

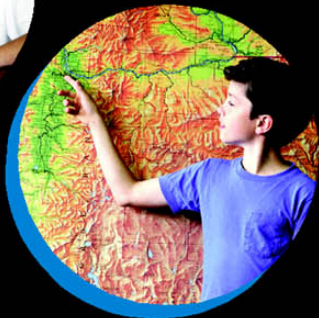
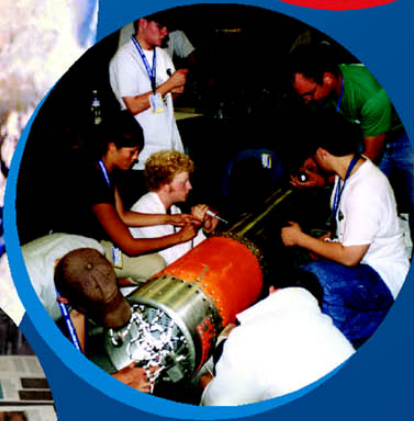


2003-2004
Competitions!

NASA Student Involvement Program

K-12 Inquiry-Based Student Competitions

+ en Español
<http://education.nasa.gov/nsip>



Join the NASA Team!

<http://education.nasa.gov/nsip>

The NASA Student Involvement Program (NSIP)



Join the NASA team!

The **NASA Student Involvement Program (NSIP)** is a national program of investigations and design challenges. NSIP links students directly with NASA's diverse and exciting missions of research, exploration, and discovery. By participating in these competitions and learning activities, students design space missions, investigate Earth from space, explore Earth systems in their neighborhood, and learn about the latest developments in aerospace technology. NSIP is a wonderful opportunity for students to learn science by getting involved in NASA's story of adventure, discovery, and invention!

NSIP's six competition areas will engage your students' interests. Bring NASA into your classroom to support units on space, history, math, language arts, engineering, geography, and the sciences. Our competitions and resource guides support national science, mathematics, and technology education standards.

Competition Areas	Grades			
	K-1	2-4	5-8	9-12
My Planet, Earth	whole class	team or whole class		
Science and Technology Journalism	whole class	team or whole class	team or individual	team or individual
Aerospace Technology Engineering Challenge			team	
Design a Mission to Mars . . . and Beyond			team or individual	team or individual
Watching Earth Change			team or individual	individual
Space Flight Opportunities				team



NSIP 2002 winners from Rice High School, Sauk Rapids, MN

For complete details and to obtain an entry form, competition rules, checklist, judging rubric, and resource guide, please visit <http://education.nasa.gov/nsip>. Any questions? Send e-mail to: info@nsip.net or call: 1-800-848-8429.



My Planet, Earth

Grades K–1: Whole Class

Grades 2–4: Teams of 2–4 or Whole Class

Study Our Amazing and Beautiful Planet!

Select a study site in your neighborhood and get to know its features. NASA research scientists have learned that the Earth shows different faces and tells different stories when it is observed and described from many perspectives. Students identify and describe features and creatures of the air, land, and water. Their drawings and observations of the site are gathered, shared, and combined into one story. This is an excellent culminating activity and can be readily linked with your local community environmental focus and environmental education resources such as the GLOBE program and Project WILD.

Learning Objectives:

1. Do scientific inquiry, make observations, draw pictures, create maps, and graphs to describe and understand your environment.
2. Understand Earth as a dynamic system. Identify and report on the connections between its living and nonliving parts on land, in water, and in air.

Procedure:

1. Divide the class into four teams and assign a different aspect of the environment to each team: land, air, water, and life.
2. Describe the site; include students' drawings, maps, photographs, diagrams, and/or graphs.
3. Gather illustrations and descriptions of students' observations and thoughts about how the different parts of the study site might be interconnected.
4. Provide a description of how the measurements and observations were made.
5. Complete, sign, and send: a) entry form, b) educator data form, and c) checklists.



Original entry drawings

The NASA Student Involvement Program (NSIP)



Science and Technology Journalism

Grades K-1: Class

Grades 2-4: Class or Teams of 2-4

Grades 5-12: Individuals or Teams of 2-4



Special Theme For
2003-04
School Years

The Wright Quest

Celebrate a century of flight! Discover the past, invent the future!

Reflect upon the adventures of flight. What happened on a cold windswept beach near Kitty Hawk, NC, on December 17, 1903? What were the events leading up to this milestone? How did this event change the world? Who are others who have or are exploring the fundamentals of flight? What are the benefits to our world? What is the future of aviation? What research is happening right now? Inventions? Can you predict future aviation milestones?

Learning Objectives:

Share scientific and technical achievements in a manner that is accurate, engaging, and informative—one that speaks to the inner spirit of exploration and discovery.

Procedure:

1. Develop a news report using one of the following media:
 - Print—An article with relevant photos, illustrations, or other graphics, laid out for publication.
 - VHS videotape—A five-minute report in your choice of format (e.g., newscast, investigative or special report, or documentary).
2. Submit documentation about investigation and production methods.
3. Complete, sign, and send: a) entry form, b) educator data form, and c) checklists.

Go to NASA for theme resources:

<http://www.aerospace.nasa.gov/centuryofflight>



Robert E. Lucas Intermediate School,
Cincinnati, Ohio

For complete details and to obtain an entry form, competition rules, checklist, judging rubric, and resource guide, please visit <http://education.nasa.gov/nsip>. Any questions? Send e-mail to: info@nsip.net or call: 1-800-848-8429.



Aerospace Technology Engineering Challenge

Grades 5–8: Teams of 2–4

Design and Build an Aerospace Structure!

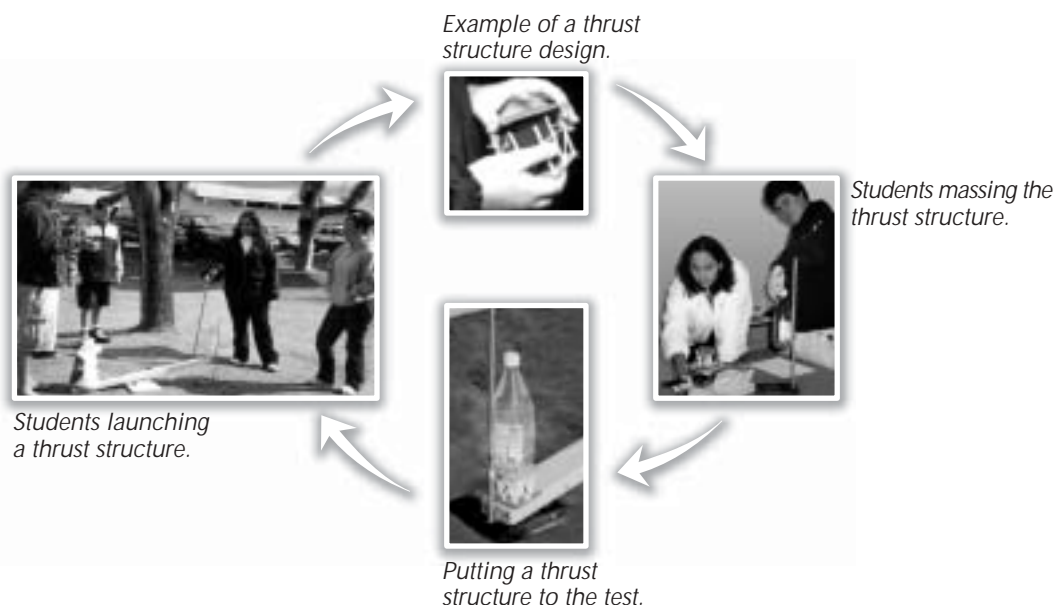
NASA aerospace engineers must balance their need for speed against the need for lighter, stronger materials. In this competition, students construct and test a structure that can withstand the forces of launch. Students will create a durable, lightweight, and reusable thrust structure with inexpensive everyday materials. Using scientific inquiry, critical thinking, systematic observation, and analysis of data, students will gain insight into the engineering design process. By designing, building, testing, and redesigning their own models, students will gain firsthand knowledge about the challenges faced by NASA engineers as they work on the next generation of aerospace vehicles.

Learning Objectives:

1. Discover and understand forces and the transfer of energy involved with a simple physical structure through experimentation with variables and controls.
2. Gain insight into the engineering design process by designing, making, and testing a simple spacecraft launch system.
3. Understand NASA spacecraft launch systems.

Procedure:

1. Use the "log," "design," and "test results" worksheets in your engineering design process.
2. Build, test, and redesign, rebuild, and retest.
3. Describe the original design and the modifications.
4. Relate what you learned from your experiences. Present conclusions about your design process and explain why and how the modifications improved the results.
5. Complete, sign, and send: a) entry form, b) educator data form, and c) checklists.





“Design a Mission to Mars . . . and Beyond”

Grades 5–8: Individuals or Teams of 2–4

Grades 9–12: Individuals or Teams of 2–4

Explore Our Solar System!

Investigate the solar system via a mission you create. If you could send a mission to any planet, moon, asteroid, or other object in the solar system, what would you look for, and how would you do it? Define the interplanetary question(s) you want your mission to answer. Then, design a mission to answer the question(s). You may design a robotic, orbital, flyby, lander, sample return mission, or even send humans to explore firsthand.

Learning Objectives:

Students will learn the following:

1. An understanding of the solar system based on current theory and spacecraft findings.
2. How to design a scientific research plan.
3. How to design a space mission that can effectively carry out the planned research.
4. How data are gathered, analyzed, and communicated by spacecraft instruments.

Procedure:

1. Define a research question on some aspect of the solar system.
2. Describe the science details of your mission, including the research focus, type of mission (robotic, orbital, human, sample return, or other), data to be collected, target sites for landing, or orbital study, etc. Explain how the mission will address the research question.
3. Present a proposal that argues for the scientific merits and viability of your mission on the basis of information about past and present interplanetary missions, and data, graphs, maps, and images.
4. Complete, sign, and send: a) entry form, b) educator data form, and c) checklists.



Sixth-grade students at Williamsburg Middle School study a Mars map and possible landing sites.



Watching Earth Change

Grades 5–8: Individuals or Teams of 2–4

Grades 9–12: Individuals

Explore Our Planet Using NASA Tools and Technology!

This is a great opportunity for original student exploration! Students may choose from an unlimited number of topics such as animal migration, global warming, conservation, severe weather events, volcanoes, ozone depletion, urban growth, and more. Cutting-edge NASA science and technology enable observations of the Earth system with unprecedented depth and detail. The challenge is for students to use NASA data (e.g., satellite data, graphs, maps, aerial photos, etc.) to test their own hypotheses about how Earth is changing. (The Thacher Scholarship, a \$4,000 independently funded prize, will be awarded to one grade 9–12 NASA Center winner in this competition.)

Learning Objectives:

1. Design and carry out a scientific research plan, and communicate the results.
 - Use quantitative data, graphs, maps, and images to monitor changes.
 - Analyze data and information, reach conclusions that support or refute a hypothesis.
2. Investigate how the Earth changes through physical, chemical, and biological interactions that occur over many scales of time and space, on land, in water, and in the air.

Procedure:

1. Select a research topic (e.g., potential effects of climate change on Nebraska's farm production or the shrinking Antarctic ice shelves), identify research questions, and develop a hypothesis.
2. Select a time period (e.g., 1950–2000) within which to test the hypothesis about change over time.
3. Identify and gather information (articles, press releases, personal testimony, etc.) and quantitative data (e.g., satellite data, graphs, maps, aerial photos, etc.) to monitor changes relevant to the hypothesis.
4. Analyze the data and present arguments that support or refute the hypothesis.
5. Complete, sign, and send: a) entry form, b) educator data form, and c) checklists.

“When I started, I was not sure what to do my NSIP project on. I started thinking about sand dunes, and I kept getting more information and more interested. Sand dunes are more important than some people think to our agricultural areas.”

Rachna P., Watching Earth Change, Fordyce High School, Fordyce, AR

“I didn’t know when I started this NSIP project that I would get this much out of it. Scientists were really interested about what I had to say.”

William W., 2002 Thacher Award Winner, Horace Greeley High School, Chappaqua, NY



Space Flight Opportunities Competition

Grades 9–12: Teams of 2–4

Design an Experiment and Fly It Into Space!

NASA will fly experiments chosen from NSIP entries for each of two Space Flight Opportunities:

- SEM experiments fly on the Space Shuttle, and
- Sub-SEM experiments fly above 99.8 percent of the atmosphere on a dedicated NASA sounding rocket.

NSIP will provide the information, guidance, and support your team needs to propose a winning experiment. You and your students can concentrate on developing your ideas because NASA takes care of extensive arrangements to accommodate and fly your experiments.

The teacher and up to four student representatives of each team selected for flight will win an expense-paid trip to Student Flight Week at the NASA Wallops Flight Facility in Virginia. Additional awards may be made as well for high-ranking entries. During SEM Flight Week, SEM experiments will be examined and packaged to await Shuttle flight. During Sub-SEM Flight Week (launch conditions permitting) the Sub-SEM rocket will be flown.

Learning Objectives:

1. Investigate a topic chosen by the team. The experiment will engage active learning in biology, physics, Earth science, or another field.
2. Design and complete a scientific research plan, and communicate the results.
3. Analyze data and information, and how to use this information to draw conclusions that either support or refute a hypothesis.
4. Work together as a team to coordinate distinct tasks, roles, and responsibilities.

Procedure:

1. Download or request the Space Flight Opportunities resource guide for more detailed information and suggestions.
2. Brainstorm experiment ideas and choose one to investigate further.
3. E-mail a "Letter of Intent" which contains a preliminary plan that briefly explains the proposed experiment to spaceflight@NSIP.net. NSIP staff will offer feedback and suggestions.
4. Complete, sign, and send: a) entry form, b) educator data form, and c) checklists.

"The most valuable aspect of this experience is the fact that an experiment designed and managed by a student was selected for a space flight mission."

"Working at the Wallops Flight Facility along with a group of scientists and engineers has given me the opportunity to get a first glimpse of what to expect in the engineering field."

2002 student winners of Space Flight Opportunities, during "SEM Flight Week", at NASA Wallops Flight Facility, VA



NSIP Due Dates and Awards

Due Dates:

January 15

Space Flight Opportunities

January 31

My Planet, Earth

Science and Technology Journalism

Aerospace Technology Engineering Challenge

Watching Earth Change

Design a Mission to Mars

Awards

- Launch student experiments into space
- Win a trip to a NASA special event
- The Thacher Scholarship
- NASA award presentation at your school
- Space Camp for national student winners
- NSIP plaques and medals for winners
- Certificates for all participants

“The program allows a chance for students to explore an area of interest in a creative and unique manner which allows the students to shine and take real ownership of an idea. Seeing the national winners taught me how to better prepare and educate my students on how to explore, investigate, and present ideas.”

Martin Teachworth, California high school teacher

“The NSIP program was an event of a lifetime! I feel that I have a successful insight to NSIP from the viewpoint of the small, rural, low socioeconomic school districts. I am very interested in promoting NSIP. It has been a wonderful program for my students. Please let me know if I can be of assistance to you in any way.”

Pam Vaughan, Fordyce High School teacher/faculty preparation and enhancement programs

“I want to thank NSIP for giving me such a wonderful opportunity. It was a great experience I’ll never forget. The NSIP program has really opened my eyes to different job options. Who knows, maybe one day I may work for NASA!”

Whitney B., Watching Earth Change winner, former Arkansas high school student

“Sharing the latest technologies with students is an excellent dividend to the Government’s initial investment. Kids are always hungry for new information. Sharing with them is an investment in the future.”

Laura Gaspar-Finer, parent, FL

NASA Resources for Educators



NASA's Central Operation of Resources for Educators (CORE) was established for the national and international distribution of NASA-produced educational materials in multimedia format. Educators can obtain a catalogue and an order form by one of the following methods:

NASA CORE
Lorain County Joint Vocational School
15181 Route 58, South
Oberlin, OH 44074-9799
Phone: (440) 775-1400
Fax: (440) 775-1460
E-mail: nasaco@leeca.org
Home Page: <http://core.nasa.gov>

Educator Resource Center Network (ERCN)

To make additional information available to the education community, NASA has created the NASA Educator Resource Center Network (ERCN). Educators may preview, copy, or receive NASA materials at these sites. Phone calls are welcome if you are unable to visit the ERC that serves your geographic area. The following is a list of the Centers and the regions they serve:

AK, Northern CA, HI, ID, MT, NV, OR, UT, WA, WY
NASA Educator Resource Center
NASA Ames Research Center
Mail Stop 253-2
Moffett Field, CA 94035-1000
Phone: (650) 604-3574

IL, IN, MI, MN, OH, WI
NASA Educator Resource Center
NASA Glenn Research Center
Mail Stop 8-1
21000 Brookpark Road
Cleveland, OH 44135
Phone: (216) 433-2017

CT, DE, DC, ME, MD, MA, NH, NJ, NY, PA, RI, VT
NASA Educator Resource Laboratory
NASA Goddard Space Flight Center
Mail Code 130.3
Greenbelt, MD 20771-0001
Phone: (301) 286-8570

CO, KS, NE, NM, ND, OK, SD, TX
Space Center Houston
NASA Educator Resource Center for
NASA Johnson Space Center
1601 NASA Road One
Houston, TX 77058
Phone: (281) 244-2129

FL, GA, PR, VI
NASA Educator Resource Center
NASA Kennedy Space Center
Mail Code ERC
Kennedy Space Center, FL 32899
Phone: (321) 867-4090

KY, NC, SC, VA, WV
Virginia Air & Space Center
Educator Resource Center for
NASA Langley Research Center
600 Settlers Landing Road
Hampton, VA 23669-4033
Phone: (757) 727-0900, ext. 757

Regional Educator Resource Centers offer more educators access to NASA educational materials. NASA has formed partnerships with universities, museums, and other educational institutions to serve as regional ERCs in many States. A complete list of regional ERCs is available through CORE, or electronically via NASA Spacelink at <http://spacelink.nasa.gov/ercn>

AL, AR, IA, LA, MO, TN
U.S. Space and Rocket Center
NASA Educator Resource Center for
NASA Marshall Space Flight Center
One Tranquility Base
Huntsville, AL 35758
Phone: (256) 544-5812

MS
NASA Educator Resource Center
NASA Stennis Space Center
Mail Stop 1200
Stennis Space Center, MS 39529-6000
Phone: (228) 688-3338

CA
NASA Educator Resource Center for
NASA Jet Propulsion Laboratory
Village at Indian Hill
1460 East Holt Avenue, Suite 20
Pomona, CA 91767
Phone: (909) 397-4420

AZ and Southern CA
NASA Educator Resource Center
NASA Dryden Flight Research Center
P.O. Box 273, Mail Stop 4839
Edwards, CA 93523-0273
Phone: (661) 276-5009 or
(800) 521-3416, ext. 5009

VA and MD's Eastern Shores
NASA Educator Resource Center for
GSFC/Wallops Flight Facility
Visitor Center Building J-17
Wallops Island, VA 23337
Phone: (757) 824-2298

NASA's Education Home Page serves as the education portal for information regarding educational programs and services offered by NASA for the American education community. This high-level directory of information provides specific details and points of contact for all of NASA's educational efforts, Field Center offices, and points of presence within each State. Visit this resource at <http://education.nasa.gov>

NASA Spacelink is one of NASA's electronic resources specifically developed for the educational community. Spacelink serves as an electronic library to NASA's educational and scientific resources, with hundreds of subject areas arranged in a manner familiar to educators. Using Spacelink Search, educators and students can easily find information among NASA's thousands of Internet resources. Special events, missions, and intriguing NASA Web sites are featured in Spacelink's Hot Topics and Cool Picks areas. Spacelink may be accessed at <http://spacelink.nasa.gov>

NASA Spacelink is the official home to electronic versions of NASA's educational products. A complete listing of NASA educational products can be found at <http://spacelink.nasa.gov/products>

NASA Television (NTV) features Space Station and Shuttle mission coverage, live special events, interactive educational live shows, electronic field trips, aviation and space news, and historical NASA footage. Programming has a three-hour block—Video (News) File, NASA Gallery, and Education File—beginning at noon Eastern and repeated four more times throughout the day. Live feeds preempt regularly scheduled programming.

Check the Internet for programs listings at <http://www.nasa.gov/ntv>

For more information on NTV, contact:
NASA TV
NASA Headquarters—Code P-2
Washington, DC 20546-0001
Phone: (202) 358-3572

NTV Weekday Programming Schedules (Eastern Times)

Video File	NASA Gallery	Education File
12–1 p.m.	1–2 p.m.	2–3 p.m.
3–4 p.m.	4–5 p.m.	5–6 p.m.
6–7 p.m.	7–8 p.m.	8–9 p.m.
9–10 p.m.	10–11 p.m.	11–12 p.m.
12–1 a.m.	1–2 a.m.	2–3 a.m.

How to Access Information on NASA's Education Program, Materials, and Services (EP-2002-07-345-HQ)

This brochure serves as a guide to accessing a variety of NASA materials and services for educators. Copies are available through the ERC network or electronically via NASA Spacelink.

Please take a moment to evaluate this product at http://ehb2.gsfc.nasa.gov/edcats/educational_wallsheet. Your evaluation and suggestions are vital to continually improving NASA educational materials. Thank You.