



Environmental  
Protection Agency



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### **Unprecedented Fourth Time Winner of Governor's Awards for Excellence in Environmental Protection Research Announced at State Science Day 2012**

A recipient of the Governor's Award for Excellence in Environmental Protection Research at this year's high school Science Day is a four-time winner. This is the only time a recipient has succeeded in winning the award this many times.

Senior John Boykin, of St. Peter Chanel High School, Bedford won first place in his freshman and senior year, and second place in his sophomore and junior years for a multi-year project. The project titles were:

- 2009 – *Can recycled plastics be used to improve infrastructural concrete for bridges, roads and highways while reducing environmental waste and cost?*
- 2010 – *Can recycled plastics be used to reduce landfill waste, help improve the infrastructure of buildings, roads, highways and bridges and reduce greenhouse gas?*
- 2011 – *Can recycled rubber materials be used in concrete to reduce the carbon footprint, reduce environmental waste and reduce petroleum usage while improving infrastructure of bridges, roads and buildings?*
- 2012 – *Can recycled plastics and polymers be used in structural masonry block to reduce landfill waste, help build and preserve stronger building structures, reduce greenhouse gas and increase plant growth with green roofs?*

There have been only two other three-time winners. All winners receive \$100 prizes. In addition to the individual prizes, Ohio EPA provides \$10,000 annually as a major sponsor of the event.

State Science Day is organized and sponsored by the Ohio Academy of Science and is the equivalent of a state championship for science projects. The primary objective of State Science Day is to provide an opportunity for young students to demonstrate their abilities and interests in science through individual experimentation and research.

Each year, more than 35,000 students at more than 1,000 schools across Ohio participate in local science fairs and are judged on knowledge achieved, effective use of scientific method, clarity of expression, originality and creativity. Students who achieve superior ratings are invited to participate in district science fairs. More than 750 students from seventh through 12<sup>th</sup> grade, having each received a superior rating at a district science fair, participate in State Science Day and may be eligible for more than 90 different scholarships.

This year's recipients for the 2012 Governor's Award for Excellence in Environmental Protection Research and their projects include:

### **7<sup>th</sup> Grade**

First Place: Mr. Le-en Joseph Chiu, Mr. Rahul Kumar and Mr. John M. Wright, Home Schooled, Columbus (Franklin County), *Removing  $NA_3PO_4$  from a sample of water using FGD material*

Second Place: Ms. Lydia A. Vanoster, Tuscarawas Valley MS, Zoarville (Tuscarawas County), *Making ultrasonic cleaners greener*

Third Place: Ms. Rama N. Balasubramaniam, John Sells MS, Dublin (Franklin County), *Which household waste produces the most biogas?*

Honorable Mention: Mr. Drew S. Day, Hamersville ES, Hamersville (Brown County), *Creek Contamination: The real dirt*

### **8<sup>th</sup> Grade**

First Place: Mr. Adam C. Buynak, Tippecanoe MS, Tipp City (Miami County), *Flood Control: What is the best alternative material for sandbags?*

Second Place: Ms. Aishwarya Murali, Henry Karrer MS, Dublin (Franklin County), *How to clean up oil spills*

Third Place: Mr. William F. Thompson, Roosevelt MS, Springfield (Clark County), *The effect of pollution on the bioluminescence of *Vibrio fischeri**

Honorable Mention: Ms. Shelby M. Dalton, Rock Hill MS, Ironton (Lawrence County), *Water quality along the Ohio and lower Mississippi Rivers*

### **9<sup>th</sup> Grade**

First Place: Mr. Vishal Nallanagulagari, Grade 9, and Mr. Spandan N. Shah, Grade 10, Upper Arlington HS, Upper Arlington (Franklin County), *Utilization of various grades of waste paper for the production of ethanol and bio-products through fermentation*

Second Place: Ms. Nishantika Bhattacharya, Thomas Worthington HS, Worthington (Franklin County), *The revolution in the fire-fighting arsenal: Alginate*

Third Place: Mr. Osama A. Alkhalili, Maumee Valley Country Day, Toledo (Lucas County), *Iron effects on carbon dioxide biofixation by *Coccolithophorid* algae*

Honorable Mention: Mr. Yijia Liang, Upper Arlington HS, Upper Arlington (Franklin County), *The effect of M. aeruginosa on soybean and lettuce chlorophyll production*

### **10<sup>th</sup> Grade**

First Place: Ms. Kayla N. Kavanaugh, Seven Hills School, Cincinnati (Hamilton County), *Taking a natural approach: Phosphate removal with algae*

Second Place: Mr. Preston D. Holloper, St. Vincent St. Mary, Akron (Summit County), *Comparing the stability of alpha- and beta-alanine peptide beta-sheets for recyclable rubber*

Third Place: Ms. Elizabeth R. Walker, Tippecanoe HS, Tipp City (Miami County), *The effect of UV light on the DO levels given off by elodea*

Honorable Mention: Ms. Kendra M. Tope, Bloom Carroll HS, Carroll (Fairfield County), *Do cemeteries contain dangerous levels of arsenic in the soil?*

### **11<sup>th</sup> Grade**

First Place: Ms. Sanika D. Barve, William Mason HS, Mason (Warren County), *Efficient oil spill cleanup*

Second Place: Ms. Anna K. Mayo, Chesapeake HS, Chesapeake (Lawrence County), *The effects of a simple oil change on energy consumption and the environment*

Third Place: Ms. Leah S. Minor, Upper Arlington HS, Upper Arlington (Franklin County), *The impact of varying the ratio of trace minerals on the growth rate of cyanobacteria (blue-green algae)*

Honorable Mention: Mr. Humza S. Bashir, Springfield HS, Springfield (Clark County), *Does the use of salicylic acid in Buck Creek water inhibit algae growth?*

### **12<sup>th</sup> Grade**

First Place: Mr. John C. Boykin, St. Peter Chanel, Bedford (Cuyahoga County), *Can recycled plastics and polymers be used in structural masonry block to reduce landfill waste, help build and preserve stronger building structures, reduce greenhouse gas and increase plant growth with green roofs?*

Second Place: Ms. Kathleen M. Seeley, Benjamin Logan HS, Bellefontaine (Logan County), *A study on the use of lipid producing algae in wastewater treatment*

Third Place: Ms. Pauline M. Cappel, Sycamore HS, Cincinnati (Hamilton County), *DNA barcoding used to identify water quality organisms*

Honorable Mention: Ms. Katie M. Catanzarite, Lehman Catholic HS, Sidney (Shelby County), *Killing bacteria: UVC or pasteurization?*