

# Puzzle Page

G I L G B M E T A L S E O F E E I R T E A Y U  
 N S S R G S N C A R L E S Y G S D U R L C N A  
 I N D U S T R I A L E N G I N E E R I N G O H  
 R M O Y R R T N I R O Y I S P D O N R G G I R  
 E C O A R S M A G A E I A S G S L G S E C P H  
 E R N M L I R S R E G E G S O L L G R O J N N  
 N M E J H G N R R E P R I G M S N E E A R I L  
 I A I A T S D N E A A S J R S C I S Y H P S A  
 G M R S L R I N O I I M R S T G I O R T T H E  
 N O I R G R L H N I N G I I N M C P D A A I Y  
 E C A Y T R S E C O S A R P L S N N R M E D H  
 L H I N A R N O I G H H I N S T N E I L G M R  
 A R G R N A C I H R I I N J G Y A C A E I I T  
 R L L R R T G L Y A E R E I G N R C H T L E N  
 U A D I I N R L I S S T H O E O S A E R R R E  
 T A N H S M L N C L I D O I O A S E R N A E N  
 C N J M C I L N T L R R Y R T S I M E H C Y C  
 E L E C T R I C A L E N G I N E E R I N G G P  
 T O N J C O P N A E P A J Y E A A E E O H G C  
 I Y G D A G G E I E N U N N P H D D L S N Y H  
 H E L L A Y L E E I F T E A A I U O C G S S Y  
 C E R O E J O C S O G S H S A I I O I N I R D  
 R T S N E O S M R E G H H J R B R N N T R R S  
 A E T R M N S E N C O N G S N G R H N E N E G

- Microorganisms
- Electrical Engineering
- Hairdryers
- Geography
- Lip Gloss
- Clean
- Industrial Engineering
- Fujita Scale
- Architectural Engineering
- Sensors
- Math
- Tornado
- Biology
- Physics
- Germs
- Chemistry

2		5		7		6
4			9	6		2
				8		4
9	8			7	4	
5	7		8		2	6
			6	3		5
7	5			2		
	6			5	1	
3			4			5
						8

Fill in the blank squares so that each row, each column and each 3-by-3 block contain all the numbers 1-9.

If you use logic (and a pencil ☺) you can solve the puzzle!!!

## Thanks to all our faculty, staff, students and sponsors for a great event!

<b>Facilitators</b>	Dr. Stefen Kraft	<b>Student &amp; Staff Helpers</b>
Jen Bolton	Sarah Kubler	Elizabeth DeBusk
Cassie Boyer	Theresa Marcioni	Jaquie Franden
Wes Burress	Frances Mateycik	Cynthia Hampton
Sreeram Cingarapu	<b>Mentors</b>	Chelsea Renda
Neal Davis	Ariel Burns	<b>GROW Committee</b>
Casey Devore	Shanell Crawforth	Susan Arnold Christian
Lindsey Fallis	Caitlin Lutjohann	Kimberly Douglas
Lauren Gardner	Samantha Marin	Ruth Dyer
Sarah Gilbertson	Tiffany Pauley	Lisa Freeman
Shaida Ibrahim	Audrey Polifka	Beth Montelone
Clancy Jensen	Breanna Stout	Jacqueline Spears
Kathleen Klamm	Lindsey Walker	

A special thanks to Dr. Chris Sorenson and Russell Reynolds for their efforts to create the Opening Session demonstration!

## Thanks we couldn't do this without you!!

# Everything in the Smallest Room



The contributions of scientists and engineers to the products we use everyday in the bathroom!

April 5, 2008

Hosted By



at Kansas State University

# Hands-On Activities

**Safest, Smallest Room** – In this session we will learn how and why bathrooms can be good tornado shelters and new technologies for creating tornado safe rooms. We will also assess tornado damage to various structures based on the Fujita Scale.

**The Invisible World of Microorganisms** - Microorganisms are tiny creatures that call soil, objects at school, bathrooms, and even our bodies home! Some of these organisms are beneficial and help us stay healthy, but others can cause sickness. In this activity, we will learn about the importance of washing hands to reduce the spread of germs.

**Going Green in the Bathroom** – Come learn what MEP (Mechanical Electrical & Plumbing) engineers do! See how your decisions when designing a building can have a big impact on our health and comfort and the surrounding environment when you design your own “green” bathroom!

**Hairdryers: Reverse Engineering** – In this activity we will take apart a hair dryer. We will examine how it works and how it was designed by electrical engineers. Then we will put the hairdryer back together, in working order.

**Physics of Public Restrooms** – In this activity you will create your own “automatic light bulb” using the same sensors found in automatic bathrooms!

**Packing Your Petite Purse** – Tiny purses are all the fashion rage but how do you fit everything in such a small space? We'll show you how to use math and industrial engineering to pack a purse with the most bang for your buck.

**Pucker Up!** – What ingredients make the best lip gloss? Come work in the chemistry lab and create your own recipe!

**Soft vs Hard Water: Which cleans best?** – Do you know the difference between hard and soft water? Come to this activity where you will learn the chemistry that happens when you use water to clean.

# Schedule

When	What	Where
9:00-9:30am	Registration	Fiedler Atrium
9:30-9:50am	Opening Session	Fiedler Auditorium
<b>10:00- 10:50am</b>		
Group 1	Safest, Smallest Room	Seaton 19
Group 2	Physics of Public Restrooms	Cardwell 223
Group 3	Packing Your Petite Purse	Durland 1027
Group 4	The Invisible World...	Ackert 123
Group 5	Going Green	Seaton 236
Group 6	Hairdryers	Rathbone 2064
Group 7	Pucker Up!	Chem/Biochem 312
Group 8	Soft vs Hard Water	Chem/Biochem 107
<b>11:00 - 11:50am</b>		
Group 1	Physics of Public Restrooms	Cardwell 223
Group 2	Packing Your Petite Purse	Durland 1027
Group 3	Soft vs Hard Water	Chem/Biochem 107
Group 4	Going Green	Seaton 236
Group 5	Hairdryers	Rathbone 2064
Group 6	Pucker Up!	Chem/Biochem 312
Group 7	The Invisible World...	Ackert 123
Group 8	Safest, Smallest Room	Seaton 19
<b>Noon-12:30pm</b>	<b>LUNCH</b>	<b>Fiedler Atrium</b>
<b>12:40-1:30pm</b>		
Group 1	Packing Your Petite Purse	Durland 1027
Group 2	Soft vs Hard Water	Chem/Biochem 107
Group 3	Going Green	Seaton 236
Group 4	Hairdryers	Rathbone 2064
Group 5	Pucker Up!	Chem/Biochem 312
Group 6	The Invisible World...	Ackert 123
Group 7	Safest, Smallest Room	Seaton 19
Group 8	Physics of Public Restrooms	Cardwell 223
<b>1:40-2:30pm</b>		
Group 1	Soft vs Hard Water	Chem/Biochem 107
Group 2	Going Green	Seaton 236
Group 3	Physics of Public Restrooms	Cardwell 223
Group 4	Pucker Up!	Chem/Biochem 312
Group 5	The Invisible World...	Ackert 123
Group 6	Safest, Smallest Room	Seaton 19
Group 7	Hairdryers	Rathbone 2064
Group 8	Packing Your Petite Purse	Durland 1027
<b>2:40-3:00pm</b>	<b>Surveys</b>	<b>Fiedler 1091</b>
<b>3:05-4:00pm</b>	<b>Closing Session</b>	<b>Fiedler Auditorium</b>

# Details about the day

- A K-State student will serve as your mentor. You ***must*** stay with them while you are at the event.
- We will have pizza and cookies for lunch. There should be enough for everyone to have two slices of pizza and two cookies. Yum!!
- **Be prepared to answer the questions below at the closing session – more than one person from each group can speak.**  
*Is there something you did today that inspired you?*

*What did you learn from your mentor today?*

*What bathroom products did you learn about today? How do the work of scientists & engineers help make these products?*

- For more information about the organizations hosting this event you can visit their websites;  
[www.k-state.edu/grow](http://www.k-state.edu/grow)

Girls Researching Our World is a year round program designed for girls in grades 6<sup>th</sup> - 8<sup>th</sup>. Activities are focused on a variety of topics in science and engineering and include; a summer camp, Saturday events and much more!

[www.ksu.edu/excite](http://www.ksu.edu/excite)

EXCITE! is designed to introduce high school women to science, technology, engineering and mathematics (STEM) fields. EXCITE! is a year round program that offers girls in the 9<sup>th</sup> - 12<sup>th</sup> grades opportunities on and off campus.

[www.k-state.edu/wesp](http://www.k-state.edu/wesp)

Did you know that there is support for you once you get to K-State as a female STEM student?? The Women in Engineering and Science Program provides all kinds of opportunities for you to meet other students on campus who share your passion and we guarantee to have chocolate at almost every event!!