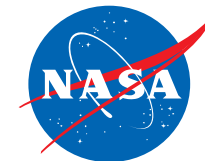


NASA Digital Learning Network™

April 30, 2007

Presented to: VA General Assembly: **Joint Commission on Technology and Science's**
Presented by: **Dr. Robert M. Starr, DLN Project Manager**



•A Very Brief History – BC

Before Connectivity

•Johnson Space Center

- Distance Learning Outpost
- ISS Virtual Tours

•Glenn Research Center

- Virtual Visits
- Learning Technologies

•Langley Research Center

- Center for Distance Learning
- NASA LIVE

•The Bright Idea (Duh?)

- Spring 2003 – Shelley Canright/Phil West/ Bob Starr
- University of Texas at El Paso
- The Digital Learning Network was Born – Spring 2003

•A Very Brief History – AD

After Decision

•JSC/GRC/LaRC Designated Hubs

- UTEP Digital Media Lab – Website Development
- NES affiliation

•dPals

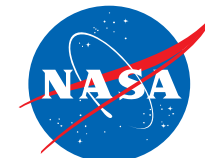
- JSC – Jet Propulsion Lab, Dryden, Kennedy
- GRC – Ames, Stennis
- LaRC – Marshall, Goddard

•Training/Orientation

- AESP staff trained at LaRC
- NES staff trained at HQ
- NES Teams trained at summer orientation workshops

•Completion of Infrastructure

- 2004-2007
- Stennis – last connection



•DLN / NES Relationship

•10 DLN Coordinators / 10 NES Coordinators

- Other DLN staff: 4 at JSC, 4 at LaRC, 1 at GRC, 1 at GSFC

•Requests for Services

- NASA Digital Learning Network™ Registration, Scheduling, Event Catalog Web Site:

<http://nasadln.nmsu.edu/dln>

The screenshot shows the NASA Digital Learning Network (DLN) homepage. At the top, there's a NASA logo and the text "NASA EDUCATION". Below this, a navigation bar includes links like "ABOUT US", "EDUCATION CALENDAR", "NASA EDUCATION OFFICES", and "NASA EDUCATION PROGRAMS". The main header features the "NASA Digital Learning Network™" logo and a tagline: "NASA Centers: Ames, Dryden, Glenn, Goddard, Jet Propulsion Lab, Johnson, Kennedy, Langley, Marshall, Stennis". A large banner image shows a group of people in a control room with the text "Distance Learning as only NASA can do it".

On the left side, there's a sidebar with a "DIGITAL LEARNING NETWORK™ (DLN)" section. Below it, a list of links includes: "ABOUT THE DLN", "EVENT CATALOG", "EVENT GUIDELINES", "WEBCAST EVENTS", "TECHNICAL FAQ", "PODCASTS", "TOOLS & PLUGINS", "LOGIN (REGISTERED USERS)", "NEW USER REGISTRATION", "CONTACT US", and "FEEDBACK FORMS".

The main content area has a "Welcome to the Digital Learning Network" message. It states: "The goal of NASA's Digital Learning Network™ is to enhance NASA's capability to deliver content by linking customers with one or more NASA Centers in an integrated fashion. The coordinated digital learning network will let us better leverage NASA's unique content, facilities and personnel so that we can provide students and educators at the precollege and university levels across the Nation and around the world with a unique experience. Learners at all levels have the opportunity to interact directly with NASA scientists to gain appreciation for the importance of science and education."

Below this, there's a "Featured Events" section with a link to "View Our Full Catalog of Events". It lists several events with icons and brief descriptions:

- SPECIAL WEBCAST: Relay Rally for STS-118 flight of the Space Shuttle Endeavour - 4/19 and 20** - View Details, Webcast URL
- The Space Shuttle** - View Details, Register
- Reduced Gravity: Effects on Human Body** - View Details, Register
- Planet Hopping: Exploring the solar system with mathematics** - View Details, Register
- Living and Working in Space: NASA's Return to the Moon** - View Details, Register

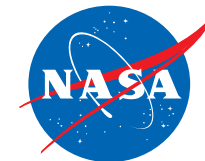
<http://nasadln.nmsu.edu/dln/admin>

The screenshot shows the administrative interface of the NASA Digital Learning Network (DLN). At the top, there's a header with the "NASA: DIGITAL LEARNING NETWORK SCHEDULING SYSTEM" title and a navigation bar with links like "Home", "Events", "Calendar", "DLN Catalog", "Users", "Organizations", "Media Folders", "Communication", and "Reports".

Below the header, there's a "System Shortcuts" section with icons for "Update Header", "Submit Monthly Activity Report", "Reports", "Add Items", "Today's Events", "File Upload", "Add Catalog", "Calendar", "New Event", "NES Module", and "Users".

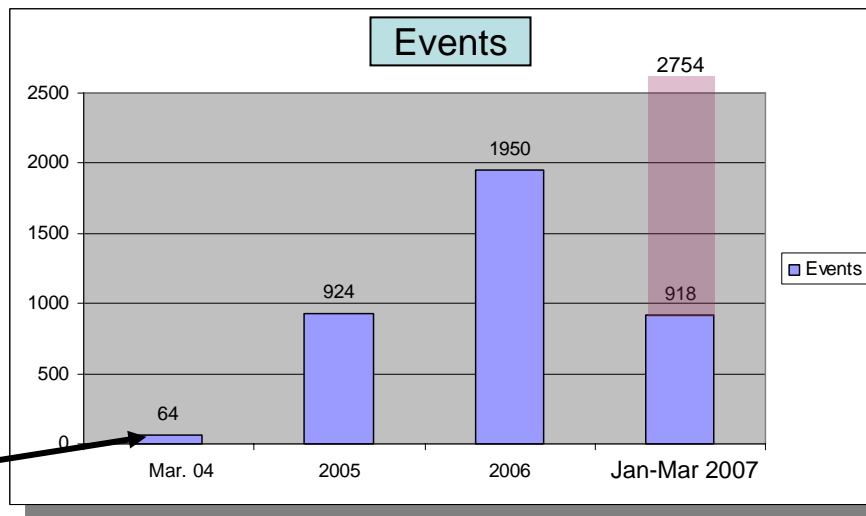
The main content area is divided into several sections:

- Find Event**: A search bar with "Event ID:" and a "Go" button.
- DLN News**: A section with a "Add News" button and a list of news items, including "APR 04, 2007 - Bob Starr: RELAY RALLY Announcements" and "APR 19, 2007 - Bob Starr: STS-118 PowerPoint Loop now available in RELAYRALLY folder".
- DLN Monthly Activity Report**: A section showing "Today is: Apr 18, 2007" and "Reports for April 2007 (breakout page)". It includes links for "View", "Update", "Compile Report for April", and "View Report for April".
- New Received Events**: A table listing event requests with columns for "Event Request Info", "Request By", and "Action". It shows several events with details like "Event ID", "Event Name", "For Dates", "For Dates", "Registered on", and "Request By".
- Latest File Uploads**: A section showing a list of uploaded files, including "America'sSpacePortEducatorsGuide.pdf", "NASA presentation.pdf", "NASAAdmissionCards.pdf", "PublicAffairsGSC.pdf", and "DLN-C-Inst".

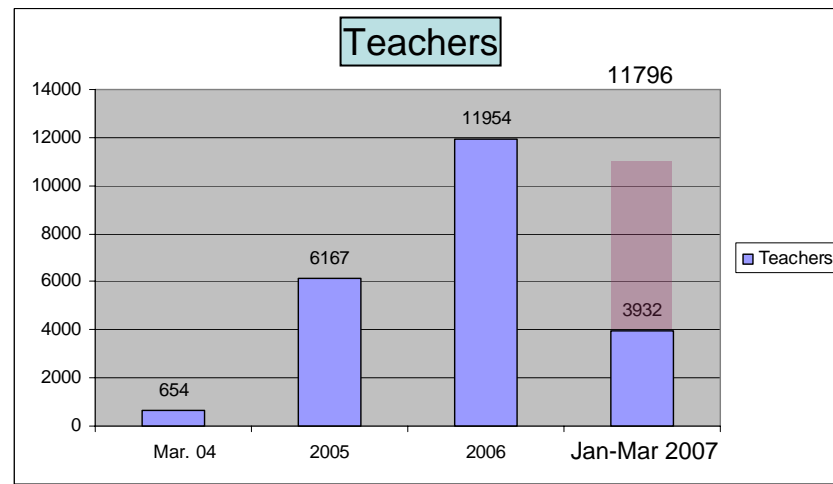
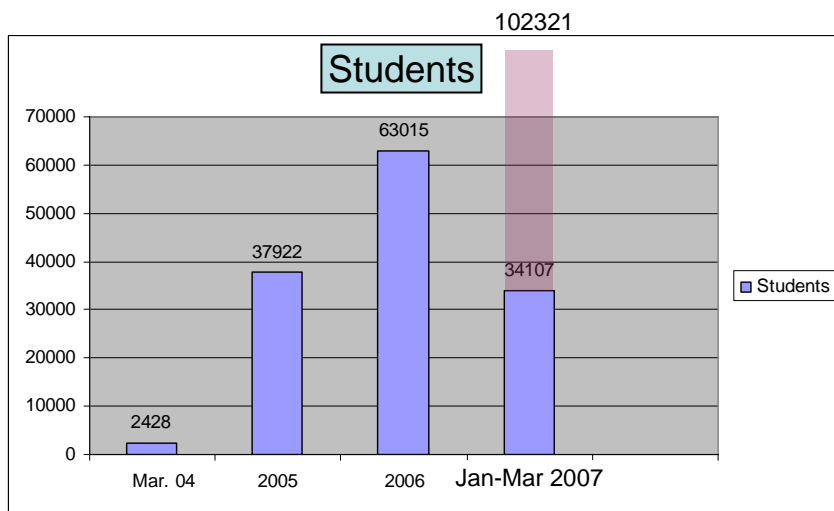


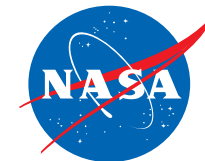
•Supply & Demand

Database
Became
Operational

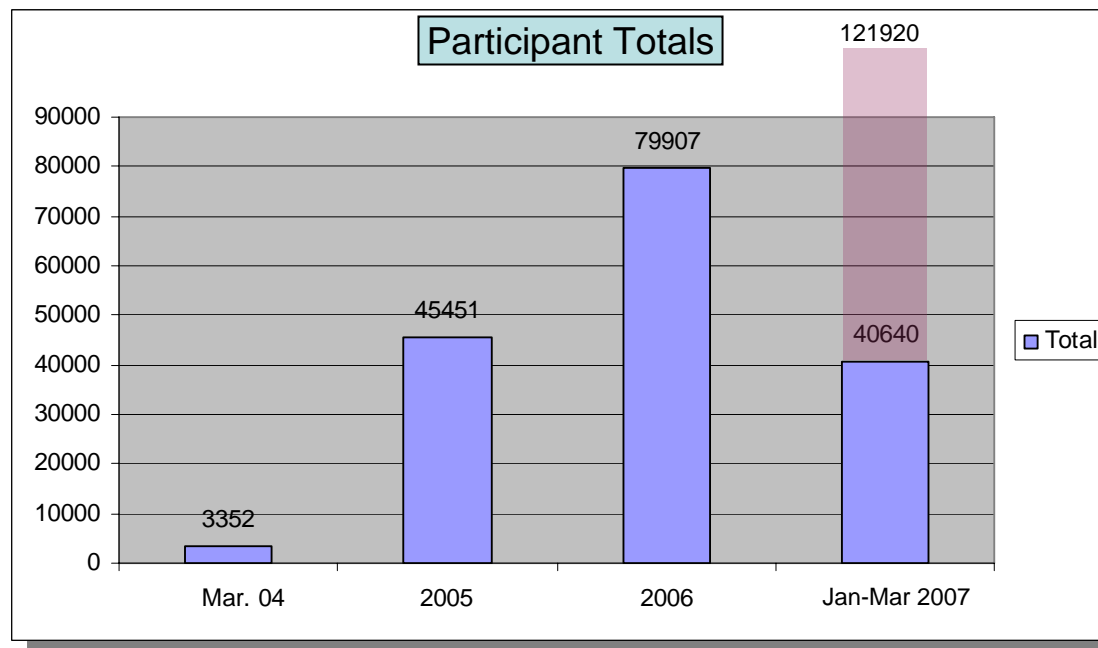
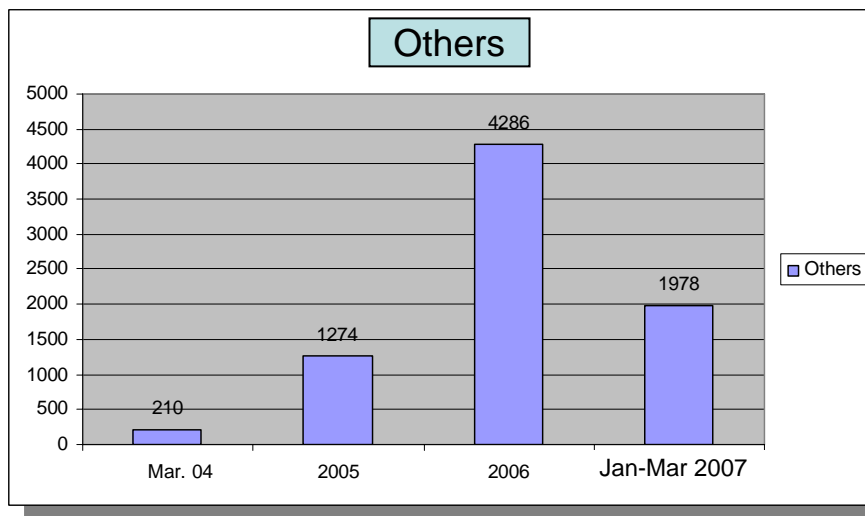


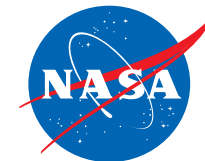
2007
Projection



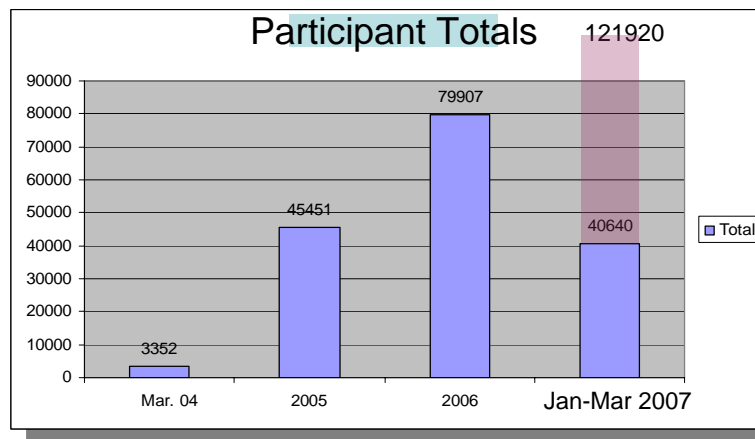


•Supply & Demand





•Supply & Demand



Excerpted from NASA 2005 Appropriations Bill

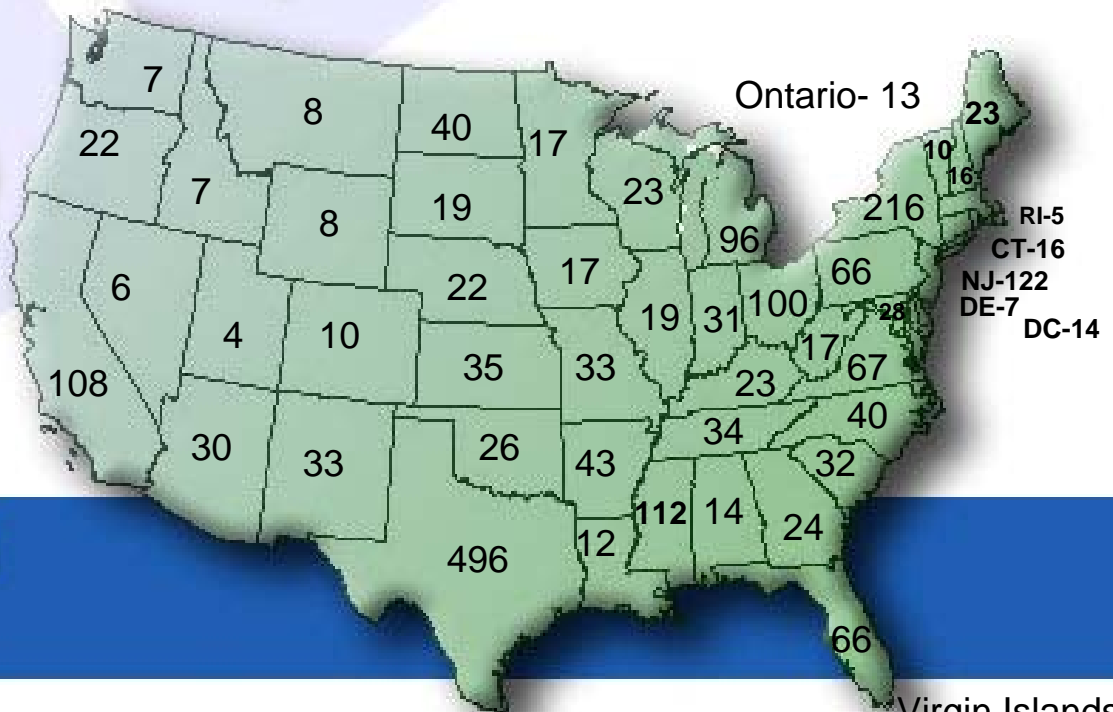
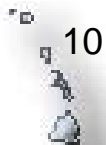
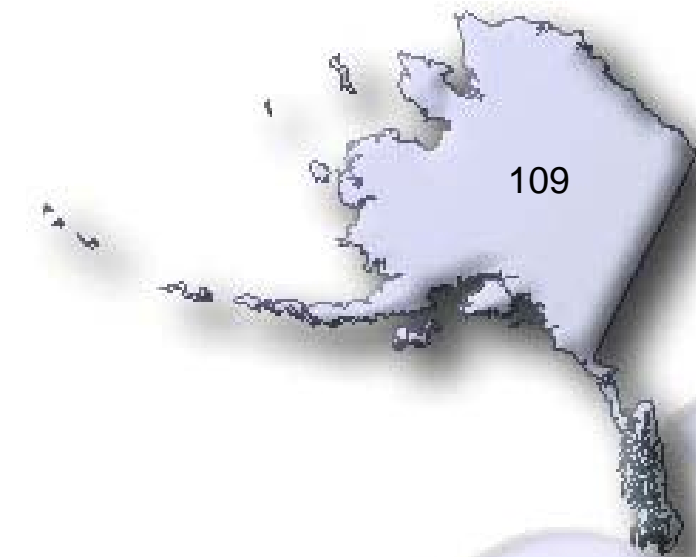
SEC. 612. PROGRAM TO EXPAND DISTANCE LEARNING IN RURAL UNDERSERVED AREAS.

(a) In General- The Administrator shall **develop or expand programs to extend science and space educational outreach to rural communities and schools through video conferencing**, interpretive exhibits, teacher education, classroom presentations, and student field trips.

(b) Priorities- In carrying out subsection (a), the Administrator shall give priority to existing programs--

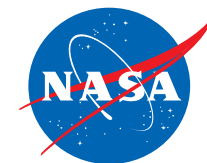
- (1) that utilize community-based partnerships in the field;
- (2) **that build and maintain video conference and exhibit capacity;**
- (3) that travel directly to rural communities and serve low-income populations; and
- (4) **with a special emphasis on increasing the number of women and minorities in the science and engineering professions.**

**Total Registered
Users: 2,464**



Mexico-3, Other Foreign-69

Virgin Islands-7
Puerto Rico-8



Total Registered Users: 2,464

School Demographic Information Overview

Urban Schools: **413**

Suburban: **521**

Rural: **385**

Title 1: **208**

Magnet: **74**

Military: **20**

Charters: **21**

Homeschools: **47**

Historically Black Institutions: **33**

Hispanic Serving Institutions: **106**

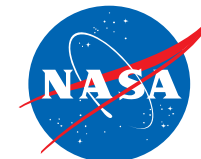
Native American Institutions: **24**

Institution Serving Primarily Women: **11**

Institution Designated as Primarily Serving Persons
with Disabilities: **9**

Other Minority Institutions: **15**

Other: **166**



DLN Components

- Content Modules

10 Most Requested in 2007

- #1. Our Solar Neighborhood (72)
- #2. Spacebots (52)
- #3. America's Spaceport (46)
- #4. Can a Shoebox Fly Challenge (38)
- #5. Our Planet Earth (36)
- #6. Planet Hopping: Exploring the solar system with mathematics (34)
- #7. DLN Overview (31)
- #8. Earth According to WOF (28)
- #9. Our Magnificent Sun (26)
- #10. Reduced Gravity (25)

NASA EDUCATION

[+ NASA Home](#)
[+ NASA Education](#)

[+ ABOUT US](#)
[+ EDUCATION CALENDAR](#)
[+ NASA EDUCATION OFFICES](#)
[+ NASA EDUCATION PROGRAMS](#)

NASA Digital Learning Network™

NASA Centers: Ames, Dryden, Glenn, Goddard, Jet Propulsion Lab, Johnson, Kennedy, Langley, Marshall, Stennis

[+ NASA Home](#)
[+ NASA Education Home](#)

DIGITAL LEARNING NETWORK™ (DLN)

- + DLN HOME
- + ABOUT THE DLN
- + EVENT CATALOG
- + EVENT GUIDELINES
- + WEBCAST EVENTS
- + TECHNICAL FAQ
- + PODCASTS
- + TOOLS & PLUGINS
- + LOGIN (REGISTERED USERS)
- + NEW USER REGISTRATION
- + CONTACT US
- + FEEDBACK FORMS

Event Details

12/07/2006

[<<Back to Catalog](#)
[+ REGISTRATION](#)

Reduced Gravity: Effects on the Human Body

Target Audience: Students

Grade Level: 4,5,6,7,8,9

Event Focus: What are the effects of long-term exposure to a reduced gravity environment on the human body?

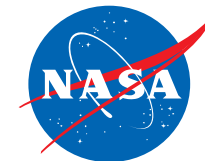
Description: Long term exposure to a reduced gravity environment can affect the human body. During the event, students will develop an understanding of reduced gravity environments and why research and countermeasures are needed for human exploration of space. Join the event to visit NASA centers and learn about their unique facilities where reduced gravity experiments are conducted!

Instructional Objectives:

- Students will demonstrate an understanding of a reduced gravity environment and explain why research and countermeasures are needed for human exploration of space.
- Students will make predictions and observe the effects of reduced gravity on the human body.

[Email to Friend](#)

[Lesson Plan/Activities: Download/View Here K-4](#)



DLN Components

- Professional Development

NASA Digital Learning Network™

NASA Centers: Ames, Dryden, Glenn, Goddard, Jet Propulsion Lab, Johnson, Kennedy, Langley, Marshall, Stennis

Distance Learning
as only NASA can...

- + NASA Home
- + NASA Education Home

DIGITAL LEARNING NETWORK™ (DLN)

- + DLN HOME
- + ABOUT THE DLN
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- + CONTACT US
- + FEEDBACK FORMS

Catalog of Events (Special Categories)

07/22/2006

<<Back

Professional Development for Teachers: Educator Astronaut Flight and Mission (STS-118 Overview)
Grade Levels: K-4,5-8,9-12,Post Secondary
[+View Details](#)
[+Register](#)

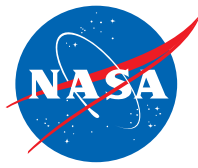
DLN Overview & Program Showcase
Grade Levels: K-12
[+View Details](#)
[+Register](#)

DLN Overview (NASA Langley Events)
Grade Levels: K-12
[+View Details](#)
[+Register](#)

Living and Working in Space: NASA's Return to the Moon
Grade Levels: K-12
[+View Details](#)
[+Register](#)

Professional Development: NASA/Jamestown Module - Exploration :Then and Now
Grade Levels: K-4,5-8,9-12
[+View Details](#)
[+Register](#)

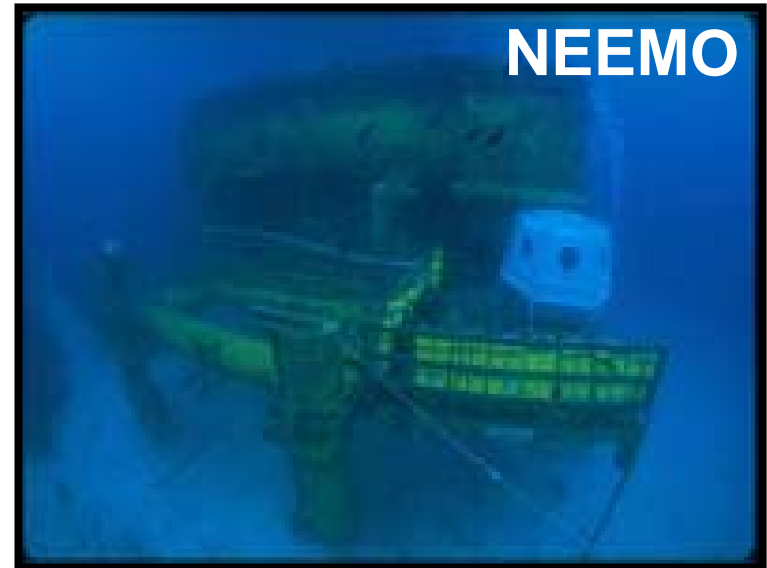
Videoconferencing FUNDamentals (EDUCATORS)
Grade Levels: 5-8,9-12
[+View Details](#)
[+Register](#)



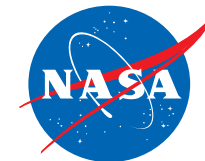
DLN Components

- Special Events

The NEEMO missions are a cooperative project of NASA, the National Oceanic and Atmospheric Administration (NOAA), the National Undersea Research Center (NURC) and the University of North Carolina at Wilmington (UNCW). They use Aquarius, the only undersea research laboratory in the world, which is owned by NOAA and managed by UNCW. The 14-meter-long (45 feet) by 4-meter-diameter (13 feet) underwater home and laboratory operates 4.5 kilometers (3 miles) off Key Largo in the Florida Keys National Marine Sanctuary.



Students interact with NASA's Desert Research and Technology Studies (RATS) teams while they are field testing a variety of spacesuits, field assistant vehicles, and other scientific and engineering equipment designed to support future space and planetary exploration

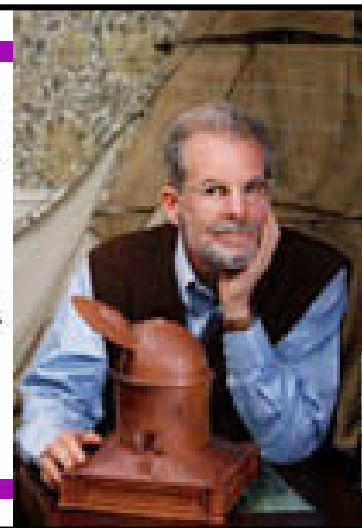


DLN Components

- Special Events

These distance learning events provided an opportunity for language arts and science teachers to work together to challenge their students to combine science and imagination as they created stories of their own. Through three 60-minute web casts, two for students and one for teachers, participants saw Author/Artist Chris Van Allsburg and NASA Scientist Jennifer Keyes sharing their thoughts about imagination in art and exploration. Selected NASA Explorer Schools participated via videoconference.

Join us on Nov. 16
for a Live Webcast
that features a
conversation
between
Author/Artist Chris
Van Allsburg and
NASA Scientist
Jennifer Keyes.



NASA Digital Learning Network - Educator Astronaut RELAY RALLY WEBCAST

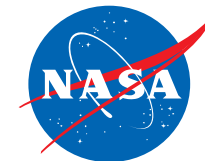
**April 19th and 20th
11:00-12:30 Eastern Time
LIVE FROM NASA FIELD CENTERS**



STS-118

DLN Relay Rally





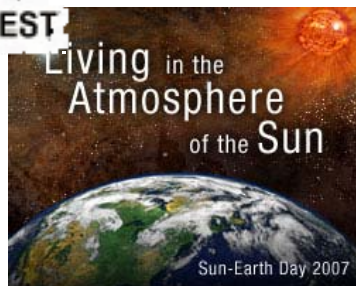
DLN Components

- Special Events

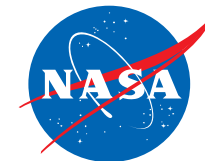
NASA Explorer School **Family Night**



January 17
Student Dust Collector
Press Conference
WEBCAST - 9AM EST

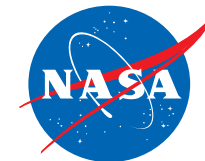


In June 2006, 7 NES teachers worked with NASA scientists in the Atacama Desert, Chile to study how organisms can exist in extreme climates. While in the desert, the teachers participated in a videoconference back to their classrooms to share their experiences with their students. This broadcast was live from the middle of the desert and set via a portable videoconference unit and satellite dish back to the DLN studio at NASA Ames Research Center.

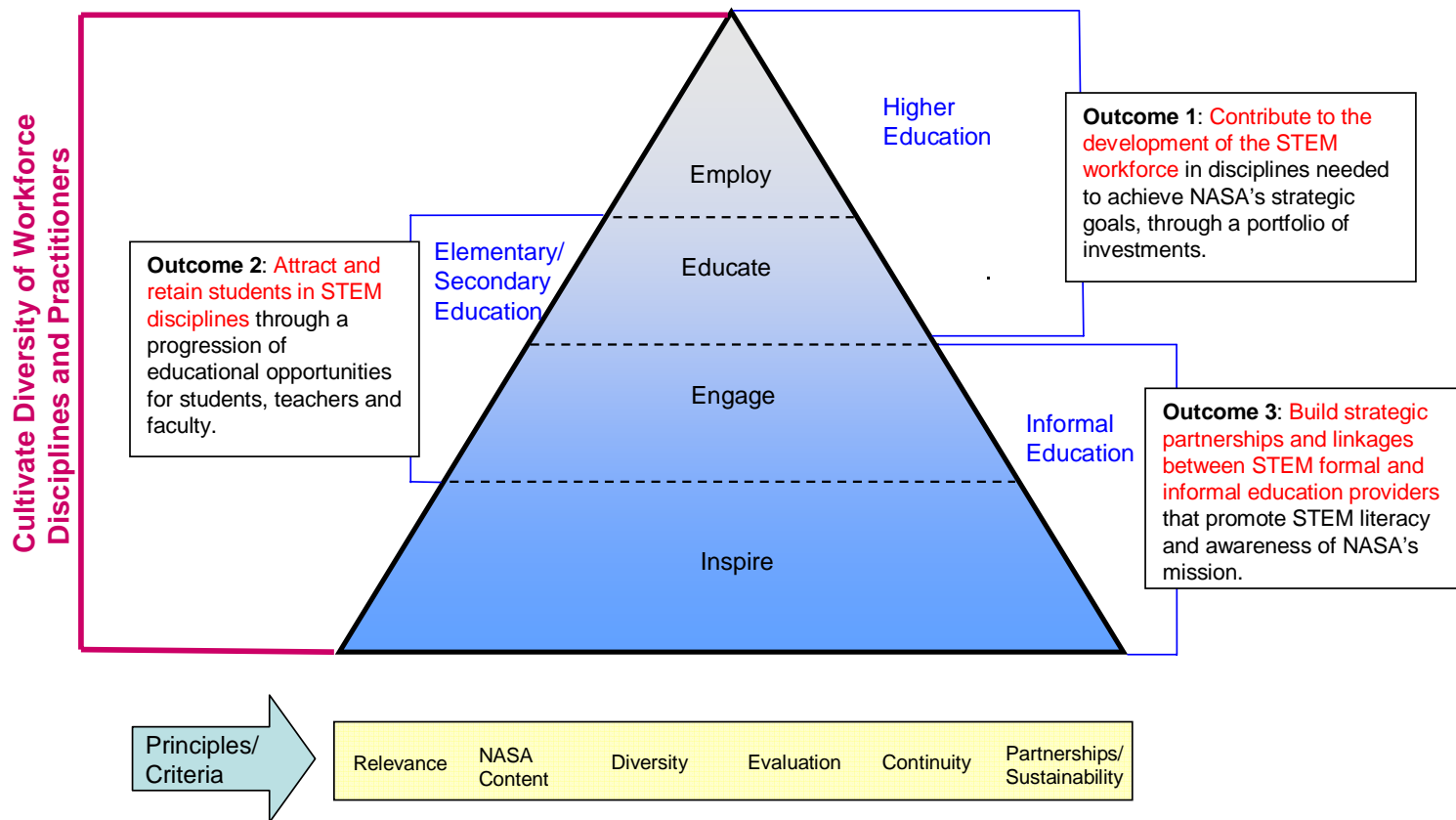


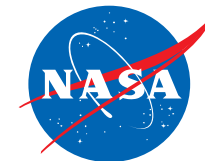
NASA Education Outcomes

- **The DLN is an INFRASTRUCTURE Using Delivery Technologies (Videoconferencing, Web Casting, etc.)**
- **Reaching students and educators wherever they may reside on the NASA Education Strategic Framework Pyramid**
- **Outcomes are determined by whomever uses the structure and its capabilities to reach particular audiences.**
- **Like other NASA Education INFRASTRUCTURES (NETS/Portal, CORE, ERC, AESP) it is a service organization providing cost efficiencies, cross-cutting collaborations, and intra-center communications.**



NASA Education Outcomes



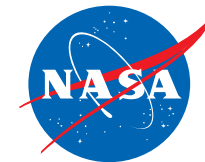


Outcomes

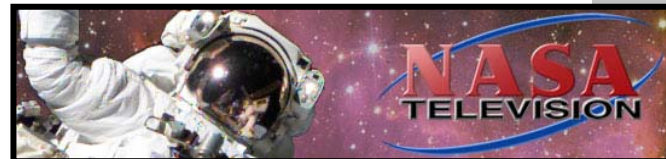
Impact Measurement

NEEIS DLN Educator Summary Report (n=355) – Jan. 1, 2004 - Apr. 26, 2007

Statement	Average Rating
PROGRAM VALUE:	
1. This visit with NASA was a valuable experience.	4.75
2. This program helped the students better understand careers in science, mathematics, engineering, geography, and/or technology.	4.52
PROGRAM RESOURCES AND TOOLS:	
1. The PRE-conference activity helped prepare students for the videoconference.	4.15
2. The PRE-conference activity was appropriate for the students' grade level.	4.16
3. The POST-conference activity was interesting and challenging.	4.12
4. The POST-conference activity was appropriate for the students' grade level.	4.15
PRESENTATION:	
1. The program was well organized.	4.78
2. The presenter maintained a high level of interaction with the students.	4.76
3. Overall, I was satisfied with the quality of the job done by the presenter.	4.79
4. I was satisfied with the content of the program.	4.74
5. Media and instructional aids enhanced the learning experience.	4.73



More to come...



The NASA TV / DLN Connection

Cell Phone Videoconferencing



Web-cam



3-D Immersive Chat Rooms



HD Videoconferencing



*Holographic Videoconferencing
(Telepresence)*





Delivering Interactive Instruction in support of
Long-term retention of knowledge
as only
NASA can...

