

TOSHIBA NSTA EXPLORAVISION AWARDS

Toshiba America, Inc. Rewards Tomorrow's Innovators

ALMOST EVERYONE WONDERS THE same thing at one time or another. *What did we do without cell phones? Laptops? BlackBerry® devices?* It wasn't that long ago that these innovations were considered futuristic luxuries. However, it's not often that we ponder the innovations that are yet to come—ones that could save and improve lives, as well as the environment. That is exactly what Toshiba America, Inc., in partnership with the National Science Teachers Association, challenged K-12 grade students in the U.S. and Canada to do with this year's 15th annual ExploraVision program.

Students had to select a piece of technology that exists today and research scientific principles to design innovative technologies that could exist in 20 years. They worked with their teachers as well as a mentor in the field they were researching. The winning projects were inspiring—even more so when you consider the ages of the students.

Let's take a look at what these students envisioned for our future...

National First Place Winners:

PALSS: Polymer Activated Life Saver System; Adobe Bluffs Elementary School; 2nd grade

All too familiar with fire damage in their areas, these second grade students from San Diego, Calif. envisioned a device to extinguish fires and save lives while reducing water damage in homes. With PALSS, compact polymer crystals trap water and expand to form a blanket that smothers fires and prevents water damage to building and home interiors. Within days the polymer would dehydrate back to crystal form and allow for easier post fire

clean-up because the leftover crystals could be vacuumed.

D.A.P.E.S: Diabetes Assistance and Prevention e-System; Discovery School; 4th grade

Inspired by a classmate, these students from Edinburg, Texas researched a potential tool that would help their young friend manage her diabetes. Traditionally, monitoring blood sugar

levels requires patients to prick themselves with a needle to have their blood read by a machine. The D.A.P.E.S is a nanosensor implant that could be secured to a tooth in order to analyze food intake. The nanosensor would then provide information, such as sugar levels, to a portable electronic device via wireless



Above: California Governor Arnold Schwarzenegger congratulates 1st place winners from Adobe Bluffs Elementary School. Below: Mr. Tadashi Okamura, chairman, Toshiba Corporation, awards students from Westerville, Ohio with the second place award and savings bonds at the 15th annual ExploraVision awards banquet in Washington, D.C.

communication and warn or reward children based on their food intake choices.

Passenger Tire Waste Heat Recovery System; Merion Mercy West Academy; 9th grade

This team from Merion Station, Penn. researched a system that would employ >>>



Jason Blythe, account executive in the Central West zone, visited Marsh Elementary in Rockford Ill., a national second place winning school.

nanotechnologies to recycle heat energy lost from automobile tire deformation while in motion. From their research, the students determined that the nanotechnology device would generate radiation from the tire heat that could be converted to electricity and then diverted through a super nano lattice to a car battery to provide power for the vehicle. Not only would this technology decrease greenhouse gases in the environment, but also it would reduce dependence on gasoline.

S.C.N.C.M.: Self Constructing Nano-Collector Molecules; Wando High School; 12th grade


These students from Mt. Pleasant S.C. focused their research on improving the lives of dialysis patients. The Self Constructing Nano-Collector Molecules employ nanotechnology in the design of a dialysis system that uses recycling self-assembling molecules to locate and clean impurities in the blood and deposit them into an artificial kidney before they reach the urinary system.

The second place teams were no less impressive. A team of third grade students from Rockford, Ill. developed an idea for the Sonic Brush Guard, a custom-fit, motorized guard-shaped toothbrush that cleans all of the user's teeth at once. A sixth grade team from Vancouver, B.C. took on the challenge of combating drug addiction and researched a possible vaccine. The Freedom from Drug Addiction Vaccine would enable the immune system to identify drug molecules and inoculate the body against the drug's addictive properties. Eighth graders from St. Louis, Mo. concentrated on water purification. Their project, PureWater, could solve one of the world's most pressing problems in third world countries—the scarcity of drinkable water—by providing individuals with a portable solution for decontaminating water. Finally, a group of 10th grade students from Westerville, Ohio researched a technology called NanoMist. Dispensed from an inhalant

once a month, NanoMist's time-released receptors on nano-sized liposomes containing insulin particles bind with excess glucose in the blood and trigger the release of insulin from the liposomes.

Out of more than 4,000 entries, four national first place winners and four national second place winners were selected. Each first place student received a \$10,000 savings bond, each second place student received a \$5,000 bond and all of the winning schools received a Toshiba laptop.

In addition, over the last several months, the winning teams have received special recognition coordinated by Toshiba America, Inc. Employees from Toshiba companies were asked to make award presentations to schools in their areas. Jason Blythe, account executive in the Central West zone, visited Marsh Elementary in Rockford Ill., a national second place winning school, and he accompanied them to the U.S. Capitol to visit their state representatives. The students also were recognized at a press conference at the National Press Club in Washington D.C. where Mr. Tadashi Okamura, chairman of Toshiba Corporation, and Mr. Toru Uchiike, chairman and CEO of Toshiba America, Inc. visited with each winning group to hear about the projects. The entire program culminated with a gala awards ceremony featuring "Bill Nye the Science Guy."

If you think your child's school would be interested in this program, visit www.exploravision.org or send an email to exploravision@nsta.org for more information. 



Accompanied by "Bill Nye the Science Guy," the winning students were interviewed by television news stations across the country.

ExploraVision Fast Facts

One of the largest K-12 science competitions in the world

Since its inception 15 years ago, Toshiba has invested more than \$15 million in the ExploraVision program

Since 1992, more than 200,000 students have participated in the program

The 2007 program year saw the highest entries in the past nine years:
4,705 entries—14,681 students—737 schools—1,032 teachers