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
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**

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- 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](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:
  http://www.spacetelescope.org/about/history/aberration_problem.html
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
NASA’s BEST Activities

Beginning Engineering, Science and Technology

• Project Information
  – susan.hoban@nasa.gov

• Electronic Professional Development
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  – Marci.Delaney@nasa.gov

• BEST Materials
  http://userpages.umbc.edu/~hoban/BEST