

# NASA Explorer Schools Project Application Supporting Statement

Annually, the NASA Explorer Schools will collect applications from educators interested in participating in a three-year project. NASA selects up to 50 schools (pending budget approval) each year to participate in the NASA Explorer Schools project.

Collection Name	Start	End	Purpose	Method	Population	Est. # Respondents	Burden Hours
NASA Explorer Schools (NES) Project Application	July FY07	Jan. FY08	Determine which schools to select for 3-year project	Online application	Adults (Educators)	130	130 or 1 per application

## A. Justification

*1. Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection. Attach a copy of the appropriate section of each statute and regulation mandating or authorizing the collection of information.*

NASA’s founding legislation, the Space Act of 1958, directs the agency to expand human knowledge of Earth and space phenomena and to preserve the role of the United States as a leader in aeronautics, space science, and technology. High achievement in science, technology, engineering, and mathematics (STEM) education is essential to the accomplishment of NASA’s mission. The Strategic Management of Human Capital initiative under the President’s Management Agenda requires agencies to “build, sustain, and effectively deploy the skilled, knowledgeable, diverse, and high-performing workforce needed” to meet agency core competencies. NASA’s education investments will contribute to the agency’s human capital needs.

All of NASA’s education efforts are part of an integrated agency-wide approach to human capital management. Within the NASA Strategic Plan, education is identified as a cross-cutting function that supports all of the agency’s strategic goals and objectives. NASA delivers a comprehensive agency education portfolio—a collection of investments and strategies, such as research and development, managed to further common goals—implemented by the Office of Education, the NASA mission directorates, and the NASA centers. Through the portfolio NASA contributes to our nation’s efforts in achieving excellence in STEM education. Three outcomes serve to align all agency education activities:

- **Outcome 1: Strengthen NASA and the nation’s future workforce**—NASA will identify and develop the critical skills and capabilities needed to achieve the Vision for Space Exploration. To help meet this demand, NASA will continue contributing to the development of the nation’s future STEM workforce through a diverse portfolio of education initiatives that target America’s students at all levels, especially those in traditionally underserved and underrepresented communities.

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- **Outcome 2: Attract and retain students in STEM disciplines**—To compete effectively for the minds, imaginations, and career ambitions of America’s young people, NASA will focus on engaging and retaining students in STEM education programs to encourage their pursuit of educational disciplines critical to NASA’s future engineering, scientific, and technical missions.
- **Outcome 3: Engage Americans in NASA’s mission**—NASA will build strategic partnerships and linkages between STEM formal and informal education providers. Through hands-on, interactive, educational activities, NASA will engage students, educators, families, the general public, and all agency stakeholders to increase Americans’ science and technology literacy.

As the United States begins the second century of flight, the nation must maintain its commitment to excellence in STEM education to ensure that the next generation of Americans can accept the full measure of their roles and responsibilities in shaping the future.

NASA Explorer schools will collect information from schools necessary to determine which school teams will be invited to participate in the three-year project. Each year, NASA selects up to 50 school teams to participate in the three-year NASA Explorer Schools project. Educational programming as described below will be used to support outcomes 1, 2, and 3.

Over the three-year partnership, school teams (grades 4-9) work with NASA personnel and other partners to develop and implement improvement plans for staff and students that promote and support the use of NASA content and programs to address the school teams' local needs in mathematics, science and technology education. School teams in the project are eligible to receive up to \$17,500 (pending budget approval) over the three-year period to support the integration of technology tools that support student engagement in science and mathematics. The project is intended for underserved schools, and is providing comprehensive support including access to educational resources and professional development assistance.

The NES Project is evaluated by NASA and the U.S. Office of Management and Budget on the achievement of the following project goals:

- Increase student interest and participation in mathematics, science, technology and geography.
- Increase student knowledge about careers in mathematics, science, engineering and technology.
- Increase student ability to apply mathematics, science, technology and geography concepts and skills in meaningful ways.
- Increase the active participation and professional growth of educators in science.
- Increase the academic assistance for and technology use by educators in schools with high populations of underserved students.
- Increase family involvement in children's learning.

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Several initiatives within the NES project support the active engagement of students in STEM investigations to increase their ability to apply STEM and learn about career paths. Typically done with teacher support and training, these program elements offer direct use of NASA mission data to solve investigative questions posed by students. Multiple efforts are underway to provide educators and students with content-specific activities and investigations that can be used in many local and state curricula. A few examples are:

1. In-flight opportunities such as the **Reduced Gravity Flight Opportunity** provide access to unique NASA resources and cooperative learning with NASA scientists and engineers. Students work with NASA mentors during the development of student microgravity investigations. Teachers from the school collect the investigation's data by flying their students' investigation on-board NASA's microgravity aircraft.
2. **Winter's Story** is a professional development workshop for NES educators. Teachers brave the cold to learn how NASA scientists study ice and snow, and many different classes of extremophiles by spending a week in February with NASA scientists and education specialists in Yellowstone National Park.
3. During the school year, students have been provided with opportunities to talk to researchers in the field (or space) through **Ham radio downlinks** with the International Space Station.
4. In **Signals of Spring**, an award-winning classroom program, students use Earth imagery to explain the movement of birds and marine animals that are tracked by satellite in real time.
5. The NES **Student Symposium** provides an opportunity for one educator and two students from selected NASA Explorer Schools to attend a NES Student Symposium. Students present investigation results from NASA activities and learn about NASA careers and student research opportunities through panel discussions of NASA personnel and current student intern presentations.
6. The **NASA Digital Learning Network**, or DLN, provides people, technology, facilities, programs and resources to deliver learning opportunities via videoconferences to teachers in regions served by NASA centers. The formation of learning communities through digital networks is key to the dissemination of programs, collaboration of participants, and the interaction of widely dispersed and sometimes remote NES schools with NASA experts.
7. **NES Institutes** are one to four day-long institutes combining NASA content, NES project updates and evaluation focus groups, organized around existing professional education conferences. NES educators are provided with travel support to attend a regional or national conference in mathematics, science or technology.
8. **Web seminars** and other Internet-based distribution mechanisms deliver NASA content to educators and provide the sustained enrichment approach called for in the Professional Development Standards of the National Science Education Standards. NES school teams are connected to experts for NASA professional development opportunities from their home or school computer.

*2. Indicate how, by whom, and for what purpose the information is to be used. Except for a new collection, indicate the actual use the agency has made of the information received from the current collection.*

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The NES Application is made available to educators online via the Web site of a NASA grantee, the National Science Teachers Association (NSTA). NSTA provides a centralized and neutral site for the collection of applicant information. Educators who are interested in participating in the three-year NES project may voluntarily apply after reviewing information about the NES project on the NASA Explorer Schools (NES) Web site at <http://explorerschools.nasa.gov>. A link to the application is provided from the NES Web site. Data collected through the online application is used to determine which schools will be selected to participate in the three-year NES project.

3. *Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses, and the basis for the decision for adopting this means of collection. Also describe any consideration of using information technology to reduce burden.*

Respondents will complete an online application form hosted on an NSTA Web site. Applicants will be asked to establish a unique login and password on their initial visit to the Web site. The applicants may use the login and password to return to the Web site and complete their application in multiple sessions, if needed. All applicant data will be collected online using database technologies.

4. *Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purposes described in Item 2 above.*

No duplication is involved. Application to participate in the NASA Explorer Schools project is unique.

5. *If the collection of information impacts small businesses or other small entities (Item 5 of OMB Form 83-I), describe any methods used to minimize burden.*

Small businesses will not be impacted.

6. *Describe the consequence to Federal program or policy activities if the collection is not conducted or is conducted less frequently, as well as any technical or legal obstacles to reducing burden.*

NASA needs certain information to determine which applicants meet required selection criteria and to what extent. Without this data collection, NASA will not be able to select up to 50 schools to participate in the three-year NASA Explorer Schools project.

7. *Explain any special circumstances that would cause an information collection to be conducted in a manner:*

*\* requiring respondents to report information to the agency more often than quarterly;*

*\* requiring respondents to prepare a written response to a collection of information in fewer than 30 days after receipt of it;*

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- \* requiring respondents to submit more than an original and two copies of any document;*
- \* requiring respondents to retain records, other than health, medical, government contract, grant-in-aid, or tax records, for more than three years;*
- \* in connection with a statistical survey, that is not designed to produce valid and reliable results that can be generalized to the universe of study;*
- \* requiring the use of a statistical data classification that has not been reviewed and approved by OMB;*
- \* that includes a pledge of confidentiality that is not supported by authority established in statute or regulation, that is not supported by disclosure and data security policies that are consistent with the pledge, or which unnecessarily impedes sharing of data with other agencies for compatible confidential use; or*
- \* requiring respondents to submit proprietary trade secrets, or other confidential information unless the agency can demonstrate that it has instituted procedures to protect the information's confidentiality to the extent permitted by law.*

The NES *Project Application* is a required deliverable to enable schools to be considered for one of the limited number of schools to be selected in 2008. To lessen the impact on educators who will complete the project application, and to ensure an optimum response rate, the application period must be open during times when they are less likely to be needed in the classroom (e.g., summer break) and can obtain any required school board approvals. The collection of data as detailed in the attached sample must begin no later than July 1, 2007, and remain open for no less than six months.

8. *If applicable, provide a copy and identify the date and page number of publication in the Federal Register of the agency's notice, required by 5 CFR 1320.8(d), soliciting comments on the information collection prior to submission to OMB. Summarize public comments received in response to that notice and describe actions taken by the agency in response to these comments. Specifically address comments received on cost and hour burden. Describe efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported. Consultation with representatives of those from whom information is to be obtained or those who must compile records should occur at least once every 3 years - even if the collection of information activity is the same as in prior periods. There may be circumstances that may preclude consultation in a specific situation. These circumstances should be explained.*

N/A

9. *Explain any decision to provide any payment or gift to respondents, other than remuneration of contractors or grantees.*

N/A

10. *Describe any assurance of confidentiality provided to respondents and the basis for the assurance in statute, regulation, or agency policy.*

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Applicants will be required to establish a unique login and password in order to access the NES project application online at the NSTA Web site. The limited personally identifiable information collected through the application process is not accessible to the applicant or the site administrator without a valid login and password. Privacy statements are posted on both the NASA Explorer Schools and NSTA Web sites.

NSTA will establish an applicant database for the purpose of applicant selection. Applicants will only have access to their own data with a valid login and password. An administrator will only have access to the data collected with a valid login and password. A Privacy Impact Assessment has been submitted by NES and is being reviewed by NASA Glenn Research Center's Privacy Act manager for this applicant database.

*11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private. This justification should include the reasons why the agency considers the questions necessary, the specific uses to be made of the information, the explanation to be given to persons from whom the information is requested, and any steps to be taken to obtain their consent.*

N/A

*12. Provide estimates of the hour burden of the collection of information. The statement should:*  
*\* Indicate the number of respondents, frequency of response, annual hour burden, and an explanation of how the burden was estimated. Unless directed to do so, agencies should not conduct special surveys to obtain information on which to base hour burden estimates. Consultation with a sample (fewer than 10) of potential respondents is desirable. If the hour burden on respondents is expected to vary widely because of differences in activity, size, or complexity, show the range of estimated hour burden, and explain the reasons for the variance. Generally, estimates should not include burden hours for customary and usual business practices.*

*\* If this request for approval covers more than one form, provide separate hour burden estimates for each form and aggregate the hour burdens in Item 13 of OMB Form 83-I.*

*\* Provide estimates of annualized cost to respondents for the hour burdens for collections of information, identifying and using appropriate wage rate categories. The cost of contracting out or paying outside parties for information collection activities should not be included here. Instead, this cost should be included in Item 13.*

We estimate that about 130 educators will complete the application, spending an average of one (1) hour each. This totals 130 hours. This is an annual data collection.

*13. Provide an estimate for the total annual cost burden to respondents or recordkeepers resulting from the collection of information. (Do not include the cost of any hour burden shown in Items 12 and 14).*

*\* The cost estimate should be split into two components: (a) a total capital and start-up cost component (annualized over its expected useful life) and (b) a total operation and maintenance and purchase of services component. The estimates should take into account costs associated*

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*with generating, maintaining, and disclosing or providing the information. Include descriptions of methods used to estimate major cost factors including system and technology acquisition, expected useful life of capital equipment, the discount rate(s), and the time period over which costs will be incurred. Capital and start-up costs include, among other items, preparations for collecting information such as purchasing computers and software; monitoring, sampling, drilling and testing equipment; and record storage facilities.*

*\* If cost estimates are expected to vary widely, agencies should present ranges of cost burdens and explain the reasons for the variance. The cost of purchasing or contracting out information collections services should be a part of this cost burden estimate. In developing cost burden estimates, agencies may consult with a sample of respondents (fewer than 10), utilize the 60-day pre-OMB submission public comment process and use existing economic or regulatory impact analysis associated with the rulemaking containing the information collection, as appropriate.*

*\* Generally, estimates should not include purchases of equipment or services, or portions thereof, made: (1) prior to October 1, 1995, (2) to achieve regulatory compliance with requirements not associated with the information collection, (3) for reasons other than to provide information or keep records for the government, or (4) as part of customary and usual business or private practices.*

There is no cost to applicants.

14. Provide estimates of annualized costs to the Federal government. Also, provide a description of the method used to estimate cost, which should include quantification of hours, operational expenses (such as equipment, overhead, printing, and support staff), and any other expense that would not have been incurred without this collection of information. Agencies may also aggregate cost estimates from Items 12, 13, and 14 in a single table.

Annualized costs to the Federal government are estimated at \$25,102. This represents an estimate of 36 man hours per month at \$58 per man hour for 12 months.

15. Explain the reasons for any program changes or adjustments reported in Items 13 or 14 of the OMB Form 83-I.

N/A

16. For collections of information whose results will be published, outline plans for tabulation and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the entire project, including beginning and ending dates of the collection of information, completion of report, publication dates, and other actions.

The opening of the application window for the NASA Explorer Schools project is highly publicized through various NASA Web sites and other existing mechanisms used to inform the education audience of products and services available to them by NASA.

Once the application window is closed, NASA Explorer School representatives at each of the 10 NASA centers retrieve applications for schools in their regions. Each center uses predetermined instructions and a rubric to rate the applications and determine semifinalist teams. Team



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members of semifinalist teams are interviewed by telephone by NES representatives. A national selection board, consisting of representatives from NASA Education Office, the National Science Foundation, the U.S. Department of Energy, and the National Science Teacher's Association, convene to finalize selections. After senior management has concurred with the final selections and congressional notification has taken place, applicants are notified of their acceptance status by telephone.

A list of schools selected is published on various NASA Web sites. The list includes the name of the school and the city and state in which the school is located.

### Application Submission and Review Dates

7/1	The NES project application window is open.
1/31	The NES project application window is closed.
2/6	National Science Teachers Association, or NSTA, completes the initial screening of the applications. Applications are sent to the NASA center selection teams for prioritization.
2/16	NASA center selection committees review applications to determine semifinalist teams.
2/19 to 3/2	The team lead and team administrator of the semifinalist teams are interviewed by telephone. NASA centers' prioritized lists are due to NSTA.
3/6 to 3/10	The national selection board convenes to finalize selections.
3/17	Senior management concurrence is due.
3/31	Congressional notification is done in cooperation with NASA Legislative Affairs.
4/1	All applicants are notified of their acceptance status. Acceptance packages are sent to NES teams.
4/14	NES teams return acceptance packages.

17. If seeking

*approval to not display the expiration date for OMB approval of the information collection, explain the reasons that display would be inappropriate.*

The OMB number will be displayed within the application Web site.

18. Explain each exception to the certification statement identified in Item 19, "Certification for Paperwork Reduction Act Submissions," of OMB Form 83-I.

None

### B. Collections of Information Employing Statistical Methods

*The agency should be prepared to justify its decision not to use statistical methods in any case where such methods might reduce burden or improve accuracy of results. When Item 17 on the Form OMB 83-I is checked, "Yes," the following documentation should be included in the Supporting Statement to the extent that it applies to the methods proposed:*

1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection methods to be used. Data on the number of entities (e.g., establishments, State and local government units, households, or persons) in the universe



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*covered by the collection and in the corresponding sample are to be provided in tabular form for the universe as a whole and for each of the strata in the proposed sample. Indicate expected response rates for the collection as a whole. If the collection had been conducted previously, include the actual response rate achieved during the last collection.*

Collection Name	Start	End	Purpose	Method	Population	Est. # Respondents	Burden Hours
NASA Explorer Schools (NES) Project Application	July FY07	Jan. FY08	Determine which schools to select for 3-year project	Online application	Adults (Educators)	130	130 or 1 per application

*2. Describe the procedures for the collection of information including:*

- \* Statistical methodology for stratification and sample selection,*
- \* Estimation procedure,*
- \* Degree of accuracy needed for the purpose described in the justification,*
- \* Unusual problems requiring specialized sampling procedures, and*
- \* Any use of periodic (less frequent than annual) data collection cycles to reduce burden.*

*Statistical methodology for stratification and sample selection:*

Due to the subjective and individual nature of every application, statistical methods are not used. Instead, each application is reviewed on a case-by-case basis by multiple panels of subject matter experts.

More specifically, once the application season is closed, NES representatives access the NSTA Web site (with a valid login and password) to review the completed applications in their NASA Center service area. NES representatives use a scoring rubric (see attached) and team member telephone interviews as tools to help them select semifinalists. Semifinalist selections are then submitted to the NES Program Manager. The NES Program Manager convenes a national selection board which consists of NASA representatives, NSTA and education representatives from other Federal agencies such as National Science Foundation to concur with NASA Center selections. The national selection board submits final selection recommendations to the NES Program Manager.

This is an annual data collection.

*3. Describe methods to maximize response rates and to deal with issues of non-response. The accuracy and reliability of information collected must be shown to be adequate for intended*

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*uses. For collections based on sampling, a special justification must be provided for any collection that will not yield "reliable" data that can be generalized to the universe studied.*

The NASA Explorer Schools (NES) project application respondents are educators interested in participating in the three-year NES project. The opening of the application window for the NASA Explorer Schools project is highly publicized through various NASA Web sites and other existing mechanisms used to inform the education audience of products and services available to them by NASA.

*4. Describe any tests of procedures or methods to be undertaken. Testing is encouraged as an effective means of refining collections of information to minimize burden and improve utility. Tests must be approved if they call for answers to identical questions from 10 or more respondents. A proposed test or set of test may be submitted for approval separately or in combination with the main collection of information.*

Please see the attached document entitled "NASA Explorer Schools Project Application" for details regarding the questions to be asked on the application. The actual NES Project Application will be reformatted for delivery as an online application.

*5. Provide the name and telephone number of individuals consulted on statistical aspects of the design and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.*

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