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THE SCHOOL DISTRICT OF MANATEE COUNTY FEATURES A STUDENT AND A CAREER & TECHNICAL EDUCATION TEACHER



SCHOOL Biz



Kids at Work

Debbie Smith has been teaching elementary school for twenty years but this year is by far her most exciting. Freedom Elementary introduced a new program, *Engineering by Design*, and Debbie is at the head of the class. Debbie summarizes her philosophy of teaching this new course with a favorite quote from Albert Einstein: "Imagination is more important than knowledge." She prepares individual and team challenges ahead of time so each student has as much time as possible to delve into the challenge itself.

Problem solving, critical thinking skills, and the engineering process are just a few of the concepts the students explore. Classes are interactive and hands-on, and students are eager to learn and apply their newfound knowledge. Hypotheses, comparing and contrasting, and Venn Diagrams are incorporated into the curriculum. Problems become a challenge to solve as students define the problem, brainstorm for solutions, implement the best solution, test the solution and then evaluate their results. The classroom is lively and animated as these junior engineers take on the next challenge.



KIDZ Biz & Buzz



Science Is Awesome!

Colin Levanduski is having a fabulous fifth-grade year at Freedom Elementary. The new *Engineering by Design* program is a favorite class for this student who has a self-proclaimed obsession with tape, batteries, and building stuff out of household items. "When I make or buy something, I like to take it apart and see what the interior is like," he said.

Colin and his partner Matt Kenny competed in the Egg Drop event at the Lockheed Martin Manatee County Technology Students Association (TSA) District Competition this past February and won first place. Their project was elaborately constructed of balsa wood, rubber bands, and foam block. "Trial and error was the key to our success," Colin said about the event. Colin has since shadowed the TSA program at Haile Middle School with teacher Justin Erickson and said, "They have a really cool engineering workshop with dragsters and simulated helicopter flying!" When his dad took him to see the human body exhibit at MOSI, Colin responded with, "It was really cool and really gross!" For Colin, science is awesome!



InnoVators

UP, UP, AND AWAY!



Have you ever seen a hot air balloon drifting overhead and wondered how it works? The balloon's three main parts help explain this scientific feat. The *envelope* is the main fabric of the balloon which contains the air and is constructed of nylon sections called *gores*. Nylon is the most commonly used fabric for the envelope because it's lightweight yet strong, and it has a high melting temperature. The *burner* is the unit that uses propane to send the hot air up into the balloon, causing it to rise off the ground. Since warm air is lighter than cool air, the heated air inside the balloon gives it its *buoyancy*, or the upward force that enables things to float. Finally, the *basket* contains the pilot, passengers, and propane gas cylinders.

The Montgolfier brothers are credited with conducting the first manned balloon flight in 1783. They sent a young physician and an army officer into the sky in their newly invented contraption. The pair lifted to 3,000 feet and flew five miles. But the brothers didn't achieve this feat immediately; it took a lot of trial-and-error and problem solving to reach their goal. First they experimented with a silk bag filled with hot air; next they sent farm animals aloft. Today we can enjoy the result of their perseverance. People now use hot air balloons for many reasons, including leisure, advertisements, and even wedding ceremonies.



Freedom Elementary Students learn engineering and scientific principles with hands-on projects like these hot air balloons. Here, Ben Kinney and Yonathan Ramirez glue six gore panels together to make their balloon. Once dry, the team flipped the panels inside out to form the "envelope" or body of the hot air balloon.

Left to right: Tyler Gordon, Nicole Delgado, Shania Warford, and Sierra Hunsberger prepare to test the capacity of their hot air balloon. Their balloon reached a record height for their class, sailing 16 feet into the air.



DISCOVER the Future

Career Pathways in Manatee County

Regional Careers: Related occupations and current wages in the Suncoast Workforce

Occupational	Entry Level	Exper.
Florida's minimum wage	\$6.79	-----
Federal minimum wage	\$5.85	-----
Environmental science and protection technicians	\$13.48	\$18.07
Physical science occupations	\$13.51	\$28.46
Electrical engineers	\$22.98	\$37.36
Mechanical Drafters	\$15.61	\$22.86
Mechanical Engineers	\$25.72	\$37.46
Civil Engineers	\$25.44	\$41.31

Source: <http://fred.labormarketinfo.com>
 FL Labor Market Statistics, Occupational Employment Statistics & Wages Program

Career Pathway: Students desiring a career in any of these areas can find related educational programs at these schools*:

Freedom Elementary School
 Haile Middle School
 Lakewood Ranch High School
 Manatee Technical Institute
 Manatee Community College
 University of South Florida

*Other Manatee schools may offer similar programs. Listed schools are related to today's issue.

WEB Wise

Check out the following websites:

www.eballoon.org
www.oms1.edu/visit/physics/air/science/
www.iknowthat.com
www.tsaweb.org
www.floridatsa.com

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Explore IT

Solve Your Problem: A 5-Step Guide

Life is full of problems to solve. Whether the problem relates to concrete ideas in science, math, finances, or technology—or to nebulous things like relationships, depression, or peer pressure, you can use problem-solving skills to try to find solutions. While some problems may not be solvable, many are! Why not try? All you need to get started is paper, pencil, and an open mind. Try solving problems with a friend—sometimes two minds together are better than one.

1. Define the problem. Write it out as clearly as possible.
2. Either with a friend or alone, brainstorm to identify as many solutions as possible. Thinking in a group can create more potential solutions, as ideas from one person may generate new ideas in another.
3. Choose a solution that seems to be the best.
4. Implement the best solution. Identify steps needed to implement the solution, and then take those steps!
5. Evaluate the results. Is the problem solved? If not, go back to Step 1 and try again.



InquiziKidz page is published every Wednesday in Bradenton Herald. Provided by Newspaper in Education, Christine Fritch (941) 748-0411 ext. 5464, cfritch@bradenton.com Julie Beacham-Hooie, Page Editor.