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# NASA VIRTUAL STUDENT ENGINEERING COMPETITION ANNOUNCES WINNERS

Hampton, Va. -- The top six teams competing in the first "RealWorld-InWorld NASA Engineering Design Challenge" showcased their creative ideas for a panel of expert judges, fellow teams and others on April 14, 2011. The forum, held in a virtual online space, was the culmination for this year's "RealWorld-InWorld NASA Engineering Design Challenge."

The challenge gives high school students a unique opportunity to work with university students to solve authentic NASA-inspired, design-based engineering problems using 21st century technology tools and skills.

The National Institute of Aerospace (NIA), NASA's Goddard Space Flight Center in Greenbelt, Md., and NASA's Langley Research Center in Hampton, Va., collaborated with USA TODAY

Education in McLean, Va., and LearniT-TeachiT in Washington, D.C., to create and hold the RealWorld-InWorld Challenge.

During the RealWorld phase of the challenge, more than 150 high school students from around the United States used the engineering design process to develop possible solutions for problems related to the James Webb Space Telescope. Twenty teams from across the U.S. were selected to move to the InWorld phase which took place in a 3D multi-user virtual universe, developed by NIA. Each RealWorld team consisted of high school students led by engineering and information technology university students.

InWorld teams met, shared information about ways to improve components of the Webb telescope, and designed new sunshields and mirror assemblies all through online collaboration within their virtual team worlds. Teams also interacted with Webb telescope scientists and engineers during InWorld guest presentations.

"We wanted to do an engineering design challenge for the Webb telescope and Sharon Bowers, Educator in Residence with NIA came to us with RealWorld-InWorld," said Maggie Masetti, webmaster and social media lead for the Webb telescope at NASA Goddard. The Webb project was able to provide Ms. Bowers with support and access to our scientists and engineers, some of whom were guest speakers InWorld. The ability to use technology to connect students and professionals who are miles apart is fantastic."

An expert panel comprised of graduate engineering students, educators, and Webb researchers, judged the results and selected the winning teams. First place was awarded to high school students Jill Freise, Matthew Roth, and Adrianna Cooke from Lutheran South Academy high school in Houston, Texas,

and their college team leader, Nam Troung, from the University of South Florida.

"This was an excellent opportunity for us, engineering students, to work on a real life engineering design challenge," said Nam Troung. "Being a part of the 'RealWorld-InWorld Challenge' gave us knowledge from working with the new technologies and other team members, a boost in self confidence, winning prizes, and the experience of being part of something big and important such as the Webb telescope."

Other finalists include students from a physics class at Troy High School in Troy, Mich., a team from Richland Senior High School in Johnstown, Pa., and three teams of students from the NASA INSPIRE Online Learning Communities. INSPIRE is a NASA initiative that provides educational activities, resources, and collaborative tools for high school students interested in pursuing STEM careers. Team leaders for these teams were from Georgia Tech, University of Alabama at Huntsville, University of Virginia, Washington State University, and Ripon College.

Each student on the winning team was awarded $1000 and an iPad 2. The second place team members received a $100 gift certificate.  All participants received a certificate of participation and a letter praising their successes in the Challenge.

The James Webb Space Telescope is NASA's next-generation space observatory and successor to the Hubble Space Telescope. The most powerful space telescope ever built, Webb will observe the first stars and galaxies ever formed and see planets around distant stars. The Webb telescope is a joint project of NASA, the European Space Agency and the Canadian Space Agency.

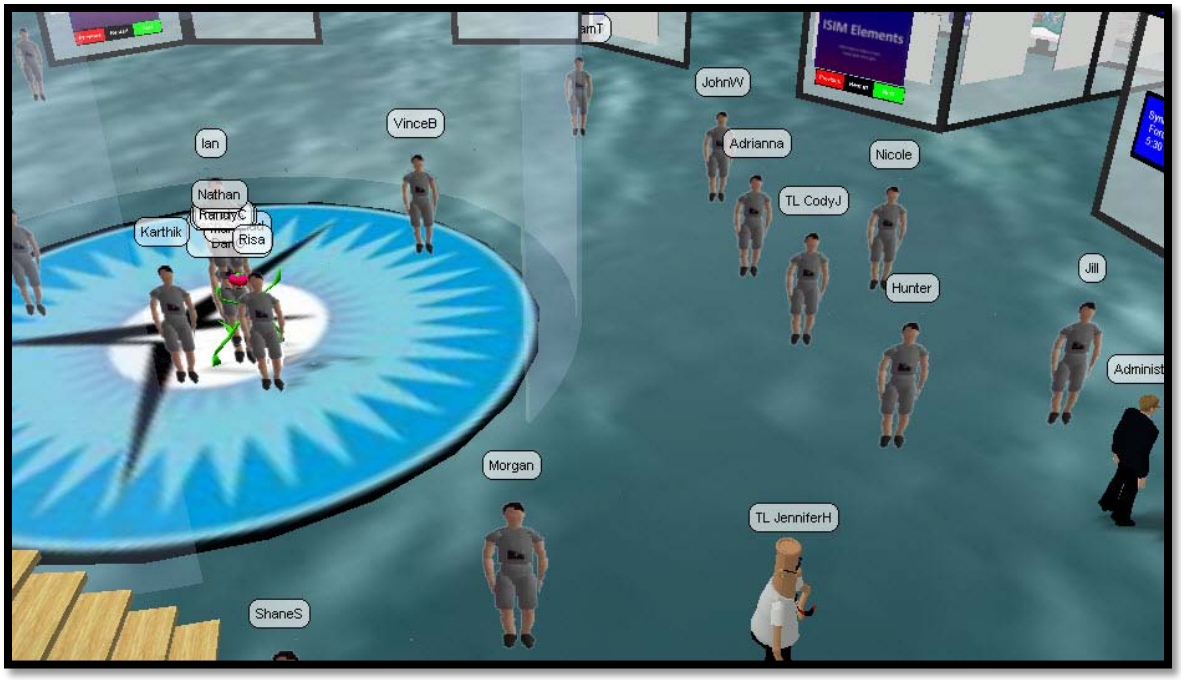
For related images to this story, visit:
http://www.nasa.gov/topics/nasalife/features/realworld-design-

chal.html

For more information about the RealWorld-InWorld Project, visit:
www.nasarealworldinworld.org

For more information about the National Institute of Aerospace, visit:
www.nianet.org

For more information about the James Webb Space Telescope, visit:
www.jwst.nasa.gov




The lobby, or “public space” of the NIA Universe browser, in which phase II of the RealWorld-InWorld Challenge occurred.


Inside an individual team space – teams spaces are designed and customized by team members.


A crowd gathers inside the public space in the NIA Universe Browser


Inside another teams individual team space. The exhibits refer to different collections of data that support the teams individual solution strategy.


Another individual team space, this time complete with trees and a view of the stars.

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**To see footage of the top two teams recorded at the Synchronous Forum, visit the links below:**

Team 5 http://vimeo.com/22711875

Team 18 http://vimeo.com/22712217

## The Challenge:

### The Challenges of Space in the RealWorld and InWorld:

The RealWorld-InWorld NASA Engineering Design Challenge encourages students in grades 9-12 to explore and build skills essential for successful careers in science, technology, engineering, and math (STEM) through two phases of project-based learning and team competition.

### Phase 1:

The Challenge tasks high school aged students with developing comprehensive conceptual engineering design solutions to real-world problems regarding the James Webb Space Telescope.

In Phase 1 teachers and coaches organize teams of high school aged students to develop comprehensive conceptual engineering design solutions to one of two design dilemmas faced by the James Webb Space Telescope. These dilemmas include:

- How can you design a shield to protect the Webb telescope?
- How can you deliver the Webb telescope to space using existing rocket technology?

At the end of phase 1, teams submit a final project solution, which determines their entry into phase 2 of the competition.

Teams interested in moving to Phase 2 completed Phase 1 by January 15, 2011.

### Phase 2:

In Phase 2 teams move entirely InWorld, a second-life-like environment, in which students, now lead by college student team leaders, “build” out their own unique virtual spaces. InWorld they interactively collaborate through text and voice chat, videos, images, graphics, and more. The experience not only gives them a multi-media platform in which to collaborate, but also experience with virtual environments – both interacting within them and constructing them.

Throughout phase 2 engineers actively working on the Webb Telescope met students InWorld for live guest speaker events. These events provided unparalleled access to some of NASA's foremost minds in an environment that's casual and egalitarian. InWorld everyone has a voice and is able to pose questions freely – providing the participants with a unique opportunity to gain advice and insight from today’s leaders of innovation.

### InWorld:

The virtual environment, NIA Universe, is within an ActiveWorlds platform. Each

participating team has their own Team World within NIA Universe. These spaces are built to reflect each team's understanding of the James Webb Space Telescope mission and unique design solutions.

InWorld team spaces enable the student teams to use 21st century tools for collaboration. Teams learn, synthesize and create through text, graphics, images, video and 3D models.

The 2010-2011 Challenge represents the program's inaugural year. The topic of next years RealWorld-InWorld will be Robonaut.

**James Webb Space Telescope:**
Set to launch in 2014, the James Webb Space Telescope is a collaborative initiative between NASA the European Space Agency (ESA), and the Canadian Space Agency (CSA). It represents the future in space telescope engineering and will be able to look further back in time with more clarity and precision than the Hubble Space Telescope.

The Webb telescope has four science themes: The End of the Dark Ages: First Light and Reionization; The Assembly of Galaxies; The Birth of Stars and Protoplanetary Systems; and Planetary Systems and the Origins of Life.

A number of innovative technologies have developed solely for the Webb Telescope. A sunshield made of flexible dielectric kapton will maintain cryogenic temperatures for the telescope's infrared cameras.

For more information about JWST please visit its home on the web.

**RealWorld-InWorld NASA Engineering Design Challenge Program Background:**
RealWorld-InWorld is a joint education initiative of the NASA Langley Research Center and the NASA Goddard Space Flight Center in collaboration with the National Institute of Aerospace (NIA), USA TODAY Education, and LearniT-TeachiT.

The Challenges main goal is to encourage high school students to explore and build skills essential for successful careers in science, technology, engineering, and math (STEM). By later working collaboratively with university students, engineering professionals, and Webb Telescope engineers, students will also deepen their understanding of project management and NASA innovation.

## Program Summary for Year 2

**www.nasarealworldinworld.org**

"Solving the Challenges of Space in the RealWorld and InWorld"

The RealWorld-InWorld (RWIW) NASA Engineering Design Challenge is a unique education initiative that targets students in grades 7-12 (ages 13-18). It encourages them to explore and to build skills essential for successful careers in Science, Technology, Engineering, and Math (STEM) through two phases of project-based learning and team competition. RWIW is aligned with national standards.

**RealWorld—Phase 1**: Teams of middle- and high-school-aged students and teachers/coaches work collaboratively as engineers and scientists to brainstorm, design, build, test, and share ideas to solve one of two real-world NASA challenges. This year, one problem relates to the James Webb Space Telescope and the second focuses on Robonaut 2. NASA scientists and engineers will visit and "chat" with RealWorld teams in the NIA Universe, the virtual world setting for the InWorld phase of the Challenge.

The RealWorld phase of the Challenge concludes **by January 27, 2012.** All teams (participants) will receive recognition for their work once they complete the RealWorld Challenge and InWorld registration. Beginning in late September, teachers who register their teams will have their names entered into a monthly drawing for $100 gift certificates.

Moving to the InWorld phase requires selection by college team leaders and is limited to U.S. citizens. The process is supervised by NIA.

**InWorld—Phase 2**: Teams who complete the RealWorld phase may be considered to move InWorld to refine their designs in a 3D virtual environment. Participating college students select from registered teams to build their InWorld teams. Each newly formed team will be given their own virtual world where they will use 21st Century tools to refine designs and to create 3D models of the design solutions. NASA engineers will visit and "chat" with students throughout the InWorld phase of the Challenge.

Explore the resources for this **free** and **flexible** project and learn how it can challenge you and your students while meeting and expanding their educational needs. Register for **free** online resources: www.nasarealworldinworld.org.

### RealWorld-InWorld NASA Engineering Design Challenge Partners

RealWorld-InWorld is a joint education initiative of the National Aeronautics and Space Administration (NASA), the National Institute of Aerospace (NIA), USA TODAY Education, and LearniT-TeachiT. The RealWorld-InWorld NASA Engineering Design Challenge builds on the successful SIGHT/INSIGHT and No Boundaries design challenges developed by USA TODAY and NASA and the Virtual Exploration Sustainability Challenge (VESC) developed by NIA and NASA. Both educational initiatives were based upon NASA themes and content for students in grades 9-12. They enhance students' skills, proficiency, and interest in problem-solving and careers in Science, Technology, Engineering, and Math (STEM). RealWorld-InWorld registration and resources are available at www.nasarealworldinworld.org.