

NASA's BEST Activities

Beginning Engineering, Science and Technology

Curriculum for Engineering Clubs for Grades K-2, 3-5 & 6-8

Electronic Professional Development Series

Session 4

<http://userpages.umbc.edu/~hoban/BEST>

Delivered by Brittany Hamolia

University of Maryland, Baltimore County

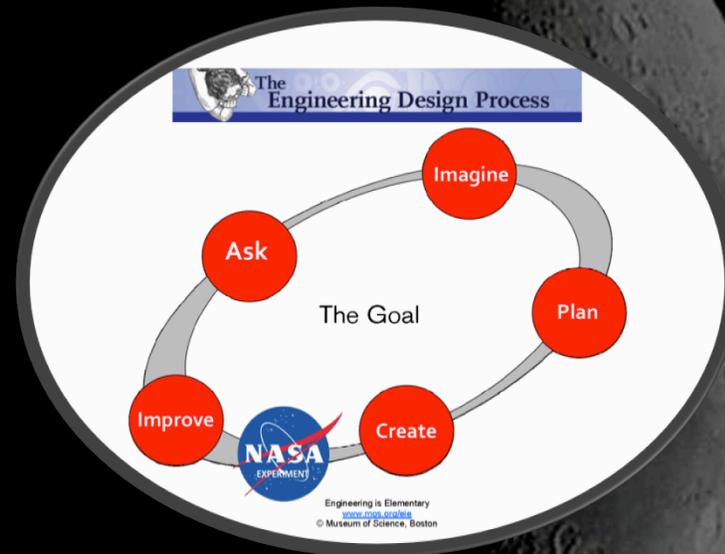


Supported through NASA Exploration Systems Mission Directorate

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Today's Session

- Review of last session
 - EDP: Create
 - EDP: Experiment
- The circle completes:
 - EDP Step 7: Improve
- For those with more time
 - Quality Assurance
- Keeping the fire burning
 - Fun with Engineering at Home



Materials required for today's session may be found on the web at
<http://userpages.umbc.edu/~hoban/BEST>



Review: Create

- Help them think about potential solutions rather than pointing them toward a particular solution
 - Let them make mistakes...for learning's sake

“ I've missed more than 9000 shots in my career. I've lost almost 300 games. 26 times, I've been trusted to take the game winning shot and missed. I've failed over and over and over again in my life. And that is why I succeed. “

- Michael Jordan



Experiment

Trial 1

Trial 2

Name	Straw Length	Distance Traveled	Straw Length	Distance Traveled

- What was the effect of changing the length of the straw on the performance of the balloon rocket?
- Is the experiment repeatable?



Engineering Design Process: Improve

- Put the results from the Experiment phase to work!
- EDP Video: Improve

http://userpages.umbc.edu/~hoban/ePD/videos/7-improve_caption.mov



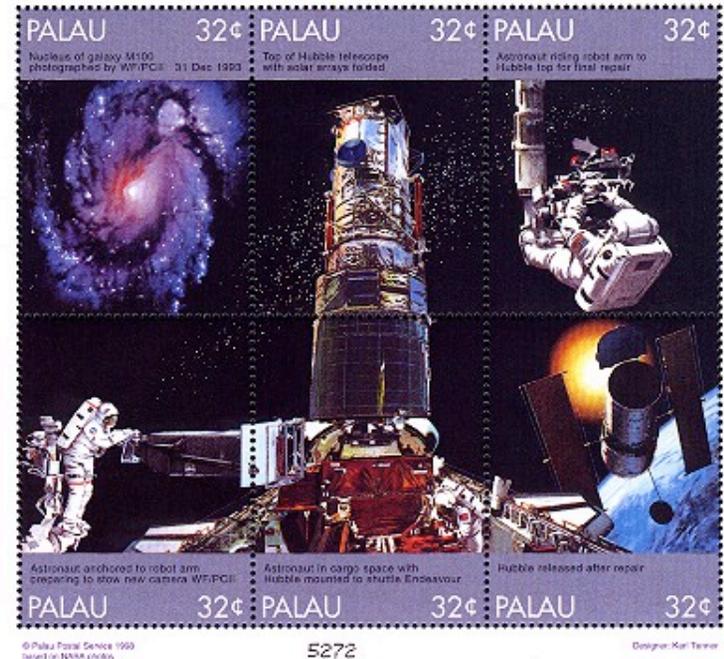
For those with a little more time...

- Can you name one of the largest SNAFUs in NASA history?
 - What happened?
 - More importantly, why?
 - See the following website for more information:

New Glasses for Hubble Space Telescope



Shuttle Mission STS-61/Endeavour 2-12 Dec 1993



http://www.spacetelescope.org/about/history/aberration_problem.html



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Quality Assurance

- All activities come with optional Quality Assurance section
- Students learn to:
 - Prepare their work for assessment by others
 - Critically assess the work of their peers
 - Without BASHING. Constructive feedback only.
 - Receive the constructive criticism of others
 - They can learn from the comments of others; they don't necessarily know all there is to know – tough lesson, especially with Gifted & Talented students



Fun with Engineering at Home

- Engaging families
- Each lesson comes with something that can be done at home, e.g.
 - Discussions with family members
 - Related websites to review
 - Occasionally an activity
- Encourage discussion of what was done at home
- Look for new ideas to add to this section
 - We'd love to hear from you!



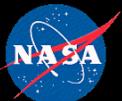
BEST Activities Post-Test

- Write down the number of the question and the letter of the answer.

For example:

- 1. C
- 2. D

Please mail answers to Dr. Marci Delaney:
Marci.Delaney@nasa.gov



Post-Event Assessment Questions

1. NASA will send an unmanned spacecraft to explore the Moon:

- A. within the next two years
- B. in 5 to 10 years
- C. in 15 to 20 years
- D. Never

2. Humans will return to the Moon:

- A. within the next two years
- B. in 5 to 10 years
- C. in 10 to 20 years
- D. Never



3. Which of the following will NOT be involved in transporting humans to or around on the Moon:

- A. Aries rocket
- B. Crew Exploration Vehicle
- C. Space Shuttle
- D. Pressurized Rover

4. The Engineering Design Process is used:

- A. only in the design component of NASA's BEST Activities
- B. only in the NASA's BEST activities that require using technology
- C. in all of NASA's BEST activities
- D. in none of NASA's BEST activities



5. The purpose of the Engineering Design Process is to:

- A. teach students how to design satellites
- B. provide steps for students to memorize
- C. allow students to practice design and development in a disciplined manner
- D. provide students with the opportunity to learn about NASA

6. The measurement process is used:

- A. only in the design component of NASA's BEST Activities
- B. only in the NASA's BEST activities that require using technology
- C. in all of NASA's BEST activities
- D. in none of NASA's BEST activities



7. I expect to be able to use what I learn in the electronic Professional Development for NASA's BEST activities in my classroom.

- A. Yes
- B. No
- C. Maybe
- D. I don't know

8. I expect to be able to use what I learn in the electronic Professional Development for NASA's BEST Activities in co-curricular activities (such as, but not limited to, before/after-school clubs).

- A. Yes
- B. No
- C. Maybe
- D. I don't know



9. I expect to be able to use what I learn in the electronic Professional Development for NASA's BEST Activities in non-school related activities (such as, but not limited to, Scouts).

- A. Yes
- B. No
- C. Maybe
- D. I don't know

10. I expect to increase my knowledge of engineering education in the electronic Professional Development for NASA's BEST Activities.

- A. Yes
- B. No
- C. Maybe
- D. I don't know



11. I expect to increase my knowledge of NASA education resources in the electronic Professional Development for NASA's BEST Activities.

- A. Yes
- B. No
- C. Maybe
- D. I don't know

12. My preferred mode of Professional Development is:

- A. Face-to-face in one meeting
- B. Face-to-face in several meetings
- C. Online with a live presenter
- D. Online, self-paced



Next Session: Access to NASA Education Resources



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About NASA's Education Program

NASA's journeys into air and space have deepened humankind's understanding of the universe, advanced technology breakthroughs, enhanced air travel safety and security, and expanded the frontiers of scientific research. These accomplishments share a common genesis: education. As the United States begins the second century of flight, the Nation must maintain its commitment to excellence in science, technology, engineering and mathematics education to ensure that the next generation of Americans can accept the full measure of their roles and responsibilities in shaping the future. NASA will continue the Agency's

Related Links

Careers at NASA

Review job listings, post a resume, or even apply for a NASA job online.

Business Opportunities

Find services related to NASA contracts, Small Business Program partnerships and submitting an



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Beginning Engineering, Science and Technology

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 - Marci.Delaney@nasa.gov
- BEST Materials
 - <http://userpages.umbc.edu/~hoban/BEST>

