



Chapter Development Guide



Introductions

This guide is here to help you **become the best new chapter out there**. If you aren't a chapter yet, the [Blast Off Guide](#) is what you are looking for. If you just became a new chapter, CONGRATS! Read on to learn what's next for you. This guide paired with our chapter starter meetings will give you the foothold you need to a successful and sustainable chapter.

Project Ideas

So what do we actually do during SEDS meetings? Here's a list of past SEDS activities at the local level.

Rocketry

High Power

Build high power rocketry from scratch and compete in national rocketry competitions. Have your members earn their level I, II, and III certifications to become certified rocket scientist! For more info and launch sites, check out:

[Tripoli Rocket Association](#)

[Intercollegiate Rocket Engineering Contest](#)



Low Power

Low power or model rocketry is an easy, fun, and relatively inexpensive way to get more people interested in rocketry and space. You will generally need to get a Level 1 Rocket certification. SEDS has partnered with the Hot Nozzle Society to provide the [Art of the Nozzle Guide](#).

Also check out [The American Rocketry Challenge](#).



Experimental

You can mix your own rocket motors or launch a scientific payload on your rocket. Check this one out: [Rocket Launched UAV](#).

High Altitude Weather Balloons

Send your ideas and experiments up to 100,000 feet! This is a fun project to get involved in and can get you some breath-taking images from up above. Whether you're looking to do a science mission, test out a satellite communication system, or just get some cool video, a high-altitude balloon project is an awesome thing to get involved in.

[Amateur Radio High Altitude Ballooning](#)

Build a Telescope

Building your own telescope could be a fun and engaging project for new SEDS chapters. There are many online resources for building cheap telescopes from commercial off the shelf parts.

[NASA's Guide on Building a Telescope](#)

[Intermediate Telescope Guide from Optic Gear Lab](#)

Build a CubeSat

Many SEDS chapters choose to build their own CubeSats and launch them into space. Funding for CubeSats can come from crowdsourcing (e.g. Kickstarter project), Space Grant funding, Departmental funding, or the Air Force Research Lab University Nanosatellite Program (\$100,000 awarded to 10 university satellite teams every 2 years). Chapters have received launch opportunity through NASA's ELANA and CSLI program in the past.

[NASA's CubeSat 101 Guide](#) is THE place to start.

Rover Competitions

Many SEDS chapters participate in rover competitions that involve designing and building a planetary rover and then competing against other schools. These projects can be costly but are fun and provide hands-on engineering experience to members. Some of the most popular competitions:

[NASA Robotic Mining Competition](#)

[NASA Sample Return Centennial Challenge](#)

[RASC-AL Competition](#) (provides \$10,000 funding if selected)

Advocacy

Space advocacy is one of the pillars of impacting the future of space. By meeting with congress staff, taking an interest in space law and policy, and starting a conversation on how us - the next generation in space- will be affected, we can improve our future. Getting started is easy and free! Start discussion groups within your chapter.

Your chapter can also start short editorial pieces on the topics that matter the most. From there, SEDS-USA can connect you with the next step: advocacy in capital hill. For more, check this out: [STEM Students At Capital Hill](#)



Community Outreach Projects

Want to empower the generations after you to reach for the stars? By partnering with local k-12 schools, you are doing just that. Reach out to your community and offer presenting at their school what it means to love space and the opportunities that are available. Bonus points if you can provide small hands-on activities or quick projects to drive home how fun space can be!

NASA Student Challenges

NASA and other organizations will reach out to students to encourage participation in various projects. Look through the ones in the list below for inspiration.

[Artemis Student Challenges](#)

[Space STEM Projects](#)

[Elementary and High School Challenges](#)



Space Medicine Course

A growing field of Space / Aerospace Medicine requires medical professionals and researchers to push the boundaries of human survival. There are a few course materials developed so groups can learn about common issues faced in space. Our [Duke University chapter developed a Free course on Space Medicine on Coursera.](#)

Contact [Dominic Tanzillo](#) if you want to teach the course at your own university and he will give you everything you need to teach the classes yourself: (syllabus, slides, and lecture materials)

Art Competitions

You ever look at a picture of a nebula and think, "Wow, just...wow". How about observing the marvel that is the ISS? Art and Design play an important role in the exploration and appreciation of space. Ideas include hosting an art competition or designing the next lunar lander. Some other options include:



- [NASA Langley Student Art Competition](#)
- [Art Projects and Opportunities](#) from NASA
- Dali Space Art Competition - held by SEDS-USA and Planet

Social Events

Just as important as projects are activities that bring together diverse backgrounds of students over our shared passion - space exploration. Accordingly, we recommend new chapters to host one social event every semester. Here are some science-y / space-y topics that can bring people together. Open invite social events can also help attract new students.

Star Gazing

- Find a local observatory or individual with stargazing equipment
- Many physics departments at universities will have this equipment or some professor with this equipment
- High schools are encouraged to reach out to local universities for partnership

Movie Watch Partier

- There are tons of [Space Movies](#)
- Find a space and watch the movie together

Physics Experiments

Many times, a physics demo / experiment can excite members and bring them together. High school and college physics departments will oftentimes have cool equipment and would be happy to work with students. Some universities also have an engineering week or club expo.

- Make sure you **always** follow safety recommendations!
- [Liquid Nitrogen Ice Cream](#)
- [Some more experiments](#)

Guest Speakers

To help grow your club you can host guest speakers. This can attract current members or new students to learn more about your group. Once you have reserved a guest speaker, make sure to have a venue (digital or physical) to host your speaker and provide a link or form to help students sign up for your group. This can help boost engagement and you can even advertise digitally and with fliers to attract members.

NASA Astronauts - Easy and FREE. Follow their [Guide](#) and contact them 8 weeks in advance of an event. We recommend focusing on astronauts the match a focus your chapter is interested in, or if your chapter is celebrating an anniversary.

Other NASA Speaker - Fill out the form on [their website](#). You need to know the speaker's name in advance.

Industry Representative - Oftentimes faculty advisors or alumni from a school will know someone in the area who can speak to the group.

- Often times companies will be open to emails requesting speakers
- Email recruiting offices and ask if they have someone
- Be open to Zoom because sometimes there is no one in the area

University Professors - Most professors have their email addresses available on their website. Reach out to several and see if any would like to give a mini lecture on the subject of their research. Many would be excited to have students reach out. If you are a high school chapter, reach out to nearby universities.

General Body Workshops/Events

The D in SEDS stands for Development. Think of a general body meeting as a way to help strengthen your club's interest or provide a valuable service for the group. It can be used to run elections, welcome new members, establish new projects, or serve as a workshop. If you would like to have a workshop, below will have links helpful for popular workshops.

Internships

Keep in mind that popular companies / groups often require applying months in advance. First, here is a [Powerpoint](#), courtesy of University of Pittsburg, that will help guide you through the general process. Second, below are links to the career site for the most popular companies.

- [NASA](#) - high school, college, and graduate school
- [Boeing](#)
- [SpaceX](#)
- [Airbus](#)
- [Lockheed Martin](#)
- [General Dynamics](#)
- [Blue Origin](#)
- [Aerospace Internship Guide](#)
- [Space Life Science Training Program at NASA AMES](#)
- [Society of Physics Students Internship Portal](#)

Research

Research is how all great ideas start. Before there was a man on the Moon, there was research on the Moon. Get your chapters started with some of these helpful links.

University of Michigan [Aerospace List of Research Topics](#)

- Many universities with Aerospace Programs will have similar topics

Duke University [Tips for Contacting a Research Mentor](#)

- Use a professional email and ignore the comment about a duke.edu email

Resume

Probably one of the most important parts of being a student. Make sure to have a resume workshop right before university career fairs, and before attending

SpaceVision.

- [What to include in an aerospace engineering resume?](#)
- [Purdue Resume Guide](#)
- [Microsoft Word Resume Templates](#)

Last but not least - Grants

SEDS Chapters have exclusive access to our grants for funding projects. We have a Spring and Fall grant cycle and are looking to support innovative projects, professional development, and students traditionally underrepresented in professional aerospace circles.

For help with writing winning grant proposals check these out:

Grant Examples
& Rubric