In this project, youth members will learn about aerospace foundations such as lift, drag, and other interactions from when an object interacts with air by exploring and building rockets. Aerospace and rocketry is a project that can turn anyone on to being a rocket scientist! Knowledge is gained through the construction and flight of model rockets powered by air, water, or solid fuel engines. Participants will be able to learn thorough experimentation.

- What properties of rocket design work and why some configurations work better.
- The safety considerations when dealing with the construction and launching of rockets.
- That science, engineering, and technology education can be a blast!

The activities above are ideas to inspire further project development. This is not a complete list.
Expand Your Experiences!

Science, Engineering, and Technology

- Investigate the concept of aerodynamics and the science behind the flight of the rocket.
- Experiment with differing constructions of rockets to see how flight is affected.
- Use different types launching equipment to see how technology can provide the air/water pressure or electrical current to propel a rocket.

Healthy Living

- Explore the outside landscape surrounding the launch pad for potential safety hazards.
- Make new friends while building and launching rockets with others.
- Race others to see who can retrieve the launched rocket first.
- Research the effects of high altitude on animals and plants.

Citizenship

- Demonstrate the use of model rockets to other youth using skills learned in the project.
- Trace the history and contributions of nations to rocket development.
- Invite youth groups (scouts, high school rocketry clubs) to a “Rocket Jamboree” and share information and best practices.

Leadership

- Teach less experienced members about aerospace and rocketry.
- Become a junior or teen leader.
- Start other Science, Engineering, and Technology projects within the county using Aerospace as a foundation.

Connections & Events

- **Presentation Days** – Share what you’ve learned with others through a rocketry-related presentation.
- **Field Days** – At these events, 4-H members may participate in a variety of contests related to their project area.

Curriculum

- National 4-H curriculum - [www.4-hmall.org/Product/4-hcurriculum/aerospace/06881.aspx](http://www.4-hmall.org/Product/4-hcurriculum/aerospace/06881.aspx)
- Paper Helicopter - [www.4-hdirectory.org/browse/browseItemDetails.aspx?itemID=%7B04D36419-2F21-4C48-8629-77F8B2BDF5D9%7D](http://www.4-hdirectory.org/browse/browseItemDetails.aspx?itemID=%7B04D36419-2F21-4C48-8629-77F8B2BDF5D9%7D)
- Paper Airplanes - [www.4-hdirectory.org/browse/browseItemDetails.aspx?itemID=%7B587582A6-3F54-423E-9A7E-8BDC0F1EA61B%7D](http://www.4-hdirectory.org/browse/browseItemDetails.aspx?itemID=%7B587582A6-3F54-423E-9A7E-8BDC0F1EA61B%7D)

4-H Record Book

- 4-H Record Books give members an opportunity to record events and reflect on their experiences. For each project, members document their personal experiences, learning and development.
- 4-H Record Books also teach members record management skills and encourage them to set goals and develop a plan to meet those goals.

To access the 4-H Record Book online, visit [www.ca4h.org/4hbook](http://www.ca4h.org/4hbook).

Resources

- Rockets Away, Water Bottle Rockets [//estore.osu-extension.org/productdetails.cfm?PC=2413](http:////estore.osu-extension.org/productdetails.cfm?PC=2413)
- Rockets Away, Solid Fuel Rockets [//estore.osu-extension.org/index.cfm](http:////estore.osu-extension.org/index.cfm)
- Plane Anatomy [www.4-hdirectory.org/browse/browseItemDetails.aspx?itemID=%7B4C64E4B2-5F9A-45A0-8796-3842B66D5FCE%7D](http://www.4-hdirectory.org/browse/browseItemDetails.aspx?itemID=%7B4C64E4B2-5F9A-45A0-8796-3842B66D5FCE%7D)
- Balloon Rocket [www.4-hdirectory.org/browse/browseItemDetails.aspx?itemID=%7B778572C2-99D7-45E3-89CB-8C57704788BE%7D](http://www.4-hdirectory.org/browse/browseItemDetails.aspx?itemID=%7B778572C2-99D7-45E3-89CB-8C57704788BE%7D)
- Drinking Straw Rocket [www.4-hdirectory.org/browse/browseItemDetails.aspx?itemID=%7B77017CC6D-941C-4E78-8CE7-03809947EC5B%7D](http://www.4-hdirectory.org/browse/browseItemDetails.aspx?itemID=%7B77017CC6D-941C-4E78-8CE7-03809947EC5B%7D)

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