

 SCHOLASTIC

# ROBOTICS WORLD



**ESSAY  
CONTEST!**

**Cash prizes, plus  
a Vex Robotics  
Design System  
Starter Kit!**

**Essays due by  
11/14/05.**

## Beyond Hollywood

REAL-LIFE robots prove that  
truth IS stranger than fiction!

## Nationwide Robotics Competition

Got what it takes to compete?  
Check out the FIRST Vex Challenge!

**PLUS: Special offer  
for students!**

## LOG ON

Go to [www.vexrobotics.com](http://www.vexrobotics.com) to download the latest  
robotics screen savers, wallpaper, and phone savers  
and upload pics of your Vex robots.

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# What Will Engineers Think of Next?

**R**obotic devices are changing the way we live—from baking crunchier cookies to helping doctors perform more accurate surgeries that save lives.



## It's a Bird, It's a Plane... It's a Robot?

Don't be afraid if you look up in the sky and see a mechanical bird flying overhead! Robotic birds were created by Sunil K. Agrawal, a University of Delaware professor of mechanical engineering. He is working on the design and construction of small robotic devices that look and fly like real birds! These miniature, **camera-bearing "birds" will take pictures to help the military explore dangerous places where humans can't go, or survey the inside of collapsed buildings to help emergency teams.**



## Part Human, Part Robot

Arizona State University researchers and Kinetic Muscles Inc. have developed a robotic arm to help stroke survivors regain the ability to reach for objects and feed and bathe themselves. This device has its own designed **"muscles" that mimic the exact way a human arm is supposed to move.** It fits around a person's arm to help him or her squeeze and flex

the muscles needed to unscrew a lid from a jar or use a comb. The arm can be programmed to perform repetitive actions, improving arm and hand flexibility and overall strength.



## It's the Way the Cookie Crumbles

If you think flying robot insects are weird, what about a robot that eats cookies? At a factory for McVitie's, a popular cookie manufacturer in England, employees use a **Crumb Test Dummy to find out exactly which baking techniques and recipes produce the most crumbs.** McVitie's uses a robot because humans can't chew hundreds of cookies, one after another, in a day.

## Scalpel, Please...

There is a surgery going on in Room 302. Doctors hover over a patient, moving quickly and confidently, except for Penelope, who is poised to respond to a verbal command at a moment's notice. This is precisely what Dr. Michael Treat is hoping will happen in every operating room in America.

**Penelope, his robotic scrub nurse, is programmed to respond to voice commands and the names of particular surgical tools.** New York–Presbyterian Hospital tested Penelope in March 2005, but we have yet to see if she and her sister robots will assist surgeons in a hospital near you.



# FIRST Vex Challenge

The **FIRST (For Inspiration and Recognition of Science and Technology) Championship Event, including the FIRST Vex Challenge**, is a nationwide science fair for robotics fans from all over the world. It combines the excitement of sport with science and technology to create a unique varsity sport for the mind. FIRST helps high school students discover how rewarding the lives of scientists and engineers can be. Students from 20 countries compete against one another for the best overall robot design. Have you always imagined what you would do with a robot of your own? Dream it, create it, build it, give it a purpose, and be prepared to amaze the world!

For more information from the 2005 FIRST Vex Challenge and future competitions, and to see the winning robots, go to [www.vexrobotics.com](http://www.vexrobotics.com).



## A Labrador Retriever? Not Quite!

Twelfth-graders Chris and Jeff were dashing out of their favorite engineering graphics class at Southwest High School when [Robotics World](#)



caught up with them. Here's what they had to say about building the ultimate (robotic!) sports companion.

**Robotics World:** Congratulations on winning the 2005 FIRST Vex Challenge! What kind of robot did your team create?

**Chris:** We created a Vex robot that could drive around the competition playing field and pick up different size balls.

**Robotics World:** Did everyone on the team have a role?

**Jeff:** Yes. I built the chassis and frame for the robot, and Chris was in charge of building the bridge on the front to lift up the balls.

**Chris [laughing]:** I was also our human player at the national event! The rest of the team programmed the driving system, built swinging doors to trap the balls underneath the robot, and learned to drive it.

**Robotics World:** What was the competition like?

**Jeff:** It was pure excitement. There were thousands of students and coaches constantly yelling and cheering. It was a cool experience to get to see other kids from all around the world, like Singapore and Israel, competing against each other, while at the same time getting to learn great skills. It was cool to see all of the robot designs that were created by students using the same Vex kit.

**Robotics World:** Okay, last question. If you could create anything in the world, what would it be?

**Chris:** We would love to build some type of new research rover to send to Mars or some other planet.

## A One-Armed Bandit?

Robotics World was thrilled to find another Vex winner, twelfth-grader Cheryl Nielsen, with the team she coached in Singapore.



**Robotics World:**

Coaching a student team in Singapore must have been an amazing experience. Can you describe what it was like?

**Cheryl:** My experience in Singapore was wonderful. The people were friendly and the culture was very interesting. As a coach, I was responsible for clarifying the strategies of the game for the Singaporean teams. They were curious to know how the game was played and what the robots looked like.

**Robotics World:** What did your team create?

**Cheryl:** Our team created a robot with a functioning arm and lift system.

**Robotics World:** Describe the culminating event, FIRST Vex Challenge, and the results of your coaching efforts.

**Cheryl:** The competition was pulsing. It was an incredible feeling to be back in Atlanta with the team. Our robot competed well, and our team had an incredible amount of spirit. In the Georgia Dome, there were people hurrying everywhere and cheering so loudly that you couldn't hear yourself think.

**Robotics World:** What was your favorite memory of this event?

**Cheryl:** My favorite memory of this event was the last match that I drove the robot. I was disappointed in my other performances that day, but I was determined to do my best in the last match. As we were exiting the field area, I looked up at the scoreboard for the final count. We had won. I jumped and hugged my teammates, my friends, and we walked proudly back down the hall.

Contest Reproducible

# Enter for a Chance to Win!

**Contest  
Deadline:  
11/14/05  
Hurry!**

**TOPIC:** Robotic devices can travel to places that humans cannot. Robots can reach places that are too small, too hot, or too far away. Choose one of the three fields below and identify a process that can be improved in that field.

-  Science
-  Manufacturing
-  Safety

Then write a two- to three-page essay describing how a robot would make the process easier, safer, or more efficient. Describe what your robot would do and why it would be effective.

## It's EASY to ENTER:

- 1. WRITE:** Respond to the topic above in a 2–3 page essay.
- 2. ENTER:** Complete the entry form.
- 3. SUBMIT:** Give your essay and entry form to your teacher, or mail it in yourself!

### GRAND PRIZES

- 1 Grand Prize Winner will win:**
- \$1,500 in Inventor's Cash
  - Vex Robotics Design System Starter Kit and choice of three accessory kits
  - Robotics-themed book
- Grand Prize Winner's class will win:**
- Wireless computer mouse
  - Robotics-themed book
- Grand Prize Winner's teacher will win:**
- \$1,500 science grant
  - Vex Robotics Design System Starter Kit
  - Robotics-themed library book set

### SECOND PRIZES

- 1 Second-Prize Winner will win:**
- \$750 in Inventor's Cash
  - Vex Robotics Design System Starter Kit and choice of two accessory kits
  - Robotics-themed book
- Second-Prize Winner's class will win:**
- Wireless computer mouse
  - Robotics-themed book
- Second-Prize Winner's teacher will win:**
- \$750 science grant
  - Robotics-themed library book set

### THIRD PRIZES

- 1 Third-Prize Winner will win:**
- \$500 in Inventor's Cash
  - Vex Robotics Design System Starter Kit and choice of one accessory kits
  - Robotics-themed book
- Third-Prize Winner's class will win:**
- Wireless computer mouse
  - Robotics-themed book
- Third-Prize Winner's teacher will win:**
- \$500 science grant
  - Robotics-themed library book set

**Judging Criteria:** Creativity • Use of language • Completeness of answer • Organization

## OFFICIAL ENTRY FORM

Complete the entry form and mail it in with your essay to : Robotics World Essay Contest, c/o Scholastic Inc., P.O. Box 713, New York, NY 10013-0713

Student name: \_\_\_\_\_ Grade: \_\_\_\_\_

Home address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

School name: \_\_\_\_\_

Teacher name: \_\_\_\_\_

School address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

School phone: \_\_\_\_\_ Home phone: \_\_\_\_\_

NO PURCHASE NECESSARY. Students who are U.S. residents currently enrolled in grades 9 through 12 are eligible to enter. To enter, write a two- to three-page essay based on the following topic: *Robotic devices can travel to places that humans cannot. Robots can reach places that are too small, too hot, or too far away. Choose one of the following three fields (science, manufacturing, safety) and identify a process that can be improved in that field. Then write a two- to three-page essay describing how a robot would make the process easier, safer, or more efficient. Describe what your robot would do and why it would be effective.* Mail entries to: Robotics World Essay Contest, Scholastic Inc., P.O. Box 713, New York, NY 10013-0713. Each entry essay must be two to three pages written legibly in ink, typed, or printed out on a word processor on an 8 1/2" x 11" sheet of paper, and must be accompanied by a completed entry form. Only one entry will be accepted from each student. All entries must be postmarked by 11/14/05 and received by 11/21/05. Winners will be judged on creativity, use of language, completeness of answer, and organization. **STUDENT PRIZES:** One (1) Grand Prize winner will receive \$1,500 in Inventor's Cash (ARV: \$1,500), a Vex Robotics Design System Starter Kit and choice of three (3) Accessory Kits (ARV: \$475), and a robotics-themed book (ARV: \$30). One (1) Second-Prize winner will receive \$750 in Inventor's Cash (ARV: \$750), a Vex Robotics Design System Starter Kit and choice of two (2) Accessory Kits (ARV: \$425), and a robotics-themed book (ARV: \$20). One (1) Third-Prize winner will receive \$500 in Inventor's Cash (ARV: \$500), a Vex Robotics Design System Starter Kit and choice of one (1) Accessory Kit (ARV: \$375), and a robotics-themed book (ARV: \$20). **TEACHER PRIZES:** The Grand Prize winner's teacher will receive a \$1,500 science grant (ARV: \$1,500), a Vex Robotics Design System Starter Kit (ARV: \$300), and a robotics library book set (ARV: \$100). The Second-Prize winner's teacher will receive a \$750 science grant (ARV: \$750) and a robotics library book set (ARV: \$75). The Third-Prize winner's teacher will receive a \$500 science grant (ARV: \$500) and a robotics library book set (ARV: \$50). **CLASSROOM PRIZES:** The classroom of the Grand Prize winner will receive a Modern Robotic Device (e.g., wireless computer mouse) (ARV: \$20) (class set of 30) and a robotics-themed book (ARV: \$30) (class set of 30). The classroom of the Second-Prize winner will receive a Modern Robotic Device (e.g., wireless computer mouse) (ARV: \$20) (class set of 30) and a robotics-themed book (ARV: \$20) (class set of 30). The classroom of the Third-Prize winner will receive a Modern Robotic Device (e.g., wireless computer mouse) (ARV: \$20) (class set of 30) and a robotics-themed book (ARV: \$10) (class set of 30). Winners will be notified on or about 1/13/06. For complete rules, please send a SASE to: Robotics World Essay Contest Rules, c/o Scholastic Inc., P.O. Box 713, New York, NY 10013-0713. Void where prohibited. SPONSOR: RadioShack, 300 RadioShack Circle, Fort Worth, TX 76102.

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