Generation Beyond Student Video Challenge Overview

THE CHALLENGE: Students will be challenged to design the Mars Base Camp Habitation module. Mars Base Camp Habitation module will orbit Mars and will be extremely complex. It will include multiple elements like propulsion and power generation systems, exploratory vehicles, the Habitation module, crew quarters, and a laboratory. The Habitation module, or "Hab," will provide all of the systems and living spaces that a crew needs for a long mission. **Your challenge is to design the Habitation Module for Mars Base Camp,** not the other systems that the crew needs to get to Mars.

THE MISSION: Middle school students (Individual and Teams up to 4) will present their Mars Base Camp Habitation module through a one- to two-minute video, which must include a visual representation of the habitation module.

MISSION SUPPORT: Vital information in the engineering checkpoints will help guide your design for the module that will be the astronauts' life support, office, and home-away-from-home. Visit each checkpoint to gain valuable information. Students can find the Challenge Checkpoints online at www.generationbeyondinschool.com/challenge

RULES FOR ENTRY: It's important to review all the rules, but here are a couple to be aware of:

- Your entry video must be longer than 60 seconds, but no longer than 120 seconds.
- YouTube links with the video's privacy settings set to "Unlisted" must be added to entry by **8PM on December 14, 2017** to be considered.
- Entry videos must **not contain any music or any third-party** images of any kind.
- Entries are accepted from individual students and from team of 4 or less students. Only one entry per person (Team Leader or Individual) are allowed.

JUDGING: A panel of qualified judges from Discovery Education, Lockheed Martin and its partner organizations, educators and science professionals will then score qualifying videos using the following judging criteria:

- Scientific knowledge (30%): Your video must demonstrate understanding of at least three requirements/constraints of life of a deep space mission and how the Habitation module addresses them. Make sure you address the following points in your video:
    - **How does your Hab take into account the fact that there is no "up" or "down" in space?** Do you use this to your advantage, or is it an obstacle that you have overcome?
    - Heat and fluids circulate differently in microgravity: the Hab module includes a galley, which will involve both heat and fluids. **How does your galley account for the changes in the behavior of heat and fluids brought on by microgravity**?

    - **The human body is greatly affected by microgravity**. What medical and exercise equipment will you provide for your astronauts? How will these items help keep astronauts safe and healthy? Keep in mind that in a medical emergency, it may be impossible to consult with Earth in real-time!
- Creativity of Habitation module (ingenuity and innovative thinking) (30%): your Hab must make an efficient use of limited space while still providing all of the safety measures required by spaceflight. Make sure that your video addresses the following topics:
    - You have had to include a lot of equipment, living and meeting space in a relatively small space. How did you make an effective use of space in your Hab module?
    - How did you provide space for a crew of 5 to relax on their off-time? What entertainment did you provide? How will they keep in touch with friends and family back home?
    - How did you ensure that your Habitat will remain safe in case of emergency? Remember, the communications delay means that immediate consultation with mission control may be impossible; the crew will be on their own.
    - Will it be easy for astronauts to move in and around the Hab, as well as through the Hab to get to other parts of the spacecraft?
- Effective communication (20%)
- Overall presentation (20%)

PRIZES: The Generation Beyond Student Video Challenge has some exciting prizes for winning "space case" video entries.

- Individual and Team Grand Prizes will be **awarded $10,000** and travel to a unique space experience (cash prize split between team members)
- Individual and Team Second Place will be awarded $5,000 (cash prize split between team members)
- Individual and Team Third Place will be awarded $2,500 (cash prize split between team members)
- Four Individual and Team Regional Prizes (one from each Region): a certificate of achievement and letter from Lockheed Martin CEO Marillyn Hewson.