

**WPAFB
Educational
Outreach Office**

W.O.W! Words

Volume 2, Issue 3

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Special points of interest:

- Looking for a GREAT resource? Tune into LabTV
- Teacher Workshop Opportunity
- Spring Job Shadow date—
Friday, March 25th

Next Newsletter—
March 1, 2011



Happy New Year!

Before packing away those holiday decorations and lights imagine this...what if you could turn those strands of twinkling brightness into a nifty-cool science lesson?



Mini-lights became all the rage when first introduced in the 1970s. As most things do, these strands of seasonal lights are evolving once again with the growing popularity of LED's. Consider showing your students how Christmas tree lights have changed during the years, emphasizing the importance of engineering design and technological advancements.

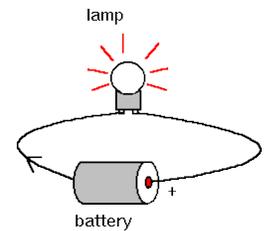


Have students make observations of incandescent bulbs, broken and intact—different sizes and shapes. Students can trace the flow of electricity. Students can research standard, CFL, and LED bulb basics easily by visiting "How Stuff Works".

For those educators looking to enhance their current electricity units consider using Christmas lights to reinforce parallel and series circuits. Ideal for students in grades 4-8, have students examine how electricity is conducted through a light bulb using a battery as a power source.

Try using this TEACH Engineering activity "Lights On!" to build simple circuits using a battery, wires, and light bulbs. This simple introduction to circuits is actually an introduction to electrical engineering. Every electrical device has a circuit designed by an electrical engineer.

www.teachengineering.org



Discovery Education's "Earth's Energy" is a similar activity in which the students demonstrate an understanding of the difference between a series circuit and a parallel circuit.

www.discoveryeducation.com

The holidays may be over for another year, but you and your students can still SHINE ON!!!

The appearance of these hyperlinks does not constitute or imply endorsement by the U.S. Air Force

Wizards of Wright Program

The Wright-Patterson Air Force Base Wizards of Wright (W.O.W!) Program is offered to area schools free of charge. Utilizing portable science kits, the WPAFB scientists and engineers bring science excitement to the classroom.

The goal of the W.O.W! Program is to excite and recruit the next generation of scientists and engineers by getting kids fired up about math, science, aviation, and aerospace.

Check out our many science topics available on our website -

<http://edoutreach.wpafb.af.mil>

To schedule a W.O.W! demonstration, email or call the W.O.W! Program Coordinator, Krista Gerhardt.



Wizard Spotlight - Kathy Schweinfurth

a.k.a. Top Cover, Boss Lady, Saint Kathy, Kat, and BB (Big Boss)



For those of you that are unaware ... Kathy Schweinfurth, Chief of WPAFB Educational Outreach and Executive Director of STARBASE Wright-Patterson AFB will be retiring this spring. Early in EO's infancy, Kathy was brought aboard to shape and mold the office into the successful outreach programs so many enjoy today! Sad- den by our loss, but honored to spotlight...it is with pleasure, I give you Kathy Schweinfurth.



FIRST Robotics (FLL) - Kathy Levine
Wizards of Wright (WOW!) - Krista Gerhardt
Scanning Electron Microscope EducatorS (SEMEDS)-Kim Stultz
STARBASE - Connie Jenson
SCOPES for Students - Bob Gemin
Science Fair Support - Faith Kochel
Classroom Speakers - Deputy Dann Andrews (LB)

Although this advocate for education is a Michigan transplant, Kathy and her husband Jeff are die-hard Buckeyes! Could it be because both of her sons attended OSU? Tyler gradu- ated as a chemical engineer in 2008 with Spencer due to graduate as a welding engineer in 2011. Both boys are proud members of TBDBITL! Or is it the fact that these Wayne HS fans watch many of their Huber Heights ath- letes go on to play for Coach Tressel? Travelling to watch the Rose Bowl? Naming her car Brutus? Whatever the reason Kathy now bleeds scarlet and gray!



Armed with a degree in Journalism, she came to WPAFB in the early 80's. After working in Civilian Personnel, she functioned as Quality Management Program Director for the 88th Air Base Wing and later, a Marketing/Strategic Plan- ning Specialist for the Aeronautical Systems Center. Kathy worked on a team to honor the 50th Anniversary of the USAF in 1997. She also took time to go back to school, doing post- graduate work in Personnel Management and Urban Administration. While Kathy was in the "quality" business, she became a Master Facilitator, Teambuilder and trainer. Kathy's natural leadership caught the eye of one, Dr. Vince Russo, Executive Director of the Aeronautical Systems Center. As her mentor, Vince intro- duced Kathy to a world of immeasurable oppor- tunities.

As a WOW! Wizard herself, Kathy combined her passion of history and her desire to inspire by acting as a Prairie Wizard. Taking her show on the road, Kathy brought the story of the remark- able Wright Brothers and their desire to fly to life for area school children.



One of those opportunities, the chance to make an impact on a greater scale (for the greater good)—working with young people, when he asked Kathy to lead the new WPAFB Educational Outreach program in 1999. She had a mission and an even greater desire to em- power her managers to propel their programs to the stars! Kathy was instrumental in bringing STARBASE to Wright-Patterson. Initially hearing about the new program at a DoD national meet- ing in 2001, she was convinced this was exactly what the local area needed— a place to "grow our own". Future scientists, engineers, mathma- ticians, and technicians all inspired by their STAR- BASE experience. Utilizing her eye for talent Kathy staffed her office with the A-Team we know today...

Singing the praises of Aerospace and STEM Education, Kathy represented WPAFB on a wide variety of initiatives including the Mayors Commis- sion on Literacy, local school improvement teams, National Aviation Heritage Area Education Council, and DoD's Liaison to the American Institute of Aeronautics and Astronautics Pre-College Commit- tee. Many local educators know her as the gal that speaks on behalf of WPAFB at teacher work- shops and numerous other educational venues.



Please join us in giving your *BEST WISHES* to our retiring leader—Kathy Schweinfurth. A re- markable woman, who's leadership, talents, and camaraderie has guided the EO staff through a myriad of great times and many laughs!



To send your wishes -

www.surveymonkey.com/s/KathySchweinfurth

Wiz Stuff: The March to 300!

Come join the march...ending the 2009- 10 school year with 262 completed demos, inspired the WOW! Program manager to set a goal of 300+ completed demos for the 2010-11 school year.



Help support the Wizards of Wright's **March to 300** by scheduling your 2011 WOW! Demo today! It's EASY—just visit

www.edoutreach.wpaafb.af.mil

Click on programs, click on WOW!

All information including demo titles, de- scriptions, and scheduling is right at your fingertips. Have trouble deciding which demo is right for your students? Give Krista a call at 255-0068 for grade level suggestions.

What's New?

STEM-ulate Your Mind

Hold on to your hats...WPAFB Educational Outreach is teaming up with AFRL's Air Vehicle Directorate to present an AERO summer teacher workshop

"STEM-ulate Your Mind"

The week-long professional development opportunity will showcase local, state, and national STEM resources. A few of the highlights include the AFRL, Dayton Regional STEM Center, AIAA, MUSAF, and much more...the workshop promises to provide classroom ready lessons to excite the next generation of scientists, engineers, and mathematicians.

Make plans to join us for this unique professional development opportunity. The workshop will be offered twice - June 20-24 and August 8-12. Mark your calendars. Application information will be provided in the March 1st issue of WOW! Words.

Pilot the future...learn how to engage your students in rich, inquiry based STEM lessons!



Come join the fun at the 9th Annual TechFest 2011 at Sinclair Community College—Saturday and Sunday, February 19th and 20th. This family fun event celebrates everything science... all weekend long! K-12 students can experience the hands-on exhibits featuring science, technology, engineering, and math(STEM).

2011 WPAFB Spring Job Shadow

Wright-Patterson's semi annual Job Shadow is scheduled for Friday, March 25, 2011. High School juniors and seniors are welcome to participate. Here's what one student said from the fall event ,

"It was a great experience, there wasn't enough time to get through all of the

information. I would love to go again next year. This experience has prepared me to become the engineer I always wanted to be."

Registration will open Wednesday, February 16th. More information is available at

<http://edoutreach.wpafb.af.mil>



LEGO Champs — Robots Connect Students to an Engineering Future

The National Defense Education Program's (NDEP) LabTV not only focuses on the great work in the nation's defense laboratories-it also highlights the many wonderful events that are supported by the men and women employed at these research labs. One of those supported events include the FIRST LEGO League.

This time of year, regional events around the globe are being held to determine those moving on to state tournaments followed by the ever

coveted World Festival invite.

Fresh in the minds of many, is the recent WSU Regional held December 18, 2010. Without the volunteer support from those dedicated WPAFB employees and their families the annual event would not be possible.

Unfamiliar with FLL? Check out this sneak peek into the world of Robotics. This webisode highlights teams from across the country at the first-ever 2009 US Open.

www.labtvonline.org

Like more FLL information?

[visit http://usfirst.org](http://usfirst.org)

Like to volunteer?

[visit http://edoutreach.wpafb.af.mil](http://edoutreach.wpafb.af.mil)

Next newsletter—*Color Writing*.





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D.I.Y (Do It Yourself) Science — Krista Gerhardt

For those of you that have not explored the Society of Automotive Engineers (SAE) *A World in Motion* modules, let me introduce you to a favorite...

School year 1999-2000, I was first introduced to the SAE's gear-driven toy module. I have been a cheerleader for AWIM ever since! Titled "Motorized Toy Car" this middle school unit was my fourth quarter curriculum. Fourth quarter is a time to celebrate the OAT's end and a time for the students to apply the science process skills, team collaboration techniques, and time management they have practiced all year. The AWIM kits do just that!

The Motorized Toy Cars that SAE offers is by far, one of the most comprehensive STEM units available. This complete unit provides each and every student the unique opportunity to work in cooperative groups/design teams. Just like the corporate sector, students are introduced to the project thru a "Request for Proposals", the students are challenged to design a motorized toy that will meet minimum performance requirements that targets a particular audience. Using the engineering design process—students design, build, test, and market a gear-driven toy.

Starting with an RFP letter, the stage is set. Mobility Toys Incorporated is looking to expand their existing line of motorized toys for boys and girls ages 6-10. Minimum requirements include a toy that can travel 3 meters in 3 seconds, climb a 15 degrees incline from a standing start and for those brave souls, a 30 degrees incline. MTI wants toy design teams to submit their proposal by a certain date. The whole unit encompasses math, science, technology, and the engineering design process.

Tweaking, as teachers often do to suit the needs to their classroom, this proposed 4 week unit easily turned into a quar-

ter's worth of learning fun! The Language Arts teachers assisted in the written proposals, resume writing, and biographies. The math teacher helped with the gear ratio and torque calculations, art and technology teachers had the toy teams designing their logos, slogans and advertising art including commercials through their classes. We all looked forward to the "toy project" as it was called year to year.

Initially, there is a monetary investment to purchase enough kits. Each class needed enough kits to accommodate the 3 student group of toy designers. There were two of us 8th grade teachers and at \$50 a kit...do the math! PTO was supportive of the WIM unit. Your local SAE chapter often supports teachers. If you attend their training workshops — guess what FREE kits! Needless to say my colleague and I went to a lot of workshops. We also invested in the materials to build the test tracks for the toys.

The key with any project-based project is to be excited! In this particular case, setting up the simulation so well that the students "became" toy designers. The students were no longer called by their given names, but by their toy company name. If it was the Chocolate Chickens, Ninja Kitties, Three Amigos, Grease Monkeys or the Lucky Duckies that's who they were. Their name, logo, slogan was on everything...company notebook, letterhead, business cards, placards that hung above their table. Students made t-shirts that they proudly wore advertising their toy company. They created magnets and stuck them on competitor's lockers. They passed out cookies, cupcakes, and suckers with their logos and slogan clearly visible. The excitement of the project extended to the hallway bulletin boards in which the student toy companies rented space to create a billboard for all to see.

Since MTI was looking for toys that appeal to kids 6-10, each toy company generated surveys that were sent to the 6 feeder

Our Mission: To facilitate partnerships with the K-12 educational community to increase student awareness and excitement in all areas of science, technology, engineering and math (STEM) and related careers!

Wright-Patterson Air Force Base, near Dayton, Ohio is one the nation's most important military installations. The base is headquarters for a vast, worldwide logistics system and is the foremost research and development center in the U.S. Air Force. Steeped in tradition, WPAFB has been a leader in military aviation development from the time of airplane inventors and Dayton natives—Wilbur and Orville Wright to today's aerospace age.

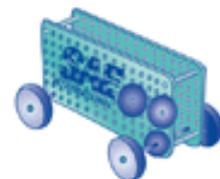
The Wright-Patterson AFB Educational Outreach Office was established in 1999 to share the base history, experience and capabilities with the K-12 educational community through internal programs, partnerships and individual involvement.

elementary schools. The surveys came back; data was tallied, analyzed and graphed. Their design was driven by the customer surveys they received. The students were doing market research. We also had a snippet from Trump's *Apprentice* in which Mattel Toys did just that—the students quickly saw the similarity from the show to what they were doing in the classroom.

The *World in Motion* outlines the unit into "engineering design process weeks" which includes: setting goals, building knowledge, designing, build and test, finalize model, and present. After all the years of perfecting the project, I learned that issuing the design teams a "company calendar" which includes all dates, deadlines, and production goals was the way to go. The project runs itself...

There are so many rewarding memories of the students and their final toy designs, but best of all, is the year in which junior engineering student from MIT volunteered as a guest judge for the toy presentations. Come the first day of oral presentations...our guest judge arrives wearing a suit, tie and portfolio in hand. The buzz around the 8th grade hallway by the time homeroom was over was the he was from MOBILITY TOYS Incorporated here to offer them a contract for their toy designs. I still smile over that one...

Gooodoooo WIM - a Wonderful Resource!!!



Next issue: "Delta Dart Airplanes"