

# Education Asteroid Contest

## Welcome Teachers and Students!

## You are Planning a Mission to an Asteroid!

Past human space exploration has influenced the thinking of scientists, politicians, artists, and the general public and has led to new discoveries and products. Now, it is time to ask you – what must we need to consider to send a human crew on a mission to an asteroid?

This Spring, 2012, we invite students from across the nation to academically challenge themselves as they dive into the world of science, technology, engineering, and mathematics with the NASA Human Health and Performance Center Education Asteroid Contest. Prepare a presentation to NASA that outlines your mission plans for human crew to travel to an asteroid! Which asteroid should we visit? What is the mission goal? What challenges will you need to identify, and how will you solve the challenge?

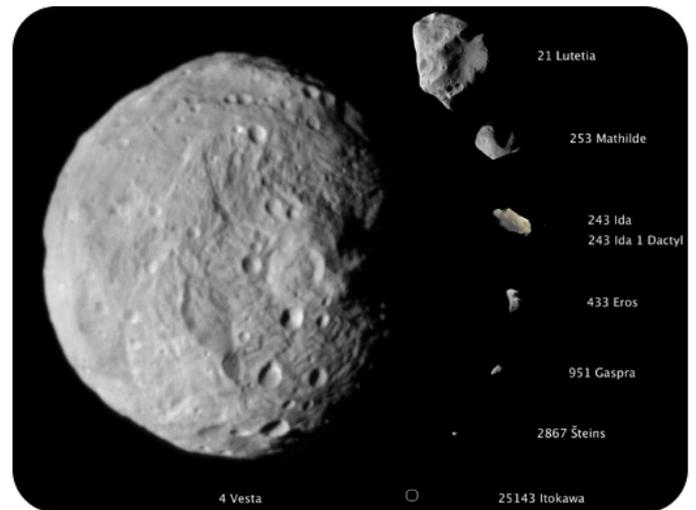
Winners of this Asteroid Contest will not receive prizes or monetary awards, but those who have displayed exemplary workmanship and creativity, will have the opportunity to have their presentation highlighted on the NASA Human Health and Performance Center website as well as receive a link to print out a personal NASA Human Health and Performance Center certificate. Such an honor can really help as you pursue your future educational goals.

NASA and other members of the NASA Human Health and Performance Center are collaborating to develop and conduct this educational contest for students that are in the 6th through 8th grades, approximately between the ages of 11 and 14, and are US citizens. Our goal is to engage more students in the fields of Science, Technology, Engineering, and Math and to stimulate students by providing an opportunity for them to explore and discover.

Please verify instructions on or after 2/20/2012 for final updates. No submissions will be accepted prior to 2/20/2012 nor after 3/30/2012.

[Guidelines](#)

[How to enter](#)



Comparative sizes of eight asteroids, courtesy of NASA

### About asteroids and human space flight

Participating NHHPC members include:

- [Clemson Human Factors Institute](#)
- [Committee for Action Program Services](#)
- [DLR Institute of Aerospace Medicine](#)
- [Exploration Architecture Corporation \(XArc\)](#)
- [Girlstart](#)
- [Lincoln Center Institute](#)
- [NASA Ames Research Center](#)
- [NASA Johnson Space Center](#)
- [National Space Biomedical Research Institute](#)
- [Orion's Quest](#)
- [SolaMed Solutions, LLC](#)
- [South Union Community Development Corporation](#)
- [Southwest Research Institute](#)
- [Space Center Houston](#)
- [Square One Education Network](#)
- [Universities Space Research Association](#)
- [Wyle Science Technology and Engineering](#)
- [Zoological Society of San Diego](#)

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# NHHPC Education Asteriod Contest

## Teams and Submission

Teams of students consisting of 1 to 4 students will submit a slide show presentation according to the guidelines listed below. To be eligible to participate the students must be enrolled in grades 6-8 and be US citizens. The final presentation must be submitted via email by March 30th, 2012 in order to participate in the Contest. The students must also submit a form signed by a parent or guardian releasing NASA Human Health and Performance Center members from liability and authorizing use of the material when the final project is submitted. To see the form, please see the section below, [How to Enter](#).

## Categories and Topics

Students must first choose two out of the four categories: Basic Needs, Behavioral and Psychological Support, Vehicle Habitability, and External Concerns. Then, the students must choose one topic from each of those two categories. The two topics that the students choose will become the focus of their research and the presentation of their proposal.

The categories and topics are:

<b>Basic Needs</b>	<b>Behavioral and Psychological Support</b>	<b>Vehicle Habitability</b>	<b>External Concerns</b>
Water	Family and friend contact	Sleeping accommodations	Radiation
Air	Media and multimedia access	Acoustic mitigation	Non-terrestrial sun exposure times
Food	Conflict resolution and teamwork	Temperature and humidity control	Gravitational effects
Clothes	Crew time protection	Spatial use and interference	Going outside of the capsule
Hygiene	External views	Excercise capabilities	

\*\*Note: The parameters for the vehicle are modeled after the Orion capsule. When choosing a category or topic, keep this in mind. Everything must be able to fit into this vehicle model. To see the specifications and get further information on the Orion capsule [visit the Orion NASA site](#).

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## Presentation Guidelines

The presentation should consist of 10 slides. The first slide should be an introduction slide. The second slide should state the purpose of the mission. There should be three slides dedicated to topic 1 and three slides dedicated to topic 2. There should also be a conclusion slide and a bibliography slide that contains the research sources. The presentation arrangement presented below is only a recommendation. Students should feel free to do something different if they feel that it is necessary.

### Slide 1. Introduction Slide containing

1. Students' first names only
2. School name
3. State (not city)
4. First and Last name of the Teacher or adult coordinating the activity
5. No other personal information (no last names, ages, grades, etc.)

### Slide 2. State the purpose of the Asteroid mission

Why do you want to go to an asteroid or send someone else?

### Slide 3 - 5. Investigation Topic 1:

What topic was chosen, why is it important? What are the challenges that need to be overcome? What are the proposed solutions to the challenges?

What else did you learn about this topic and its role in human exploration?

### Slide 6 - 8. Investigation Topic 2:

What topic was chosen, why is it important? What are the challenges that need to be overcome? What are the proposed solutions to the challenges? What else did you learn about this topic and its role in human exploration?

### Slide 9. Conclusions:

How do the two topics you or your team chose overlap? What are the conflicts? In what ways do they support each other? Are there any costs or time saving to one problem from solving the other?

### Slide 10. Bibliography:

If students are unfamiliar with how to complete the bibliography, please [learn about MLA format](#). No external links should be included in the slide show except for references in the bibliography.

The students may use the note section of each slide to provide written narration. The students may also choose to embed audio narration into each slide of their presentation. The narration on each slide may not exceed 150 words. Audio narration shall not exceed 30 seconds per slide.

The students should use their own judgment when picking the composition of the slide. The slides may contain text, visual aids, bulleted lists, etc. The goal of the presentation is for the students communicate their ideas to the judges clearly and effectively.

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## Judging Criteria

Judges will be instructed to award a maximum of 100 points to presentations based on the presentation's effective solutions to the challenges of achieving a crewed mission to an asteroid. The component point values will be composed of the following categories: use of STEM (science, math, engineering, or technology), references, clarity, creativity, and effective visual aids and format. Specific elements of each judging categories are as follows:

### 1. Use of Science, Math, Engineering and/or Technology (STEM) [20 points]

- Presentations should cite STEM facts, principles, and/or theories sufficient to support mission plans
- STEM content should be associated appropriately with main topics of slides.

### 2. References [20 points]

- References must be cited in a separate slide at the end of the presentation
- Reference sources should be of high quality
- MLA format should be used to site all sources

### 3. Clarity [20 points]

- There is a clear communication of ideas presented in each slide and narration
- There is a clear connection of ideas and themes across slides and narration, as appropriate to the selected topics.
- Ideas are presented in a concise and precise manner
- Grammatical errors and redundancy are avoided

### 4. Creativity [20 points]

- Solutions for identified challenges are imaginative
- Solutions are not superficial, but exemplify deeper level thinking
- Solutions, ideas and opinions across the presentation demonstrate originality

### 5. Visual Aids and Format [20 points]

- Well formatted slides
- Visual aids properly support important topics
- Slides are tasteful and aesthetically appealing

## Technical Constraints on Submissions

The total presentation file size, including embedded files, will be no greater than 8MB. File and image compression should be used when available. No external links should be included in the slide show except for references in the bibliography.

The acceptable presentation file extensions are

`*.ppt, *.pptx, and *.pps, *.pdf`

The submission will be created with one of the following software applications:

- Microsoft PowerPoint
- OpenOffice.org Impress
- Google Docs Presentation
- Apple Keynote

Multimedia files may be embedded into the presentation if they have extensions that are included in the following list:

- Video  
`*.avi, *.mpg, *.mov, *.wmv, *.fla, *.mp4, *.m4v, *.wma`
- Audio  
`*.mp3, *.wav, *.aac, *.ogg, *.mid`
- Photo  
`*.jpg, *.gif, *.png, *.tif`

Documents may have the following extensions:

`*.doc, *.pdf, *.docx, *.txt, *.rtf`

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# NHHPC Education Asteriod Contest

## How to Enter

Entry opens Feb 20, 2012; Closed March 30, 2012

### NASA Media Release for Parent and Minor Form

A parent or guardian must complete the NASA Media Release for Parent and Minor Form.

The parent or guardian is responsible for reviewing the Presentation Guidelines and Technical Constraints on Submissions with the participant(s).

The parent/guardian acknowledges that the submitted work is released of exclusive rights and released of liability and indemnity.

The parent/guardian gives permission to the Contest organizers to use all or part of the work, reproduce, prepare, derivative works, publish, distribute copies to the public, perform publicly, and display publicly the work, any accompanying participant's statement, and the student's name and age for all purposes deemed appropriate. Similarly, the organizers may distribute the work through a variety of media, including but not limited to print, television, websites, or any other means.

The parent/guardian also must agree that they will indemnify, defend and hold harmless the organizers of the Contest from all damages and liabilities incurred arising out of the content and matter contained in the work.

### Email Submission

Complete and then scan the signed NASA Media Release for Parent and Minor Form into a pdf file.

The participant(s) must attach all files to a single email addressed to the coordinating NHHPC partner's designated email account.

Put the words "Application Materials" in the Subject: field of the email and make sure that the From: field contains the same address as the corresponding address.

The attachments files must include the presentation file and the completed NASA Media Release for Parent and Minor Form for each team member. The presentation file may be no larger than 8 MB.

### Await Confirmation that Entry has been received

A Contest staff member will perform an initial audit of the files submitted for each presentation entry to verify that they meet the Contest guidelines. An email notification will be sent to the participant within five business days when all required items are received and it is confirmed that the entry is complete and ready for the judging phase of the Contest.

If the documents and files required for entry in the Contest must be mailed, the materials must be postmarked by the deadline date.

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