straw and balloon rocket
- Paper flight simulator
- Balloon shuttle
- Model rocket
- Flat style box kite
- Make a star-gazer to view constellations

Demonstration Ideas

- How to make your own flight simulator
- How to build a balloon rocket
- How to build a flat-style box kite
- Demonstrate navigation and altitude tracking skills

Field Trips

- Local Air port
- Weather Station
- TV Station

Ideas for Speech Topics

- NASA and the job of an astronaut
- Concerns and issues surrounding local airports
- What does it take to be an airplane pilot

Critical Thinking

- How can building or looking at a model of something help us learn more about the real thing?
- What skills do you need to work on if you want a job like this?
- Where do you see airfoils in everyday life?
- There is a saying, "If you can read a map, you can go anywhere!" What does it mean?
- What tips can you offer others for quickly getting information you need on just about any topic even when the amount seems overwhelming?
- In what other areas of your life do you experiment and make adjustments to solve problems?

Community Service

- Demonstrate or share your aerospace knowledge with young children or older adults.
- Create a model airplane display for a showcase at a public location like an airport, library, museum, nursing home
- Help organize a neighborhood aerospace activity like community kite flying day or Space Day <http://www.spaceday.com/>

Science & Technology

How have you used science and technology in this project area?

Examples:

- Build/Construct forms of flight
- Design a rocket
- Hypothesize about different techniques in enabling your rocket to reach taller heights in the air

Show Me Character

Trustworthiness - includes honesty, promise keeping and loyalty.

- Always complete your part of the project
- Be honest with your project leader and your teammates
- Stand by your project, even if it doesn't work the way you wanted
- Don't cheat - claim only rockets that you really made or helped with

Respect - includes courtesy and proper treatment of people and things.

- Judge people on what they can do, not just on who you are friends with
- Show respect for different views
- Value everyone even if they are not able to help you with your project
- Treat others' projects the way you want your project treated

Responsibility - includes the pursuit of excellence, accountability and perseverance.

- Complete your project on time; remember, deadlines are a major part of Aerospace
- Work hard - Put out the best effort possible
- Do what you say you will do; be where you say you will be
- Do your part when working in groups

Fairness - involves consistently applying rules and standards appropriately for different age groups and ability levels.

- Don't try to change results of flight tests - Use them to make you better
- Allow everyone to speak before making group decisions.
- Be consistent in recording information

Caring - promoting the well being of people and things in a young person's world. It denotes action and not just feelings.

- Do what you're good at; others will appreciate your expertise
- Share your knowledge with others
- Be empathic - Share your tools and supplies if someone else runs low or has trouble with a rocket

Citizenship - includes making the home community and county a better place to live for themselves and others.

- Be a volunteer; help out whenever you can
- Play by the rules of your local clubs and fairs
- Don't use any supplies that are outlawed or not allowed
- Don't try to cut corners - follow the rules

Show Me Standards

Missouri 4-H members will acquire the knowledge and skills to gather, analyze and apply information and ideas, communicate effectively, recognize and solve problems, make decisions and act as responsible members of society.

4-H members will acquire a solid foundation which includes knowledge of:

- **Mathematics**- data analysis, probability and statistics.
- **Science**- processes of scientific inquiry and impact of science, technology and human activity on resources and the environment.
- **Communication Arts**- participating in formal and informal presentations and discussions of issues and ideas.

Resources

811 Aerospace Unit 1

Y620 4-H Project Record
Y8110 Pre Flight
LG8150 Aerospace Helper's Guide

812 Aerospace Unit 2

Y620 4-H Project Record
Y8120 Lift Off
LG8150 Aerospace Helper's Guide

813 Aerospace Unit 3

Y620 4-H Project Record
Y8130 Reaching New Heights
LG8150 Aerospace Helper's Guide

814 Aerospace Unit 4

Y620 4-H Project Record
Y8140 Pilot in Command
LG8150 Aerospace Helper's Guide

To Order

Extension Publications online at <http://extension.missouri.edu/explore/shop/> or by phone 1-800-292-0969
For additional resources check with your local University of Missouri Extension Center or the 4-H Source Book at <http://www.4-hmall.org/educationalresources.aspx>.