

Targeted Teaching Topic



AMERICA'S YOUNG INNOVATORS

Innovation and Passion

When you think Smithsonian, you may have a mental image of the famous museum complex based in Washington, D.C. Think museums and you probably think of the old...ancient relics in displays, rows and rows of dusty shelves lined with artifacts, and a focus on the past. But, the Smithsonian and other museums are about capturing the human experience, capturing snapshots of the present, and peering into the future.



That was evident in a special issue published by Smithsonian magazine in Fall, 2007 entitled *37 Under 36, America's Young Innovators in the Arts and Sciences*. It is an amazing read as it profiles “up-and-coming people” who are not only innovating in their chosen fields “but also crossing disciplines to make a difference in our world.”

All of the honorees are 36 years or younger. They are people who may very well help to shape not only your future, but that of the entire planet. The one common theme you'll read in each profile is **PASSION**. Each has found what he or she is passionately interested in, have focused on that, and are making a difference in the world.

Entrepreneurship and Innovation

Entrepreneurs are people who make something better, whether it is an idea, a good, or a service. They are risk-takers and they are **passionate** about their venture. Many entrepreneurs are inventors which means that they are innovating, creating, and thinking constantly about how to make something better. It's not just about selling a product and making millions of dollars...it's about pursuing a dream and not giving up.

Doing Well While Doing Good



It's possible to be an innovator and create something that could not only be economically productive, but also make the world a better place in which to live as evidenced by:

- ☑ Michael Wong—who is exploring his idea to use gold to clean up toxic waste. He plans to combine gold with another precious metal (palladium) forming nanoparticles to treat polluted groundwater converting the nasty carcinogens (cancer-causing agents) into “happy byproducts.”
- ☑ Christina Galitsky—who has created an energy-efficient cook stove for displaced refugees to cook their meals. The cook stove allows refugees in war-torn Darfur to avoid scavenging for scarce wood, putting themselves at risk from marauders. At the same time, it is saving precious natural resources. Metalworkers are now manufacturing the stoves and the hope is to distribute 30,000 in the near future.
- ☑ Luis Von Ahn—who is creating computer games “with a purpose” that get people from around the world to collaborate and cooperate to accomplish useful tasks such as translating documents, making it easier for the visually impaired to search the Web.

And, these are just a few examples from a single magazine. Imagine the thousands of other innovators out there, following their passions and being “entrepreneurial” who are or will be making our world a better place.

Source: Smithsonian, Special Issue, *37 Under 36-America's Young Innovators in the Arts and Sciences*, Fall 2007.

Concept Development

Inventing with Bubble-Wrap®!

Are You as Smart as a 5th (or 6th or 7th or 8th) Grader?

Are you America's next great inventor? Sealed Air Corporation, the creator of Bubble Wrap® cushioning, each year sponsors the Bubble Wrap® Competition for Young Inventors to encourage students in grades 5-8 to demonstrate their creativity and ingenuity by creating an invention that incorporates the use of Bubble Wrap® cushioning. Although they have already selected the semifinalists and finalists for this year, the concepts and creativity involved in developing an entry are great mental exercises no matter when.

A Little History



Bubble Wrap® cushioning was invented in 1960 by Alfred Fielding and Marc Chavannes, and was originally intended to be used as textured wallpaper; however, the two inventors quickly realized it was actually a superior cushioning material and went on to found Sealed Air Corporation, now a global, Fortune 500 company that offers a wide range of packaging solutions and has annual sales in excess of \$4 billion. Sealed Air is widely recognized for its strong commitment to innovation and continues to be an industry leader in research and development. Bubble-Wrap has become so much intertwined with our everyday life, that many may not realize that it is actually a registered name and not just a part of the English language.

Creating a Bubble-Wrap Invention

Want to test your ingenuity, creativity, and problem-solving skills...and wonder whether you could match wits with 5th-8th graders? Take up the challenge!

Here's what they have to create for the competition:

- A written description in English that includes the name of the invention, the purpose it serves, how it works, and how the idea was formulated. The description must be no more than 1,000 words.
- A clear design or drawing (drawn in thick dark blue or black ink or flair tip pen).
- One or more clear photograph(s) of your invention that shows it in full and you using it.
- Any of the following visuals that would best explain your invention must accompany your entry: clear photograph(s), a VHS, a CD or a DVD depicting the invention and its use.



Guidelines

Your invention needs to be original (not a copy of something already in existence). Bubble Wrap® cushioning should be a major component of the invention.

Invention categories: (suggestions but not limited to)

Apparel	Household
Automotive	Lawn/Garden
Construction	Media/Software
Cosmetics	Medical
Crafts	Music
Creative Packaging	Quality of Life Improvement
Education	Safety
Entertainment	Sports
Furniture	Textiles
Games	Toys
Transportation	Home Improvement



Sketch of Invention – Draw your invention with a diagram of how it works. Use a thick, dark blue or black ink or flair pen. No pencil.

Essay – Prepare a description of the invention that does not exceed 1000 words. The description should be neatly written in black or blue ink or typed. The description should give the **name of the invention** and include the following paragraphs:

- **Paragraph 1** – Explain the use of the invention. What does it do?
- **Paragraph 2** – Explain the invention’s mechanics. How does it work?
- **Paragraph 3** – Tell how you came up with the idea.
- **Paragraph 4** – Explain why you think there is a need for this invention and how people will benefit from it in society.

Demonstrating the Invention

You need to be able to demonstrate the invention in no more than 10 minutes (or the time allowed by your instructor).



Judging/Feedback Criteria

In creating your invention, think about how the actual Bubble-Wrap Competition judges evaluate the many entries they receive. Those entries are judged on the following basis:

- 35% Creativity**
- 35% Practicality or Usefulness**
- 15% Benefit to Society (How will it help people?)**
- 10% Cost Effectiveness (Would the invention have a market?)**
- 5% Clarity of essay, including spelling and grammar.**

INVENTION FEEDBACK			
Inventor			
Invention Name			
Short Description			
Criteria	Points Possible	Comments	Points
Creativity	35 points		
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Cost Effectiveness (Is there a market for it?)	10 points		
Clarity of essay (including spelling & grammar)	5 points		
Total			

Concept Development

Inventing with Bubble-Wrap®!

Are You as Smart as a 5th (or 6th or 7th or 8th) Grader?

Targeted Teaching Topic

Teachers Guide

Entrepreneurial Skills	
The Processes and Traits/Behaviors associated with entrepreneurial success.	
A	Entrepreneurial Processes Understands concepts and processes associated with successful entrepreneurial performance
Concept Development	
A.06	Describe idea-generation methods
A.07	Generate venture ideas
A.08	Determine feasibility of ideas

Classroom Activity

- Distribute copies of the Targeted Teaching Topic (Nebraska Entrepreneurship News-January 2008) and allow time for students to read. Encourage them to highlight or underline key ideas and phrases in the Topic.
- Explain that this is a classroom activity only, not actual creation of entries for the annual competition.
- You may want to pique the students’ interest in future competitions by mentioning that the three finalists this year won a three-day trip to New York City, where the Grand Prize Winner will be announced on Bubble Wrap® Appreciation Day, January 28, 2008. The Grand Prize Winner will receive a \$10,000 savings bond, while the 2nd and 3rd place winners will receive \$5,000 and \$3,000 respectively in savings bonds.* The teacher/mentor of each finalist will receive a \$500 gift card.
- Although each student is creating an invention individually, they **can** work seek feedback from parents, friends, and teachers. As the contest guidelines state, “No great inventor works alone. While the main concept and the bulk of the work associated with dreaming up and putting together your invention should be your own, we understand that bouncing ideas off of parents, friends and teachers is normal and often necessary. We just ask that you let us know who worked with you throughout the process and that you make sure to let your own ideas shine.

- Giving a historical perspective is of value. In the contest “Frequently Asked Questions” they provide the following information:

Bubble Wrap® cushioning, just like the great inventions that you will bring to this competition, was the brainchild of two ambitious inventors working in their garage. The story begins in Hawthorne, NJ with two engineers, Marc Chavannes and Al Fielding. Marc and Al were trying to make a plastic wallpaper with a paper backing. Surprisingly, this product didn’t take off. They quickly realized, however, that their invention could be used as a cushioning material for packaging. At that time, only abrasive paper products were used for packaging, which did not suffice for cushioning heavy or delicate items. They founded Sealed Air Corporation in 1960; and today, Sealed Air is a leading global manufacturer of a wide range of food and protective packaging materials and systems.

- Explaining the science behind Bubble Wrap® brand cushioning connects science to the real-world.

Bubble Wrap® brand cushioning starts as polyethylene (plastic) resin, in the form of beads about the size of small peas. The beads go into an extruder - a long cylinder with a screw inside that runs its entire length. As the screw is turned, heat builds up and the resin melts into a liquid that is squeezed out of the cylinder into two stacked sheets of clear plastic film. One layer of the film is wrapped around a drum with holes punched in it, and suction is applied drawing one web of film into the holes that form the bubbles. The second layer of film is then laminated over the first so that when the two films are joined, they stick together and trap the air in the bubbles.

This may sound easy, but polyethylene is a porous material like a sponge. Air can easily leak out through the pores, which tends to limit the cushioning ability of the packaging. Realizing this, Sealed Air started using a barrier coating to seal the air in the bubbles. Eventually, a method of encapsulating an air retention barrier in the polyethylene during the extrusion process was developed. This process is a trade secret of Sealed Air Corporation.



Discussion Questions



Possible thought-provoking questions that you might pose include:

- Why do you think the Sealed Air Corporation, the creator of Bubble Wrap® cushioning, sponsors this competition?
- Do you think there may be a rationale (reason) that they limit the competition to 5th-8th grade students?
- Other questions....

Source: For official Bubble Wrap® contest guidelines, press releases and FAQs:
National Museum of Education, <http://www.nmoe.org/bubblewrap/index.html>.



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**SEALED AIR NAMES THREE STUDENT FINALISTS
IN SECOND ANNUAL BUBBLE WRAP® COMPETITION FOR YOUNG INVENTORS**

***Young Inventors to Head to New York City for Celebratory Weekend,
Followed by Grand Prize Winner Announcement on Bubble Wrap® Appreciation Day***

ELMWOOD PARK, N.J., January 7, 2008 – The crowning of America’s next young inventor is drawing nearer, as Sealed Air Corporation (NYSE:SEE), the creator of Bubble Wrap® brand cushioning, today announced the three student finalists in the second annual, nationwide Bubble Wrap® Competition for Young Inventors. The three finalists selected from around the country, and listed in no particular order, are:

- **Max Wallack, 11, Natick, MA** – “**Carpal Cushion**” – An eighth-grader at the Advanced Math and Science Academy, Max used Bubble Wrap® brand cushioning to create an adjustable wrist cushion designed to help alleviate and prevent the symptoms of carpal tunnel syndrome experienced by computer users, as well as agricultural and manufacturing workers in foreign and developing nations.
- **Hannah Haas, 13, Charlotte, NC** – “**Sensory Wallpaper**” – A home-schooled eighth-grader who used Bubble Wrap® brand cushioning to create a wallpaper designed to stimulate and engage children afflicted with autism through the combination of a textured bubble surface containing large and small bubbles, and a calming, blue wallpaper background.
- **Nicolette Mann, 13, Christiansburg, VA** – “**Transformable Bubble Wrap® Kite**” – A home-schooled eighth-grader who used Bubble Wrap® brand cushioning to create a single kit that enables the easy assembly of multiple flying kites by providing detailed instructions on how to construct different formations, shapes and styles.

"The innovation, ingenuity and spirited design of the student inventions submitted in this year’s Bubble Wrap® Competition for Young Inventors has been nothing short of spectacular, and we’re delighted at how this program continues to motivate young children to tap into their

creative and inventive talents,” stated William V. Hickey, Sealed Air’s President and Chief Executive Officer. “The wide range of high-caliber entries made the judges’ job of narrowing down the field even more daunting than last year, but these three inventions really stood out for their impressive creativity, usefulness and benefit to society. We congratulate both the students and their mentors, and look forward to celebrating our three finalists in New York City later this month.”

As the three finalists, Max, Hannah and Nicolette will be flown along with a family member to New York City, where the Grand Prize Winner and runner-ups will be announced on Bubble Wrap® Appreciation Day (January 28, 2008).

During their visit to New York, the finalists will enjoy an exclusive tour of Sealed Air’s main Bubble Wrap® manufacturing plant in Saddle Brook, New Jersey. Later that evening, they will travel into Manhattan to see the award-winning, international smash sensation STOMP, where, as special guests of the producers, they will be treated to a special backstage meeting with the cast members. A unique combination of percussion, movement and visual comedy, STOMP has created its own inimitable, contemporary form of rhythmic expression: both household and industrial objects find new life as musical instruments in the hands of an idiosyncratic band of body percussionists. The finalists’ Big Apple weekend will then culminate with a special dinner awards celebration at New York’s famous Rainbow Room in Rockefeller Center.

The Grand Prize Winner will receive a \$10,000 U.S. savings bond, while the second and third place winners will each receive \$5,000 and \$3,000 U.S. savings bonds, respectively as well as a special gift bag courtesy of OfficeMax® Incorporated. The remaining 12 semi-finalists will each receive a \$500 U.S. savings bond.

About the Bubble Wrap® Competition for Young Inventors

The Bubble Wrap® Competition for Young Inventors encourages U.S. students in grades 5 through 8 to demonstrate their creativity and ingenuity by designing an invention that incorporates the use of Bubble Wrap® brand cushioning. Students were invited to submit original inventions along with a visual and written description that included the name of the invention, the purpose it serves, how it works and how the idea was formulated.

This year’s competition attracted more than 1400 entries, nearly twice the number submitted last year, with entries ranging from a Bubble Wrap® wheel chair cushion and protective car door cover, to a collapsible plant shelter and shock-absorbing dance floor. Submissions were judged in coordination with the National Museum of Education and ranked based on several criteria including originality, creativity, practicality, benefit to society, marketability and feasibility, as well as overall presentation.

About Bubble Wrap® Brand Cushioning

Bubble Wrap® cushioning was invented by Sealed Air’s founders in 1960 and was originally intended to be used as a type of textured wallpaper. The inventors quickly realized it was actually a superior cushioning material, and Sealed Air is now a global, Fortune 500 company that offers a wide range of packaging solutions, has operations in 51 countries and has annual sales in excess of \$4 billion. Sealed Air is widely recognized for its strong commitment to innovation, and continues to be an industry leader in research and development. For additional information on Bubble Wrap® brand cushioning and the competition, visit www.bubblewrap.com.

About Sealed Air Corporation

Sealed Air is a leading global innovator and manufacturer of a wide range of packaging and performance-based materials and equipment systems that serve food, medical, and an array of industrial and consumer applications. For more than half a century, Sealed Air employees have applied deep understanding of customers' businesses and global trends to deliver sustainable packaging solutions. Operating in 51 countries, Sealed Air's widely recognized and respected brands include Bubble Wrap® cushioning, Cryovac® food packaging technologies, Jiffy® protective mailers and Instapak® foam-in-place systems. For more information about Sealed Air, please visit the Company's web site at www.sealedair.com.

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