# THE 50<sup>TH</sup> ANNUAL OZARKS SCIENCE & ENGINEERING FAIR

HAMMONS STUDENT CENTER MISSOURI STATE UNIVERSITY

April 6 – April 8, 2010



2010 WINNERS

Sponsored By:

Missouri State University – College of Natural & Applied Sciences Missouri State University Foundation Associated Electric Cooperative, Inc. Jordan Valley Innovation Center Schneider Foundation Positronic Industries F & H Food Equipment Company



### **MASTER OF CEREMONIES**

MICHELLE NORGREN EXECUTIVE DIRECTOR OZARKS SCIENCE & ENGINEERING FAIR

DR. TAMERA JAHNKE, DEAN COLLEGE OF NATURAL & APPLIED SCIENCES PRESENTER OF AWARDS



#### **OSEF COMMITTEE MEMBERS**

EXECUTIVE DIRECTOR: EXECUTIVE ASSISTANT: CORPORATE DISPLAYS & SPONSORSHIP DISPLAY & SAFETY: ELEMENTARY FAIR:

PLACEMENT AWARDS: SPECIAL AWARDS:

VOLUNTEERS:

WEB PAGE DEVELOPMENT:

MEMBER-AT-LARGE

MICHELLE NORGREN JULIANNA NORGREN JEFF RAWSON KEN MCCRORY JESICA DUDLEY CHARLES DOAN ADAM CRANE CHERYL SCHAEFER WRINKLE SAMANTHA SCHAEFER ROCHELLE SMITH CHARLES DOAN SUE MCCRORY JESICA DUDLEY KATHY SHADE

#### SCIENTIFIC REVIEW COMMITTEE

DR. TOM TOMASI, CHAIR DR. JACK STEIERT, MICROBIOLOGY BRIAN HIGH, CHEMISTRY DR. MATTHEW FANETTI, HUMAN BEHAVIOR DR. MICHAEL PFANDER, DVM, NONHUMAN VERTEBRATES

### **MAJOR SPONSORS**

#### MISSOURI STATE UNIVERISTY - DEPARTMENT OF NATURAL & APPLIED SCIENCES

#### MISSOURI STATE UNIVERSITY FOUNDATION

#### ASSOCIATED ELECTRIC COOPERATIVE, INC.

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### 2010 AWARDS AND SPONSORS

AMERICAN CHEMICAL SOCIETY - OZARK SECTION AMERICAN METEOROLOGICAL SOCIETY AMERICAN PSYCHOLOGICAL ASSOCIATION AMERICAN SOCIETY OF MAMMALOGISTS THE ASM INTERNATIONAL FOUNDATION ASSOCIATION OF WOMEN GEOSCIENTISTS BAKER CHAIR OF INSURANCE/GAMMA IOTA SIGMA THE LAWRENCE E. BANKS, JR., MEMORIAL AWARD THE IRENE BRUNER MEMORIAL AWARD CITY OF SPRINGFIELD – SOLID WASTE DIVISION COMMUNITY FOUNDATION OF THE OZARKS DRURY UNIVERSITY EVANGEL UNIVERSITY EXPANDING YOUR HORIZONS: WOMEN IN SCIENCE GREATER OZARKS AUDUBON SOCIETY INTEL JORDAN VALLEY INNOVATION CENTER MISSOURI DEPARTMENT OF CONSERVATION MISSOURI MASTER NATURALISTS MISSOURI SOCIETY OF PROFESSIONAL ENGINEERS MISSOURI SOLAR ENERGY ASSOCIATION MISSOURI STATE UNIVERSITY COLLEGE OF NATURAL & APPLIED SCIENCES MISSOURI STATE UNIVERSITY DEPARTMENT OF BIOLOGY MISSOURI STATE UNIVERSITY DEPARTMENT OF INDUSTRIAL MANAGEMENT MISSOURI STATE UNIVERSITY DEPARTMENT OF PHYSICS, ASTRONOMY & MATERIALS **SCIENCE** 

MISSOURI STATE UNIVERSITY SOCIETY OF PHYSICS STUDENTS THE LOU & NADINE MOORE MEMORIAL AWARD MU ALPHA THETA MATHEMATICS HONOR SOCIETY NATIONAL ENVIRONMENTAL SCIENCE FAIR NATIONAL OCEANIC & ATMOSPHERIC **ADMINISTRATION** NATIONAL SOCIETY OF PROFESSIONAL **ENGINEERS OZARKS SCIENCE & ENGINEERING FAIR** OZARKS TECHNICAL COMMUNITY COLLEGE THE MARY JEAN PLASTER MEMORIAL AWARD THE ROBERT W. PLASTER MEMORIAL AWARD POSITRONIC INDUSTRIES RICOH CORPORATION THE REGIONAL FAIR DIRECTOR EMERITUS "SYLVIA SPEAR" AWARD SCHNEIDER FOUNDATION SMITH-GLYNN-CALLOWAY FOUNDATION STOCKHOLM JUNIOR WATER PRIZE THE JAMES K. TICE MEMORIAL TEACHER AWARD TROPHIES, ETC. UNITED STATES AIR FORCE UNITED STATES ARMY UNITED STATES NAVY/MARINE CORPS UNITED STATES METRIC ASSOCIATION UNITED STATES PUBLIC HEALTH SERVICE WALLACE WEBER MEMORIAL AWARD WATERSHED COMMITTEE OF THE OZARKS YALE SCIENCE & ENGINEERING ASSOCIATION

### **SENIOR DIVISION GRAND PRIZE WINNERS & ALTERNATES**

<u>(Grand Prize Awards Sponsored by: F & H Food Equipment Company, Jordan Valley</u> <u>Innovation Center, Positronic Industries, Schneider Foundation & Associated Electric</u> <u>Cooperative, Inc. - includes plaques and trip to the Intel International Science &</u> Engineering Fair for the Grand Prize Winners.)

- <u>GRAND PRIZE</u> Kaysha Ousley Effects of SBG Liquids on Triticum aestivum Mansfield High School Pam Probert
- <u>GRAND PRIZE</u> Lexi Sherman Use of Natural Peroxidase on as a Lignin Decomposer Mansfield High School Pam Probert

(Grand Prize Alternate Awards sponsored by the Ozarks Science & Engineering Fair; includes \$100 Cash Award.)

- 1st ALTERNATESam MyearsMyocardial Energetics and Hemodynamic Alternations Due to<br/>Energy Drinks<br/>Greenwood Lab School<br/>Todd VanGorden
- <u>2nd ALTERNATE</u> George Boyd IV Insulated Concrete Forms and Efficiency Greenwood Lab School Todd VanGorden

### JUNIOR DIVISION GRAND PRIZE WINNERS Sponsored by the Ozarks Science & Engineering Fair

(\$75 & plaque to each Junior Grand Prize Winner & Teacher; \$75 to each Junior Grand Prize Alternate & Teacher)

GRAND PRIZELeilani DeRuvo<br/>Bounce It High!<br/>Wood Elementary School<br/>Sharon DeRuvoAlternateMykaela R. Baze<br/>A Splash of Color<br/>Partridge Elementary

Dean Gann

# THE 2010 JUNIOR DIVISION



## PLACEMENT AWARD WINNERS!

## JUNIOR DIVISION PLACEMENT AWARDS

	AND SOCIAL SCIENCES	<u>CHEMISTRY</u>			
1st Place:	Nicole Lenzmeier Mnemonic Theory Dixon Middle School David Sirett	1st Place:	Mykaela Baze A Splash of Color Partridge Elementary Dean Gann	1st Place:	Rahul Sen Do Different Environments Affect Release of CO <sub>2</sub> in Dry Ice?
2nd Place:	Rose Elizabeth John Tickling Your Tastebuds Freedom Elementary Rebecca Tate	2nd Place:	Cuyler Obermaier Do Different Brands of Shampoo Have Different pH?	2nd Place:	St. Joseph MS Miriam Jump Caleb Dalton
3rd Place:	Ty Crisp The Effect of Video Games on Reaction Time Manes R-5 Debra Burgard	3rd Place:	St. Joseph MS Miriam Jump Paul Vienhage Baconator vs. Cucumbanator		Finding Thermal Resistance R-Valve of Insulator Pleasant View MS Darlene Henne
4th Place:	Jessie Smith Getting Psyched: Difficult or Easy? Pleasant View MS Darlene Henne	4th Place:	Immaculate Conception Timothy Hayes Viviana Rodriguez Courtney Vermillion What Would You Prefer? Marshfield Junior High	3rd Place:	William Wylie The Effects of Different Types of Lights on Plant Growth Manes R-5 Debra Burgard
BOTANY			Kim Potter, Aaron Tillman	4th Place:	Justin Abresch Erosion Explosion
1st Place:	Mitchell Johnson Does Classical and Heavy Metal Music Affect Grass Growth? The Summit Preparatory Laura Stroup	ENGINEERING 1st Place:	Patrick Toplikar How Many Volts Can a Human Produce on a Bike?		Wood Elementary School Debra Jones Savanna Reid Do Different Colors of Acetate Absorb Different
2nd Place:	Alexis Carroll Effects of Liquids on Old Man Fuzzy Jew Skyline R-2 Lannie Hinote	2nd Place:	St. Joseph MS Miriam Jump Ryan Fitzpatrick Does the Shape of an Airplane's Wind Affect Aerodynamics?	MEDICINE & HE	Amounts of UV Rays? St. Joseph MS Miriam Jump EALTH Abbie Knox
3rd Place:	Sarah Carpenter What is the Effect of Different Storage Techniques on the Size of Grape Tomatoes? Freedom Elementary	3rd Place:	St. Joseph MS Miriam Jump Thomas Grant The Effect of Air Pressure on Rolling Resistance	2nd Place:	Which Pair of Sunglasses Has More UV Protection? St. Joseph MS Miriam Jump Aaron Linder
4th Place:	Ms. Lane Steven Schupbech Soaking Soils Clever R-5 MS Debbie Hawkins	4th Place:	Manes R-5 Debra Burgard Jennifer Trigg Earthen Levees Waynesville MS Lester Trigg	3rd Place:	Effects of Exercise on the Body Temperature Skyline R-2 Lannie Hinote Emma Wilkerson Effects of Music on Heart
			2000 1199		Rate Skyline R-2 Lannie Hinote

# JUNIOR DIVISION PLACEMENT AWARDS

4th Place:	Karissa Varga Does Lack of Sleep Affect Coordination? St. Joseph MS Miriam Jump
PHYSICS	
1st Place:	Leilani DeRuvo Bounce High! Wood Elementary School Sharon DeRuvo
2nd Place:	Madisyn Harris Abbey Waterworth Veggies or Fruits: Who Wins the Power? Clever MS Sarah Moulder
3rd Place:	Benny Amigon What Materials Can Make Cement Stronger? St. Joseph MS Miriam Jump
4th Place:	Jordan Brister Is It the Bottle or Is It the Can? That is the Question Waynesville MS Dolores Brister
ZOOLOGY	
1st Place:	Skyler O'Neal The Effect of Different Beverages on the Life Span of House Crickets The Summit Preparatory Laura Stroup
2nd Place:	John Carnahan The Six-Legged Pepsi Challenge Immaculate Conception Timothy Hayes
3 <sup>rd</sup> Place:	Gabe Hanafin Lacey Menzie Rodent Maze Clever R-5 Rachel Bussard
4 <sup>th</sup> Place:	Austin Wilhite Effects of Amount of Food Eaten Skyline R-2 Lannie Hinote

# THE 2010 SENIOR DIVISION



## PLACEMENT AWARD WINNERS!

## SENIOR DIVISION PLACEMENT AWARDSBEHAVIORAL AND SOCIAL SCIENCESBOTANYEARTH SCIENCES

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	L AND SOCIAL SCIENCES		
1st Place:	Nathan Bogart Is Assertiveness a Function of Birth Order? Mansfield HS Pam Probert	1st Place:	Kaysha Ousley Effects of SBG Liquids on Tridicum aestiuum Mansfield HS Pam Probert
2nd Place:	Brendon Mueller Driving Distractions: Do They Affect Teens or Adults? Nixa HS Christina Shepherd	2nd Place:	Sara Werland The Effect of Acid Rain on Latrus odoratus Pleasant Hope HS James Flora
3rd Place:	Heather O'Conner Try to Lie to Me Nixa HS Christina Shepherd	3rd Place:	Emily McCormick Organic Support Nixa HS Christina Shepherd
4th Place:	Myra Milan A Statistical Analysis of Predicting Alzheimer's Greenwood Lab School Todd VanGorden	4th Place:	Anna Waldschlager A Determination of Presence of Guard Bacteria in the Parenchyma Cells Pleasant Hope HS James Flora
BIOCHEMIS	TRY	CHEMISTRY	, -
1st Place:	Madison Smith Nucleotide-Based Aptamer Tests for Benzoylmethyl Ecgonine on Currency Greenwood Lab School Todd VanGorden	1st Place:	Emily Neal Christen Grey The Effects of Competing Metals on the Corrosion of Iron Mansfield HS Pam Probert
2nd Place:	Wyatt Bake	2nd Place:	
	Effectiveness of Various Foods as Fuels for a Thermal Lance and Their Relative Chemical Energies Pleasant Hope HS James Flora		Jack Shirley The Effects of Acids of Bases on Sharpie Stained Shirt Nixa HS Christina Shepherd
3rd Place:	Foods as Fuels for a Thermal Lance and Their Relative Chemical Energies Pleasant Hope HS	3rd Place:	The Effects of Acids of Bases on Sharpie Stained Shirt Nixa HS
3rd Place: 4 <sup>th</sup> Place:	Foods as Fuels for a Thermal Lance and Their Relative Chemical Energies Pleasant Hope HS James Flora Callie Sare Comparison of Actual Milk Protein Content to Nutritional Labels Pleasant Hope HS		The Effects of Acids of Bases on Sharpie Stained Shirt Nixa HS Christina Shepherd Aundrea Davis Oxidize This! Super Fruits in Action Nixa HS

1st Place:	Kendra Woolmann Jordan Loge Effects of Chloramine on Monocots and Dicots Mansfield HS Pam Probert
2nd Place:	Karee Brown Thermokarst Environments on Mars: Where Did the Water Go? Kickapoo HS Rick Snyder
3rd Place:	Michelle Rathe Mitigating Liquefaction Using Air Bubbles Kickapoo HS Rick Snyder
4th Place	Austin Hyde Liquefaction Reaction Nixa HS Christina Shepherd
ENGINEERI	NG
1st Place:	Austin Rokusek Lonnie Fulp Effects of Fuel Emissions
	on Raphenus satiuss Mansfield HS Pam Probert
2nd Place:	Mansfield HS
2nd Place: 3rd Place:	Mansfield HS Pam Probert George Boyd IV Insulated Concrete Forms and Efficiency Greenwood Lab School
	Mansfield HS Pam Probert George Boyd IV Insulated Concrete Forms and Efficiency Greenwood Lab School Todd VanGorden Richard Convers The Effects of Bridge Type on Failure Weight Strafford HS

## SENIOR DIVISION PLACEMENT AWARDS

ENVIRONMI	<u>ENTAL</u>	MICROBIOL	<u>.0GY</u>
1st Place:	Lexi Sherman The Effects of Natural Peroxidase as a Lignin Decomposer Mansfield HS Pam Probert	1st Place:	Angela Crase Can You Hear Me Now? Thayer HS Peggy Veatch Hilliary Shumack Which Mouthwash Rids
2nd Place:	Dallas Wylie Gabryel McBaine The Effects of Plastic Residues on Growth of		Mouth Bacteria Best? Thayer HS Peggy Veatch
	Plants Hartville HS	PHYSICS	
3rd Place:	Tabitha Shaver Amy Richter Testing the Ability of Lead	1st Place:	William Law Bang! Bang! Nixa HS Christina Shepherd
	to Travel Through Soils Kickapoo HS Rick Snyder	2nd Place:	Aaron Dennis Drag Coefficients of Different Swimsuits
4th Place:	Alainna Collins The Damage of Pesticide Usage Nixa HS Christina Shepherd		Greenwood Lab School Todd VanGorden Tucker Kirkland Recycled Materials as
	ND HEALTH		Concrete Reinforcements Mansfield HS Pam Probert
1st Place:	Evelyn Bush The Effects of Antioxidants on the Lifespan and Activity of Drosophilia melanogaster Greenwood Lab School Todd VanGorden	3rd Place:	Erin Pitts The Effects of Acidic Drin son the Strength of Teeth Hartville HS Tabitha Shaver Tran Thien Bao Tang
2nd Place:	Sam Myears Hemodynamic Effects Due to a Commercially Available Energy Drink Greenwood Lab School		Photoelectrical Properties of MWCNT/T:O <sub>2</sub> Solar Ce Greenwood Lab School Todd VanGorden
3rd Place:	Todd VanGorden Alisha Gray Effects of Heat on Aneuploid Plant Cells Mansfield HS	4th Place:	Nathan Duke Calculating the Accelerat Due to Gravity Parkview HS Stephanie Blake
4 <sup>th</sup> Place:	Pam Probert Anna Brink Carbohydrates vs. Protein Nixa HS Christina Shepherd		Kaitie Greer The Effect of Arrow Tip Weight Thayer HS Peggy Veatch

	WARDS
<u>ZOOLOGY</u>	
1st Place:	Katie Hanson The Effects of H <sub>2</sub> O <sub>2</sub> on the Regeneration of Lumbiculus Mansfield HS Pam Probert
2nd Place:	J. D. Mahaffey The Effect of Polychromatic Light on the Egg Quality of Laying Hens Greenwood Lab School Todd VanGorden
1	

# THE 2010 JUNIOR & SENIOR DIVISION



## SPECIAL AWARD WINNERS!

### SPECIAL AWARDS

#### AMERICAN CHEMICAL SOCIETY, OZARKS SECTION

\$100 Cash Award to Student and \$50 Flinn Certificate to Teacher

Senior Division: Sophie Fursa Milk Polymers Kickapoo HS

#### THE AMERICAN METEOROLOGICAL SOCIETY

Certificate of Award

Senior Division: Kaysha Ousley The Effects of SGB Liquids on the Germination and Growth Rate of Triticum aestivum Mansfield HS

#### AMERICAN SOCIETY OF MAMMALOGISTS

Certificates of Award

Junior Division: Sydney Hanafin Riley Wallis Jessica Wilson Are Beagles Color Blind? Clever MS

#### THE ASM MATERIALS EDUCATION FOUNDATION

Medallion & Certificate of Award (Medallion will be mailed to recipient)

Senior Division: George Boyd IV Insulated Concrete Forms and Efficiency Greenwood Lab School

#### THE AMERICAN PSYCHOLOGICAL SOCIETY

#### Certificate of Award

Senior Division: Nathan Bogart Is Assertiveness a Function of Birth Order Mansfield HS

#### THE ASSOCIATION OF WOMEN GEOSCIENTISTS

Certificate of Recognition

Senior Division: Kendra Woolman Jordan Loge Effects of Chloramine on the Inhibition and Germination of Monocot and Dicot Seeds Mansfield HS

#### BAKER CHAIR OF INSURANCE/GAMMA IOTA SIGMA AWARD

\$50 Cash & Certi	ficate of Achievement
Senior Division:	Richard Convers The Effects of Bridge Type on Failure Weight Strafford HS

#### **IRENE BRUNER MEMORIAL AWARD**

\$25 Cash & Certificate of Award

Junior Division: Elizabeth John Tickling Your Tastebuds Freedom Elementary

#### <u>CITY OF SPRINGFIELD – SOLID WASTE</u> <u>DIVISION</u>

Recycled T-Shirt

Senior Division: Gabryel McBaine Dallas Wylie The Effects of Plastic Residues on the Growth of Plants Hartville HS

> Alainna Collins The Damages of Pesticide Usage Nixa HS

#### CONSTELLATION CLUB – TROPHIES ETC. "GALAXY EXPLORERS" AWARD

\$25 Cash Award to each

Junior Division:

Clayton Reichard Rocket Nozzles The Summit Preparatory

Karee Brown Where Did the Water Go? Kickapoo HS

#### DRURY UNIVERSITY

3 Hours Undergraduate Credit to each Senior High First Place Award Winner

Senior Division:

Nathan Bogart Is Assertiveness a Function of Birth Order? Mansfield HS

Madison Smith Nucleotide-Based Aptamer Tests for Benzoylmethyl Ecgonine on Currency Greenwood Lab School

Kaysha Ousley Effects of SBG Liquids on Triticum aestivum Mansfield HS

Emily Neal Christen Grey The Effects of Competing Metals on the Corrosion of Iron Mansfield HS

Kendra Woolmann Jordan Loge Effects of Chloramine on Monocots and Dicots Mansfield HS

Austin Rokusek Lonnie Fulp Effects of Fuel Emissions on Raphenus satiuss Mansfield HS

Lexi Sherman The Effects of Natural Peroxidase as a Lignin Decomposer Mansfield HS

Evelyn Bush The Effects of Antioxidants on the Lifespan and Activity of Drosophilia melanogaster Greenwood Lab School

Angela Crase Can You Hear Me Now? Thayer HS

#### **DRURY UNIVERSITY (cont.)**

Senior Division: Hilliary Shumack Which Mouthwash Rids Mouth Bacteria Best? Thayer HS

> William Law Bang! Bang! Nixa HS

Katie Hanson The Effects of H<sub>2</sub>O<sub>2</sub> on the Regeneration of Lumbiculus Mansfield HS

6 Hours Undergraduate Credit to the Senior High Grand Prize Award Winners

- Senior Division: Kaysha Ousley Effects of SBG Liquids on Tridicum aestiuum Mansfield HS
  - Lexi Sherman The Effects of Natural Peroxidase as a Lignin Decomposer Mansfield HS

#### EVANGEL UNIVERSITY

\$1,500 Scholarship to each Senior Division First Place Winner as Entering Freshmen

Senior Division: Nathan Bogart Is Assertiveness a Function of Birth Order? Mansfield HS

> Madison Smith Nucleotide-Based Aptamer Tests for Benzoylmethyl Ecgonine on Currency Greenwood Lab School

Kaysha Ousley Effects of SBG Liquids on Tridicum aestiuum Mansfield HS

Emily Neal Christen Grey The Effects of Competing Metals on the Corrosion of Iron Mansfield HS

### SPECIAL AWARDS

#### EVANGEL UNIVERSITY (cont.)

Senior Division: Kendra Woolmann Jordan Loge Effects of Chloramine on Monocots and Dicots Mansfield HS Austin Rokusek Lonnie Fulp Effects of Fuel Emissions on Raphenus satiuss Mansfield HS Lexi Sherman The Effects of Natural Peroxidase as a Lignin Decomposer Mansfield HS Evelyn Bush The Effects of Antioxidants on the Lifespan and Activity of Drosophilia melanogaster Greenwood Lab School Angela Crase Can You Hear Me Now? Thayer HS Hilliary Shumack Which Mouthwash Rids Mouth Bacteria Best? Thayer HS William Law Bang! Bang! Nixa HS Katie Hanson The Effects of H<sub>2</sub>O<sub>2</sub> on the Regeneration of Lumbiculus Mansfield HS \$2,500 Scholarship to each Grand Prize Award Winner as Entering Freshmen Senior Division: Kaysha Ousley Effects of SBG Liquids on Tridicum aestiuum Mansfield HS Lexi Sherman The Effects of Natural Peroxidase as a Lignin Decomposer Mansfield HS

#### EXPANDING YOUR HORIZONS: WOMEN IN SCIENCE

 \$10 Book Card & Certificate of Award
Junior Division: Abbie Knox Which Pair of Sunglasses Has More UV Protection? St. Joseph MS
Senior Division: Joslyn Arthur Suck It Up: Using Bioreclamation to Remove Lead from Contaminated

Soil

Kickapoo HS

\$25 Barnes Noble Gift

Junior Division: Leilani DeRuvo Bounce It High! Wood Elementary

Senior Division: Evelyn Bush Effects of Antioxidants on the Lifespan and Activity of Drosophila melanogaster Greenwood Lab School

#### <u>GREATER OZARK AUDOBON SOCIETY</u> <u>"ENVIRONMENTAL AWARENESS</u> <u>AWARD"</u>

One Year Membership in the National Audubon Society & Field Guide

Senior Division: Lexi Sherman The Effects of Natural Peroxidase as a Lignin Decomposer Mansfield HS

#### THE NATIONAL ENVIRONMENTAL SCIENCE FAIR HERO OF PLANET EARTH ("HOPE") AWARD

Award Certificate & Invitation to the National Environmental Science Fair

Junior Division: N

Montana Quinn St. Joseph MS

Ashley Hannah Clever MS

Trenton Dobbs Manes R-5

#### THE NATIONAL ENVIRONMENTAL SCIENCE FAIR HERO OF PLANET EARTH ("HOPE") AWARD (cont.)

Junior Division:

Sage Clunn Skyline R-2

> Samantha Cochran Skyline R-2

Alexis Carroll Skyline R-2

Mitchell Johnson The Summit Preparatory

Mikaela Smith The Summit Preparatory

Sarah Carpenter Freedom Elementary

Kameron Piper Immaculate Conception

Michaela Allen Clever MS

Katie Box Clever MS

Mhari Rowell Clever MS

Paul Vienhage Immaculate Conception

Hallis Taylor Manes R-V

Patrick Toplikar St. Joseph MS

Jamie Lewellen Clever MS

Jennifer Trigg Waynesville MS

Jack Johnson The Summit Preparatory

Thomas Grant Manes R-5

Quincy Rose Dixon MS

Rahul Sen St. Joseph MS

## SPECIAL AWARDS

#### THE NATIONAL ENVIRONMENTAL SCIENCE FAIR HERO OF PLANET EARTH ("HOPE") AWARD (cont.)

Junior Division: S

Savannah Reid St. Joseph MS

Hesston Burton Manes R-5

Justin Abresch Wood Elementary

Joseph Misterovich The Summit Preparatory

Andrew Workman The Summit Preparatory

Caleb Dalton Pleasant View MS

Abbie Knox St. Joseph MS

Abbey Waterworth Clever MS

Madisyn Harris Clever MS

Jordan Brister Waynesville MS

Austin Wilhite Skyline R-2

Skylar O'Neal The Summit Preparatory

Haley Armstrong Clever MS

Katie Lamberson Clever MS

Lesley Eck Clever MS

Senior Division: Courtney Horton Thaver HS

> Erin Dierksen Mansfield HS

Wyatt Bake Pleasant Hope HS

Callie Sare Pleasant Hope HS

#### THE NATIONAL ENVIRONMENTAL SCIENCE FAIR HERO OF PLANET EARTH ("HOPE") AWARD (cont.)

Senior Division:

Grace Basset Nixa HS

Madison Smith Greenwood Lab School

Joslyn Arthur Kickapoo HS

Alex Scott Nixa HS

Nick Schriver Nixa HS

Jesse Bihlmeyer Nixa HS

Sarah Reynolds Nixa HS

Emily McCormick Nixa HS

Evan Sterling Nixa HS

Kaysha Ousley Mansfield HS

Zachary McClanahan Hartville HS

Stephen Buechler Nixa HS

Sara Werland Pleasant Hope HS

Anna Waldschlager Pleasant Hope HS

Josh Lee Pleasant Hope HS

Joshua Yoes Nixa HS

Heidi Shelley Nixa HS

Hannah Shook Nixa HS

Sophie Fursa Kickapoo HS

#### THE NATIONAL ENVIRONMENTAL SCIENCE FAIR HERO OF PLANET EARTH ("HOPE") AWARD (cont.)

Senior Division:	Katherine Moran
	Ava HS

Karen Ragsdale Hartville HS

Alicia Omohundro Hartville HS

Jack Shirey Nixa HS

Mickey Davis Nixa HS

Aundrea Davis Nixa HS

Blade Keller Nixa HS

Emily Neal Mansfield HS

Michelle Rathe Kickapoo HS

Austin Hyde Nixa HS

Paul Somers Kickapoo HS

Karee Brown Kickapoo HS

Kendra Woolman Mansfield HS

Christopher Done Greenwood Lab School

Will Fors Nixa HS

Sean Gilbert Nixa HS

Austin Rokusek Mansfield HS

Madeleine Esther Greenwood Lab School

George Boyd IV Greenwood Lab School

## SPECIAL AWARDS

#### THE NATIONAL ENVIRONMENTAL SCIENCE FAIR HERO OF PLANET EARTH ("HOPE") AWARD (cont.)

•	
Senior Division:	Devon Whitlock Greenwood Lab School
	Nick Zummo Nixa HS
	Shane Rasor Nixa HS
	Amy Richter Kickapoo HS
	Eric Tompkins Hartville HS
	Sarah Cook Hartville HS
	Dallas Wylie Hartville HS
	Gabryel McBaine Hartville HS
	Alainna Collins Nixa HS
	Lexi Sherman Mansfield HS
	Chris Algiere Greenwood Lab School
	Cory McCoy Greenwood Lab School

Logan Hughes Greenwood Lab School

Greg Fuller Thayer HS

Sam Myears Greenwood Lab School

Samantha Groves Nixa HS

Sarah Jamison Nixa HS

Anna Brink Nixa HS

#### THE NATIONAL ENVIRONMENTAL SCIENCE FAIR HERO OF PLANET EARTH ("HOPE") AWARD (cont.)

Senior Division: Ashley Hesterberg Nixa HS

> Halea Gregg Nixa HS

Alisha Gray Mansfield HS

Evelyn Bush Greenwood Lab School

Jeremy Vermillion Nixa HS

Sally H'Doubler Greenwood Lab School

Hilliary Shumack Thayer HS

Daniel Warken Hartville HS

Erin Pitts Hartville HS

Matthew Treml Nixa HS

Tucker Kirkland Mansfield HS

Tran Tang Greenwood Lab School

Ben Latimer Parkview HS

Shelby Feistner Parkview HS

J.D. Mahaffey Greenwood Lab School

Katie Hanson Mansfield HS

#### INTEL "EXCELLENCE IN COMPUTER SCIENCE" AWARD

Certificate of Award & \$200 Cash (to be mailed)

Senior Division: J. D. Mahaffey The Effect of Polychromatic Light on the Egg Quality of Laying Hens Greenwood Lab School

#### JORDAN VALLEY INNOVATION CENTER

\$1500 Summer Work Study Award

Senior Division: Aaron Dennis Drag Coefficients of Different Swimsuits Greenwood Lab School

#### MISSOURI DEPARTMENT OF CONSERVATION

Plaque & Conservation Department Materials

- Junior Division: Steven Schupbach Soaking Soils Clever MS
- Senior Division: Katie Hanson Effects of H<sub>2</sub>O<sub>2</sub> on the Regeneration of Lumbriculus

#### MISSOURI MASTER NATURALIST AWARD, JUNIOR DIVISION

Certificate of Award & \$50 Cash

Junior Division: Justin Abresch Erosion Explosion! Wood Elementary

#### MISSOURI MASTER NATURALIST AWARD, SENIOR DIVISION

Certificate of Award & \$50 Cash

Senior Division: Lexi Sherman The Effect of Natural Peroxidase as a Lignin Decomposer in Modern Landfills Mansfield HS

## SPECIAL AWARDS

#### **MISSOURI SOLAR ENERGY**

Solar Calculator

Junior Division: Savanna Reid Do Different Colors of Acetate Absorb Different Amounts of UV Rays? St. Joseph MS

#### MISSOURI SOCIETY OF PROFESSIONAL ENGINEERS

\$100 Cash Award

Senior Division: Will Fors Hydrogen and Oxygen Induction on an Internal Combustion Engine Nixa HS

> Richard Convers The Effect of Bridge Type on Failure Weight Strafford HS

#### MISSOURI STATE UNIVERSITY COLLEGE OF NATURAL AND APPLIED SCIENCES

\$50 Cash Award

- Junior Division: Leilani DeRuvo Bounce It High! Wood Elementary Senior Division: Kaysha Ousley
- Effects of SBG Liquids on Triticum aestivum Mansfield HS

Lexi Sherman The Effects of Natural Peroxidase as a Lignin Decomposer Mansfield HS

#### MISSOURI STATE UNIVERSITY DEPARTMENT OF BIOLOGY

Certificates to students & plaques to teachers

Junior Division: Alexis Carroll Effects of Liquids on Old Man Fuzzy Jew Skyline R-2

> Clayton Reichard Rocket Nozzles The Summit Preparatory

#### MISSOURI STATE UNIVERSITY DEPARTMENT OF BIOLOGY (cont.)

Junior Division:

Aaron Linder Effects of Exercise on Body Temperature Skyline R-2

Skyler O'Neal The Effects of Different Beverages on the Lifespan of House Crickets The Summit Preparatory

Katie Hanson Effects of H<sub>2</sub>O<sub>2</sub> on the Regeneration of Lumbriculus Mansfield HS

Angela Crase Can You Hear Me Now? Thayer HS

Lexi Sherman The Effects of Natural Peroxidase as a Lignin Decomposer Mansfield HS

Evelyn Bush The Effects of Antioxidants on the Lifespan and Activity of Drosophila melanogaster Greenwood Lab School

Kaysha Ousley Effects of SBG Liquids on Triticum aestivum Mansfield High School

\$1,000 Work Study Award

Senior Division:

Katie Hanson The Effects of H<sub>2</sub>O<sub>2</sub> on the Regeneration of Lumbiculus Mansfield HS

#### MISSOURI STATE UNIVERSITY DEPARTMENT OF INDUSTRIAL MANAGEMENT

\$100 Cash Award & Certificate

Junior Division: Richard Convers The Effects of Bridge Type on Failure Weight Strafford HS

#### MISSOURI STATE UNIVERSITY DEPARTMENT OF PHYSICS, ASTRONOMY & MATERIALS SCIENCE

Portable Computer Storage & Certificate of Award

Senior Division: Stuart Beezley Coefficient of Restitution in Tennis Balls Greenwood Lab School

#### MISSOURI STATE UNIVERSITY SOCIETY OF PHYSICS STUDENTS

Certificate of Award & Paperweight

Senior Division: Tran Thien Bao Tang Photoelectrical Properties of MWCNT/T:O<sub>2</sub> Solar Cell Greenwood Lab School

#### LOU & NADINE MOORE MEMORIAL AWARD

\$50 Cash Award to the top Junior Division projects covering Education or Special Needs

Junior Division: Samantha Adams Males vs. Females: Which Gender Dominates Class Discussions? St. Joseph MS

> Sarah Gutzke The Effects of Music on Short Term Memory The Summit Preparatory

#### MU ALPHA THETA NATIONAL MATHEMATICS HONOR SOCIETY

Certificate of Award

- Senior Division:
- Chris Aiken Formulating a Winning Season Greenwood Lab School

## SPECIAL AWARDS

#### NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Certificate of Award, Letter of Congratulations & Medallion

Junior Division: Trenton Dobbs The Effect of Salt Water on Plant Growth Manes R-5

#### NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS "INNOVATIVE ENGINEERING" AWARD

Certificate of Award & Lapel Pin

Senior Division: Austin Rokusek Lonnie Fulp Effects of Fuel Emissions on Raphenus satiuss Mansfield HS

#### OZARKS TECHNICAL COMMUNITY COLLEGE

- Water Bottles & Assorted OTCC Items
- Senior Division: Nathan Bogart Is Assertiveness a Function of Birth Order? Nixa HS

Madison Smith Nucleotide-Based Aptamer Tests for Benzoylmethyl Ecgonine on Currency Greenwood Lab School

Kaysha Ousley Effects of SBG Liquids on Tridicum aestiuum Mansfield HS

Emily Neal Christen Grey The Effects of Competing Metals on the Corrosion of Iron Mansfield HS

Kendra Woolmann Jordan Loge Effects of Chloramine on Monocots and Dicots Mansfield HS

#### OZARKS TECHNICAL COMMUNITY COLLEGE (cont.)

Senior Division:

Austin Rokusek Lonnie Fulp Effects of Fuel Emissions on Raphenus satiuss Mansfield HS

Lexi Sherman The Effects of Natural Peroxidase as a Lignin Decomposer Mansfield HS

Evelyn Bush The Effects of Antioxidants on the Lifespan and Activity of Drosophilia melanogaster Greenwood Lab School

Angela Crase Can You Hear Me Now? Thayer HS

Hilliary Shumack Which Mouthwash Rids Mouth Bacteria Best? Thayer HS

William Law Bang! Bang! Nixa HS

Katie Hanson Effects of H<sub>2</sub>O<sub>2</sub> on the Regeneration of Lumbriculus Mansfield HS

#### **RICOH CORPORATION**

Certificate of Award

Senior Division:

Lexi Sherman The Effects of Natural Peroxidase as a Lignin Decomposer Mansfield HS

## Peration SPECIAL AWARDS

#### SCHNEIDER FOUNDATION (in cooperation with the Community Foundation of the Ozarks)

#### \$200 Cash & Certificate

Junior Division:	Leilani DeRuvo
	Wood Elementary

Nicole Lenzmeier Dixon MS

Mitchell Johnson The Summit Preparatory

Mykaela Baze Partridge Elementary

Rahul Sen St. Joseph MS

#### \$500 Cash & Certificate

Senior Division:

Evelyn Bush Greenwood Lab School

> Kaysha Ousley Mansfield HS

Madison Smith Greenwood Lab School

Austin Rokusek Lonnie Fulp Mansfield HS

Lexi Sherman Mansfield HS

#### THE SMITH-GLYNN-CALLOWAY MEDICAL FOUNDATION AWARD

\$150 Cash Award & Certificate

Senior Division: Thomas Weeks The Effects of Sight & Smell on Taste Perception Thayer HS

#### THE SMITH-GLYNN-CALLOWAY MEDICAL FOUNDATION AWARD (cont.)

\$200 Cash Award & Certificate

Senior Division: Sam Myears Myocardial Energetics and Hemodynamic Alternations Due to Energy Drinks Greenwood Lab School

> Sally H'Doubler The Effects of Food Choices on Blood Glucose Levels Greenwood Lab School

\$300 Cash Award

Senior Division: Evelyn Bush Effects of Antioxidants on the Lifespan and Activity of Drosophila melanogaster Greenwood Lab School

#### STOCKHOLM JUNIOR WATER PRIZE

Certificate of Award & Promotion to State Competition

- Senior Division: Aaron Dennis Drag Coefficients of Different Swimsuits Greenwood Lab School
  - Karee Brown Thermokarst Environments on Mars Kickapoo HS

Sara Werland The Effect of Acid Rain on Lathurus Odoratus Pleasant Hope HS

#### UNITED STATES AIR FORCE

Daypack, Computer Accessories, Pen Holder & Certificate of Award

Senior Division:

Madison Smith Using DNA to test for Drugs on Currency Bills Greenwood Lab School

#### UNITED STATES AIR FORCE (cont.)

Senior Division:

Cameron Falk Rocket Propulsion Based on Propellant Mixtures Pleasant Hope HS

Richard Convers The Effects of Bridge Type on Failure Weight Strafford HS

Tran Tang Photoelectrical Properties of MWCNT/T:O<sub>2</sub> Solar Cell Greenwood Lab School

#### UNITED STATES ARMY – Excellence in Chemistry & Physical Sciences

Certificate of Award & Shirt (to be mailed)

Senior Division: Emily Neal Christen Gray The Effects of Competing Metals on the Corrosion of Iron Mansfield HS

#### UNITED STATES ARMY – Excellence In Engineering

Certificate of Award & Shirt (to be mailed)

Senior Division:

Richard Convers The Effects of Bridge Types on Failure Weight Strafford HS

#### UNITED STATES ARMY – Excellence in Environmental Science

Certificate of Award & Shirt (to be mailed)

Senior Division: Amy Richter Testing the Ability of Lead to Travel Through Soil Kickapoo HS

## UNITED STATES ARMY – Excellence in Life Sciences

Certificate of Award & Shirt (to be mailed)

Senior Division: Wyatt Blake Effectiveness of Various Foods as Fuel for a Thermal Lance & Their Relative Chemical Energies Pleasant Hope HS

#### UNITED STATES ARMY – Excellence in Mathematics/Computer Science

Certificate of Award & Shirt (to be mailed)

Senior Division: Miranda Webber Relationship Between the Origami Wave & the Golden Mean Thayer HS

#### UNITED STATES ARMY – Award of Excellence

Bronze Medallion & Shirt (to be mailed)

Senior Division: Richard Convers The Effects of Bridge Type on Failure Weight Strafford HS

#### UNITED STATES METRIC ASSOCIATION

Certificate of Award

Junior Division: Rahul Sen Do Different Environments Affect Release of CO<sub>2</sub> in Dry Ice? St. Joseph MS

#### UNITED STATES NAVY/MARINE CORPS

Certificate of Award

Junior Division:	Leilani DeRuvo
	Bounce High!
	Wood Elementary School

Patrick Toplikar How Many Volts Can a Human Produce on a Bike? St. Joseph MS

## SPECIAL AWARDS

#### UNITED STATES NAVY/MARINE CORPS (cont.)

\$50 Cash Award, Award Letter & Certificate (to be mailed)

Senior Division: Austin Rokusek Lonnie Fulp Effects of Fuel Emissions on Raphenus satiuss Mansfield HS

> Nathan Bogart Is Assertiveness a Function of Birth Order? Mansfield HS

Emily Neal Christen Grey The Effects of Competing Metals on the Corrosion of Iron Mansfield HS

Lexi Sherman The Effects of Natural Peroxidase as a Lignin Decomposer Mansfield HS

#### UNITED STATES PUBLIC HEALTH SERVICE

Certificate of Award

Senior Division:

Sally H'Doubler The Effects of Food Choices on Blood Glucose Levels Greenwood Lab School

#### WALLACE WEBER MEMORIAL AWARD FOR BOTANY

\$25 Cash & Certificate of Award for Outstanding Botany Project

Dr. Weber spent his life teaching people about the Earth both in and out of the classroom. He had a great appreciation for nature and a strong desire to protect it. As a professor in the Biology Department at Southwest Missouri State University, he spent 30 years promoting environmental awareness in Springfield. In addition to teaching Botany at Southwest Missouri State University, Dr. Weber belonged to many environmental groups, including Zero Population Growth, Vision 20/20, the Sierra Club, Missouri Native Plant Society, and Missouri Prairie Foundation. He was totally committed to environmental education and never gave up on the idea that each of us could make a change and make things better.

We encourage the recipient of this award to continue Dr. Weber's work by having an appreciation for nature and strong desire to protect it.

Senior Division: Anna Waldschlager A Determination of the Presence of Guard Bacteria in the Parenchyma Cells

#### YALE SCIENCE & ENGINEERING ASSOCIATION, INC.

Preliminary Certificate (Actual Certificate & Medallion to be Shipped)

Pleasant Hope HS

Senior Division: Devon Whitlock What are the Bet Materials To Use To Stop Flood Water? Greenwood Lab School

#### THE ROBERT W. PLASTER MEMORIAL EXCELLENCE IN TEACHING AWARD

\$1,000 Cash Award to the Teacher with the most Placement Awards in the Senior Division

Pam Probert, Mansfield HS

#### THE MARY JEAN PLASTER MEMORIAL EXCELLENCE IN TEACHING AWARD

\$1000 Cash Award to the Teacher with the Most Placement Awards in the Junior Division

Miriam Jump, St. Joseph MS

#### THE REGIONAL FAIR DIRECTOR EMERITUS "SYLVIA SPEAR MEMORIAL AWARD"

\$25 Cash to a First Time Teacher.

Christina Shepherd, Nixa High School

#### THE JAMES K. TICE MEMORIAL TEACHER AWARD

This award of \$100 cash and a certificate has been established in memory of James K. Tice, whose constant support and encouragement of Missouri's teachers and students changed so many lives.

*Mr.* Tice served for many years as a teacher, principal and superintendent of K-12 schools. Even after he retired from public education, *Mr.* Tice continued his tireless dedication to improving educational opportunities for everyone. He was devoted to creating learning communities, by integrating current and emerging technologies into the classroom.

*Mr.* Tice was a coach, a teacher, a mentor, a surrogate parent, and a friend. He never failed to say "I appreciate you". It is our hope that the recipient of this award also hears "We appreciate you".

The recipient of this year's award is:

Lannie Hinote, Skyline R-2

## SPECIAL AWARDS

#### THE LAWRENCE E. BANKS, JR., MEMORIAL TECHNOLOGY FOR TEACHERS AWARD

This new award of \$100 cash and a certificate has been established in memory of Lawrence E. Banks, Jr., the former Dean of the Missouri State University College of Natural and Applied Sciences and a long-time friend and supporter of the Fair.

Dr. Banks was dedicated to education in the state of Missouri and was a strong proponent of innovative educational projects at the K-12 level as well as higher education. In 2000, he received the Science Teachers' of Missouri Distinguished Service Award in recognition of his tireless support and commitment to science education.

In memory of Dr. Banks' enthusiasm and interest in technology, the recipient of this award is encouraged to integrate technology in their classroom.

The recipient of this year's award is:

Timothy Hayes, Immaculate Conception

#### THE POSITRONIC TEACHER AWARD

\$75 Cash Award

This cash award goes to the teacher (Junior or Senior Division) who has the most total entries at the Fair:

Christina Shepherd, Nixa High School

#### OZARKS SCIENCE & ENGINEERING FAIR JUNIOR DIVISION TEACHER AWARDS

This award of a Certificate of Award and a ticket to the Fair Recognition Breakfast is awarded to the teachers of the Junior Division First Place Category winners. The recipients of the Junior Division Teacher Awards for 2010 are:

David Sirett, Dixon Middle School Laura Stroup, The Summit Preparatory Dean Gann, Partridge Elementary Miriam Jump, St. Joseph Middle School Sharon DeRuvo, Wood Elementary

#### OZARKS SCIENCE & ENGINEERING FAIR SENIOR DIVISION TEACHER AWARDS

This award of a Certificate of Award and a ticket to the Fair Recognition Breakfast is awarded to the teachers of the Senior Division First Place Category winners. The recipients of the Senior Division Teacher Awards for 2010 are:

Pam Probert, Mansfield High School Todd VanGorden, Greenwood Lab School Peggy Veatch, Thayer High School Christina Shepherd, Nixa High School

#### OZARKS SCIENCE & ENGINEERING FAIR JUNIOR DIVISION GRAND PRIZE TEACHER AWARD

This award of a plaque is awarded to the teacher of the Junior Division Grand Prize student project. The recipient of the OSEF Foundation Junior Division Grand Prize Teacher Award for 2010 is:

Sharon DeRuvo, Wood Elementary School

#### OZARKS SCIENCE & ENGINEERING FAIR SENIOR DIVISION GRAND PRIZE TEACHER AWARD

This award of a plaque is awarded to the teacher(s) of the Senior Division Grand Prize student projects. The recipients of the OSEF Foundation Senior Division Grand Prize Teacher Award for 2010 is:

Pam Probert, Mansfield High School

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The Ozarks Science & Engineering Fair Foundation and Steering Committee would like to recognize those volunteers, both individuals and organizations, without whom this event would not be possible. This week alone, over 600 hours of volunteer time and effort were donated – our deepest thanks and appreciation especially to the following:

- Dr. Georgianna Saunders' BIO 100 Class
- Michelle Hulett's CIS 101 Classes
- Missouri State University Biology Department
- Missouri State University Pre-Medical Society
- Sue McCrory's CIS 101 & RIL 211 Classes
- Citizenship & Service Learning Students
- Dr. Cheryl Schaefer's PHY 123 Class
- Dr. Kathy Hughes' BIO 210 Class
- Missouri State University Panhellenic Organizations
- Missouri State University Future Teachers

In addition, over 200 judges from local colleges, companies and organizations donated their time and expertise Tuesday evening to judge the approximately 270 projects at this year's Fair. We cannot recognize them all by name, but their efforts are greatly appreciated.

We would also like to extend a very special Thank You to Maschino's for their generous donation of 28 umbrella bases, and to Pearson-Kelly Business Systems for their generous donation of a copier for the duration of the Fair.

In addition, we would like to recognize Allen Rents for their continuing support of the Fair by providing a substantial number of the folding tables used during the Fair.

Finally, we especially want to acknowledge the generous donation contributed by Positronic Industries, Jordan Valley Innovation Center, Associated Electric Cooperative, Schneider Foundation, and F & H Food Equipment Company toward the substantial travel expenses incurred by the Senior Division Grand Prize Winners for travel to the 2010 International Science & Engineering Fair in San Jose, California.

Volunteers are the lifeblood of an event of this magnitude. Without you, we could not continue the Fair's tradition of excellence. Thank you!