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# 2016 Alabama Science and Engineering Fair

## Category Award Winners

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### Category

<u>Place</u>	<u>Proj. No.</u>	<u>Name</u>	<u>School</u>
<u>Project Title</u>			

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### Junior Division

### Behavioral & Social Sciences

- 1 BE 6      **Haws, John David**  
Indian Springs School      Linked: The Correlation Between Creativity and Stress
- 2 BE 4      **Lee, Mary Katherine**  
Holy Spirit Catholic High School      Can you Picture what I can Remember?
- 3 BE 9      **Mantraratnam, Haripriya**  
Mill Creek Elementary School      The Stroop Effect: Words or Shapes?
- 3 BE 2      **Scroggins, Callie**  
Mill Creek Elementary School      Another Rewarding Experience- A Two-Year Study -
- 3 BE 12      **Towery, Jessica**  
Clark-Shaw Magnet School      What's Going On Behind Those Puppy Dog Eyes?
- 4 BE 1      **Ahmed, Sura**      **Saadoon Sura**  
Islamic Academy of Alabama      How Do Video Games Affect Memory?
- 4 BE 3      **Mekdad, Jenna**  
Islamic Academy Of Alabama      Bring On The Heat
- 4 BE 11      **Partsch, Mary**  
Clark-Shaw Magnet School      Until All the Pieces Fit Comparing Boys Vs. Girls on the Autism Spectrum

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**Category**

<b>Place</b>	<b>Proj. No.</b>	<b>Name</b>	<b>School</b>
<b>Project Title</b>			
4 BE 8		<b>Thomann, Jake</b>	
Clark-Shaw Magnet School		The Caterpillar Crawl	
HM BE 7		<b>Bollinger, Michael Robert</b>	
Challenger Elementary School		Sneaky Sugar	
HM BE 15		<b>Burch, Ella</b>	
Hampton Cove Middle School		Detecting Political Lies	
HM BE 13		<b>Dalrymple, Jada</b>	
Oakwood Adventist Academy		How Music Affects Memory	
HM BE 5		<b>King, Alex</b>	
Muscle Shoals Middle School		Don't Judge A Book By It's Cover	
HM BE 10		<b>Sunil, Shreya</b>	
Columbia Elementary school		Think Before You Drink: "Does Caffeine Affect Your Heart Rate and Does It Vary Between Age Levels"	

## Botany & Zoology

1 BZ 30		<b>Bassett, Brooke</b>	
Holy Spirit Catholic High School		Munch Madness	
2 BZ 28		<b>Sanderson, Spencer</b>	
Mill Creek Elementary School		Liquid vs Granular: The Great Fertilizer Debate	
3 BZ 25		<b>Banashak, Christopher</b>	
Clark-Shaw Magnet School		How Recycled Water Affects Plant Growth	
4 BZ 27		<b>Boardwine, Alison</b>	
Eclectic Middle School		Jumping Into Biomechanics	

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<b>Place</b>	<b>Proj. No.</b>	<b>Name</b>	<b>School</b>
<b>Project Title</b>			
<b>HM BZ 26</b>	<b>Bray, Katelyn</b>		
Hampton Cove Middle School		Hydroponics vs. Soil	
<b>HM BZ 31</b>	<b>Daugherty, Holden</b>		
Clark-Shaw Magnet School		The Worm Maze	
<b>HM BZ 22</b>	<b>Elbahrawi, Shurooq</b>		
Islamic Academy of Alabama		Eni Mini Miny Mo Where Does The Myoglobin Go?	
<b>HM BZ 29</b>	<b>Eltoum, Mustafa</b>		
Islamic Academy of Alabama		Manual vs. Drip Irrigation	
<b>HM BZ 20</b>	<b>Ledkins, Trenton</b>		
Excel School		Deer Magnet	
<b>HM BZ 23</b>	<b>Leverett, Kaelyn</b>		
Clark-Shaw Magnet School		Frozen Seeds	
<b>HM BZ 24</b>	<b>Muller, Ava</b>		
The Altamont School		Growth Effects of Different Types of Water on Wheatgrass	
<b>HM BZ 32</b>	<b>Rutledge, MaryEllen</b>		
Shoals Christian School		Will Fluoride Effect The Growth of Plants?	
<b>HM BZ 21</b>	<b>Smith, Gabriella</b>		
Hampton Cove Middle School		Doggy Drool vs Human Spit Part 2	
<b>HM BZ 33</b>	<b>Tesseneer, Kevin</b>		
Horizon Elementary School		Magnetic Affect on Planaria	

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**Chemistry**

- 1 CH 62      **Blevins, Catherine**  
Decatur Presbyterian Church      Radiation in My Room  
School
- 2 CH 54      **Lamb, Emma**  
Heritage Elementary School      Casein Plastic: Finding the Best Milk and Acid Combination
- 3 CH 55      **Fillmore, Isabel**  
Clark-Shaw Magnet School      Cooking Up Some Candy
- 3 CH 64      **Majumder, Rachel**  
Clark-Shaw Magnet School      Temperature Effect on the Enzyme Catalase
- 3 CH 61      **Mehta, Labdhi**  
Indian Springs School      Kick As (Out of Water)
- 4 CH 66      **Chambers, Suneeti**  
The Altamont School      Vitamin C: Is It Just From Oranges?
- 4 CH 51      **Dinkel, Savannah**  
Clark-Shaw Magnet School      A Hairy Situation
- 4 CH 68      **Keel, Emma**  
Hampton Cove Middle School      What Metal is Most Susceptible to Corrosion
- 4 CH 57      **Singireddy, Avani**  
Mill Creek Elementary School      Dissolved Oxygen vs Temperature

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<b>Place</b>	<b>Proj. No.</b>	<b>Name</b>	<b>School</b>
<b>Project Title</b>			
<b>HM</b> CH 50		<b>Bailey, Olivia</b>	
St. Joseph Regional Catholic School		"Coming Clean"	
<b>HM</b> CH 59		<b>Brown, Kayley</b>	
Heritage Elementary School		Glow Stick Frenzy	
<b>HM</b> CH 60		<b>Clark, Andrew</b>	
Muscle Shoals Middle School		Keep Your Cool	
<b>HM</b> CH 58		<b>Daw, Braxton</b>	
Saraland Middle School		Ferrofluid	
<b>HM</b> CH 56		<b>Karassi, Sidra</b>	
IAA		Detergant	
<b>HM</b> CH 53		<b>Murphy, Xavier</b>	
Oakwood Adventist Academy		Can the Life Span of a Bubble Be Extended in Different Temperatures and Atmospheric Conditions?	
<b>HM</b> CH 67		<b>Smith, Mya</b>	
Muscle Shoals Middle School		What Melts Ice Fastest?	
<b>HM</b> CH 63		<b>Todd, Brandon</b>	
Rainbow Elementary School		So What's the pH Factor?	
<b>HM</b> CH 52		<b>Vanterpool, Jayden</b>	
Oakwood Adventist Academy		Can Silver Decrease Bacterial Enzyme Function?	
<b>HM</b> CH 65		<b>Williams, Abby</b>	
Danville Middle School		The Difference Between Bleached and Unbleached Flour	

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**Engineering**

- 1 N 87 **MacDonald, Sophia**  
Clark-Shaw Magnet School      Electric Waves
- 2 N 83 **Standaert, Benjamin**  
Indian Springs School      Can You Find Your Book?
- 3 N 86 **Ashley, William**  
Cornerstone Christian Academy      Do Super Magnets Make Super Generators: "The Effects of Neodymium Magnets on Simple Electric Generators"
- 3 N 89 **Hamilton, Sydney**  
JF Drake Middle School      Impact of Wind Turbine Design on Its Performance
- 3 N 91 **Limaye, Maanasi**  
Rainbow Elementary School      Now You See It, Now You Don't
- 3 N 90 **Patel, Neer**  
Saraland Middle School      Lightning Shoes
- HM N 82 **Ahmed, Hader**  
Islamic Academy of Alabama      Building Materials and Acid Rain
- HM N 92 **Bond, Madeleine**  
Agape Academy      Solar Source: Maximize Efficiency for Solar Energy
- HM N 80 **Ford, Isaac**      **Tyler Lawson; Gra**  
Our Lady of the Valley      The OLV 500
- HM N 94 **Gallion, Alyssa**  
Carver Magnet School      PinPoint

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**Category**

<b>Place</b>	<b>Proj. No.</b>	<b>Name</b>	<b>School</b>
<b>Project Title</b>			
HM N 85	<b>Jalloh, Samba</b>		
Islamic Academy of Alabama		Destruction	
HM N 81	<b>Jordan, Riley</b>		
Carver Magnet School		"The Hovercraft...Floating on Air!"	
HM N 88	<b>Kynard, Summer</b>		
Horizon Elementary		Hydroelectric Generator	
HM N 93	<b>Tetrault, Elena</b>		
Hampton Cove Middle School		From Robotics to the Google Car: How to Navigate Through the World	
HM N 84	<b>Woolverton, Kameron</b>		
Holy Spirit Catholic High School		Cool Cooler Coolest	

### Environmental

1 E 118	<b>Madison, Jade</b>		
Clark-Shaw Magnet School		In The Zone	
2 E 116	<b>Stapleton, Jackson</b>		
East Limestone High School		Farmers Meet Drones	
3 E 125	<b>Sheffer, Elijah</b>		
Holy Spirit Catholic High School		Water Through Soil	
3 E 124	<b>Tucker, Riley</b>		
Clark-Shaw Magnet School		Use of a Microbial Fuel Cell	
3 E 121	<b>Vilardi, Julian</b>		
Wetumpka Middle School		Nuisance or Not? Using Problem Organisms as Alternative Biofuels	

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<b>Project Title</b>			
4 E	123	<b>Appling, Benjamin</b>	
Hilltop Montessori		The Effect of Certain Storage Conditions on the Ripening of Avocados	
4 E	110	<b>Dublin, Brian</b>	
Oakwood Adventisit Academy		"Which Wind Turbine Best Harness Wind?"	
4 E	113	<b>Edwards, Emily</b>	
Beverlye Magnet School		Batteries - Which Ones Make Cents?	
4 E	115	<b>Phan, Minh</b>	
Columbia Elementary School		Energy For All	
HM E	112	<b>Almatubsi, Yasmeeen</b>	
Islamic Academy of Alabama		Air Particles And Air Qualities	
HM E	126	<b>Bell, Jack</b>	
Mill Creek Elementary School		What If The Pigs Had It All Wrong?	
HM E	127	<b>Copeland, Connor</b>	
Columbia Elementary		How Fertilizer Effects Growth on Algae in Pond Water	
HM E	120	<b>Goldberg, Julia</b>	
Indian Springs School		M&M's	
HM E	111	<b>Jennings, Javon</b>	
Homeschool		Absorption Versus Reflection: The Heat of the Battle	
HM E	122	<b>Meyer, Drake</b>	
Horizon Elementary		The Color of Conservation?	



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<b>Project Title</b>			
<b>HM E</b>	114	<b>Murphree, Joshua</b>	
Columbia Elementary School		Big Rocks First: Does the Order of Filtration Materials Really Matter?	
<b>HM E</b>	117	<b>Owen, Kate</b>	
Columbia Elementary School		How to Wash Your Water	
<b>HM E</b>	119	<b>Skrabanek, Emily</b>	
Rainbow Elementary School		Keeping the Heat In	

### Math & Computers

<b>1 X</b>	140	<b>VanHouten, Naomi</b>	
Covenant Christian Academy		"Domo Arigato" Precision Roboto	
<b>2 X</b>	145	<b>Martin, Miranda</b>	
Montevallo Middle School		RFID - The Bells Toll for Thee	
<b>3 X</b>	142	<b>Agrawal, Trisha</b>	
Phillips Preparatory School		Electronic Eyes for the Blind	
<b>3 X</b>	141	<b>Rigby, Bennett</b>	
St. John the Baptist Catholic School		Compression: Is It Worth The Time?	
<b>4 X</b>	147	<b>Towery, Alexander</b>	
Clark-Shaw Magnet School		The Problem With Probability	
<b>HM X</b>	143	<b>Condurso, Ashley</b>	
St. John the Baptist Catholic School		How Does Grooming a Horse at Rest Lower Their Heartrate Rather Than Just Rest Following Exercise?	
<b>HM X</b>	148	<b>Hubbard, Nina</b>	
Hampton Cove Middle School		Huffman Coding	

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<b>Project Title</b>			

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**HM X 144 Naser, Talal**  
Islamic Academy Of Alabama Indirect Measurements

**HM X 146 Zuberi, Maaz**  
The Altamont School The Health Effects of Technology

## Medicine & Health Sciences

**1 ME 167 Barrow, Addison**  
Clark-Shaw Magnet School Don't Fry Your Brain

**2 ME 168 Rawat, Akanksha**  
Clark-Shaw Magnet School Herbs vs. Antacids

**3 ME 173 Grider, Anna**  
Rainbow Elementary School The Skinny on Moisturizers: Which Works Best to Keep Skin Moist

**4 ME 164 Sridhar, Nikitha**  
Auburn Junior High School Brain's Processing of Novelty Information: Effects of Working Memory Resources

**4 ME 162 Srivastava, Sejal**  
Auburn Junior High School Analyzing Alternative Approaches for Testing E. coli in Water in Support of the Food Safety Modernization Act's Produce Safety Rule

**HM ME 174 Alabsi, Nooraldein**  
Islamic Academy of Alabama Which Antacid is Best ?

**HM ME 160 Bollero, Megan**  
Grace Lutheran School "C" My Potato

**HM ME 169 Gay, Olivia**  
West Madison Elementary School Keeping It Smooth

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<b>Project Title</b>			

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|-----------|--------|-------------------------------------|----------------------------------|
| <b>HM</b> | ME 171 | <b>Mansur, Ramy</b>                 |                                  |
|           |        | Islamic Academy Of Alabama          | Natural Acne Gents               |
| <b>HM</b> | ME 170 | <b>Mohamed, Ramy Mansur</b>         |                                  |
|           |        | Islamic Academy Of Alabama          | Natural Acne Agents              |
| <b>HM</b> | ME 166 | <b>Patel, Deven</b>                 |                                  |
|           |        | Indian Springs School               | Destroying Diabetes              |
| <b>HM</b> | ME 172 | <b>Rhonemus, Elizabeth</b>          |                                  |
|           |        | Hampton Cove Middle School          | That Doesn't Help Us!            |
| <b>HM</b> | ME 161 | <b>Schaetzle, Emms</b>              |                                  |
|           |        | Holy Spirit Catholic High School    | "Death Grip"                     |
| <b>HM</b> | ME 175 | <b>Smith, Tricia</b>                |                                  |
|           |        | St. Joseph Regional Catholic School | Stop! Don't Touch That Doorknob! |
| <b>HM</b> | ME 163 | <b>Steinman, Isadola</b>            |                                  |
|           |        | The Altamont School                 | Bacteria What's Your Deal?       |
| <b>HM</b> | ME 165 | <b>Thompson, Callie</b>             |                                  |
|           |        | Clark-Shaw Magnet School            | Catching Rays                    |

### Physical Science

- |          |       |                              |                                               |
|----------|-------|------------------------------|-----------------------------------------------|
| <b>1</b> | Z 190 | <b>Spence, Jacob</b>         | <b>Zachary Tribble</b>                        |
|          |       | East Limestone Middle School | Keepin' It Cool                               |
| <b>2</b> | Z 192 | <b>Edelman, Emily</b>        | <b>Destiny Self</b>                           |
|          |       | East Limestone Middle School | Lookie Lookie Lookie, Don't Burn the Cookies! |

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**Category**

	<b>Place</b>	<b>Proj. No.</b>	<b>Name</b>	<b>School</b>
	<b>Project Title</b>			
<b>3</b>	Z	196	<b>Reynolds-Gleason, Jordan</b>	
	Grace Lutheran School		Can a Graphene Capacitor be 3D Printed with Higher Surface Area in Order to Increase Energy Storage Capacity?	
<b>4</b>	Z	202	<b>Hur, Sydney</b>	
	Mill Creek Elementary School		How To Get Shiny Teeth	
<b>4</b>	Z	194	<b>McGallagher, Nicholas</b>	
	Classical Conversations		2nd Class Levers Give "First Class" Compression	
<b>4</b>	Z	195	<b>Revera, Ryan</b>	
	Horizon Elementary		Bats Blast	
<b>4</b>	Z	206	<b>Thompson, Miles</b>	
	St. Joseph Regional Catholic School		Looking For a Flash of Fire	
<b>HM</b>	Z	198	<b>Ahmad, Danyia</b>	
	Islamic Academy of Alabama		Crazy Crystals	
<b>HM</b>	Z	210	<b>Anderson, Aeneas</b>	
	Clark-Shaw Magnet School		The Data Track Space of a CD/DVD	
<b>HM</b>	Z	213	<b>Antella, Sidra</b>	
	Islamic Academy of Alabama		Which Detergent?	
<b>HM</b>	Z	193	<b>Boackle, Elizabeth</b>	<b>Lizzie Ranelli, Sa</b>
	Our Lady of the Valley		YUM YUM	
<b>HM</b>	Z	211	<b>Cole, Olivia</b>	
	Hampton Cove Middle School		Wearing Away Your Smile: Tooth Enamel and How What You Drink Affects It	

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**Category**

<b>Place</b>	<b>Proj. No.</b>	<b>Name</b>	<b>School</b>
<b>Project Title</b>			
HM Z 203	<b>Danh, Megan</b>		
Rainbow Elementary School		How Well Do Different Materials Create Electricity?	
HM Z 205	<b>Fulford, Justin</b>		
Geneva Middle School		Is A Yeti Worth It? Which Brand of Cooler Keeps Ice the Longest?	
HM Z 214	<b>Fuller, Brendan</b>		
Holy Spirit Catholic High School		Which is More Eggcellent?	
HM Z 199	<b>Geary, Lauren</b>		
West Madison Elementary School		Egg Geodes	
HM Z 207	<b>Johnston, Riley</b>		
Hampton Cove Middle School		Phonebook Friction	
HM Z 191	<b>Jones, Madison</b>		<b>Whitney Veasey</b>
Greenville Middle School		Let's Get Crackin'	
HM Z 208	<b>Michael, Ella</b>		
Huntsville Junior High School		Radiant Absorbency of Different Colors and Materials	
HM Z 212	<b>Mynampally, Sohan</b>		
Mill Creek Elementary School		What Materials Can Block a WiFi Signal?	
HM Z 215	<b>Parker, William</b>		
Horizon Elementary School		Soccer Ball Air Pressure Study	
HM Z 197	<b>Prabhakar, Ashwin</b>		
Rainbow Elementary School		Colorful Candies Hide Their True Colors	

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<b>Place</b>	<b>Proj. No.</b>	<b>Name</b>	<b>School</b>
<b>Project Title</b>			
<b>HM Z</b>	<b>204</b>	<b>Purdy, Spencer</b>	
Phillips Preparatory School		I'm Melting!	
<b>HM Z</b>	<b>200</b>	<b>Ram, Vishay</b>	
Liberty Middle School		En"light"enment	
<b>HM Z</b>	<b>209</b>	<b>Rushing, Adrian</b>	
Clark-Shaw Magnet School		Shooting Science	
<b>HM Z</b>	<b>216</b>	<b>Somu, Pranav</b>	
Millcreek Elementary School		Ohm's Law: Understanding Parallel and Series Circuits	
<b>HM Z</b>	<b>201</b>	<b>Wiggins, Ella</b>	
Beverlye Magnet School		How Far Can a Spark Jump?	

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**Senior Division**  
**Animal Science**

- 1 AS 302 Bowman, Sarah**  
Murphy High School Lethal Versus Non-lethal Methods of Aging *Lutjanus campechanus*
- 2 AS 305 Chaplin, Ansley**  
W.H. Davidson High School The Effect of Salinity on the Filtration Function of Oysters
- 3 AS 301 Oakley, Michael**  
Shoals Christian School Crayfish Testing Phase II Crayfish Testing Phase III: Temperature Variable With Different Habitats
- 3 AS 300 Simonton, Clay**  
Wetumpka High School Can You Cure Chicken Boredom?
- 4 AS 303 Woodring, Kendall**  
St. John Paul II Catholic High School Which Saddle Pad Keeps the Horse the Coolest?
- 4 AS 304 Woodring, Sydney**  
St. John Paul II Catholic High School Which Type of Horse Boot Creates Less Heat?

**Behavioral & Social Sciences**

- 1 BE 323 Michl, Ava**  
Alabama School of Fine Arts Detectable Viral Load is Associated With Increased Heat Pain Sensitivity in Individuals With HIV
- 2 BE 324 Langhinrichsen-Rohling, Ryan**  
Murphy High School Do Athletes Have Their Head In the Game
- 3 BE 321 Adam, Max**  
Wetumpka High School Audio Files for Audiophiles

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**Category**

	<u>Place</u>	<u>Proj. No.</u>	<u>Name</u>	<u>School</u>
	<u>Project Title</u>			
3	BE	326	<b>Smith, Carson</b>	
	Glenwood High School		Obsessed or Stressed	
3	BE	330	<b>Welch, Katherine</b>	
	St. John Paul II Catholic High School		Reliability of Memory Recall	
4	BE	320	<b>Aishah, Duha</b>	
	Islamic Academy of Alabama		"My Anxieties Have Anxieties"	
4	BE	331	<b>Gonzales, Melinda</b>	
	St. John Paul II Catholic High School		The Science of Hand-Sniffing	
4	BE	322	<b>Locker, William</b>	
	Murphy High School		College Students' Attitudes Toward Political Candidates: The Effect of Gender	
4	BE	329	<b>Reimer, Jackson</b>	
	Murphy High School		Voluntary or Involuntary	
HM	BE	327	<b>Cowart, Hannah</b>	
	Jefferson County International Baccalaureate School		The Effect of Verbal Suggestion on Concentration Levels	
HM	BE	325	<b>Koan, Jonathan</b>	
	Shoals Christian School		How Classical Music Affects Test Scores	
HM	BE	14	<b>Maggi, Jessica</b>	
	Holy Spirit Catholic High School		To Read or Not to Read	
HM	BE	328	<b>Meeks, Addison</b>	
	Auburn High School		Total Recall: Phase Two of Do You See What I See?	



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**Biochemistry**

- 1 BI 342 **Jones, Alexis**  
Auburn High School      Assessment of Macro and Micronutrients in a Recycled Supplement for Canines
- 2 BI 343 **Martin, Sean**  
Murphy High School      How Does Each Denaturation Process Vary from Different Kinds of Protein?
- 3 BI 340 **Armstrong, Arianna**      **Jaela Lee**  
The Calhoun School      Cold or Hot?

**Biomedical & Health Sciences**

- 1 BH 364 **Patel, Om**  
Alabama School of Fine Arts      Basal and Maximal Oxygen Consumption Rates Of Human Umbilical Venous Endothelial Cells (HUVEC) Are Decreased In Infants Who Die or Develop Bronchopulmonary Dysplasia (BPD)
- 2 BH 362 **Jiao, Kenneth**  
Indian Springs School      An Epigenetic Factor, CHD7, Inhibits Migration of Metastatic Breast Cancer Cells
- 3 BH 367 **Anshumali, Avinash**  
W.P. Davidson High School      Investigating the Anti-Cancer Abilities of Aurpatene
- 3 BH 368 **Badve, Rohan**  
W.P. Davidson High School      Natural Oils Protect Human Skin Cells Against Harmful UVB Radiation: Effective as Sunscreen Agents
- 3 BH 365 **James, Hannah**  
Wetumpka High School      The Effects of a Natural Extract (Allyl disulfide) on Lymphocyte Activation
- 4 BH 361 **Morrow, Isabella**  
Shoals Christian School      "The Effect of Electrolytes on the Heart Rate of Daphnia Magna"

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**Category**

<b>Place</b>	<b>Proj. No.</b>	<b>Name</b>	<b>School</b>
<b>Project Title</b>			
<b>4</b>	BH 366	<b>Namasivayam, Aarthi</b>	
	The Altamont School	Biocompatibility of Polyoxmethylen	Bioreactors for Tissue-Engineered Vascular Models
<b>HM</b>	BH 360	<b>Guilbert, Madison</b>	
	St. John Paul II Catholic High School	"Exotic Eyesight"	
<b>HM</b>	BH 363	<b>Kurth, Julius</b>	
	Wetumpka High School	Antacid Potency	

## Cellular & Molecular Biology

<b>1</b>	CB 381	<b>Lim, Jamie</b>	
	Murphy High School	Cellular and Molecular Analysis of Allicin's Effect on Leukemia Cells	
<b>2</b>	CB 382	<b>Kankirawatana, Pongbhud</b>	
	Alabama School of Fine Arts	Connexin 26 and Connexin 30 Mutations in CMV-related Sensorineural Hearing Loss	
<b>3</b>	CB 383	<b>Cox, Sydney</b>	
	Wetumpka High School	I Can See Clearly Now, The Protein's Gone	
<b>4</b>	CB 380	<b>Aloria, Ernard Jules</b>	<b>Emily Pinkston</b>
	Wetumpka High School	The Effects of Ocean Acidification on Marine Life	

## Chemistry

<b>1</b>	CH 407	<b>Reed, Sarah</b>	
	St. John Paul II Catholic High School	Vitamin C: Red vs. Green	
<b>2</b>	CH 403	<b>Sridhar, Varsha</b>	
	Jefferson County International Baccalaureate School	The Determination and Bioremediation of Potential Carcinogens, Bisphenol A (BPA) and Bisphenol S (BPS)	

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<b>Place</b>	<b>Proj. No.</b>	<b>Name</b>	<b>School</b>
<b>Project Title</b>			
3 CH 405	<b>Burge, Keri</b>		
St. John Paul II Catholic High School		The Effects of Mummification on Chickens	
3 CH 402	<b>Padmalayam, Maya</b>		
Alabama School of Fine Arts		Focused Ultrasound-Mediated Targeted Delivery of Polymer-Encapsulated Drugs: A Novel Therapeutic Strategy for Cancer	
3 CH 401	<b>Shoreibah, Nada</b>		
Indian Springs School		A Sensible Solution (Detergent for Feathers)	
4 CH 408	<b>Craig, Maryssa</b>		
Holy Spirit Catholic High School		Which Moisturizer Works Best?	
4 CH 404	<b>Ho, Davina</b>		
Murphy High School		The Effects of Catalysts in the Depolymerization of Chitin Using Ionic Liquids	
4 CH 409	<b>Nguyen, Kelly</b>		
W.P. Davidson High School		The Effects of pH on Lead Testing	
4 CH 406	<b>Vogler, Daniel</b>		
James Clemens High School		The Wetting Properties of Metallic Substrates Modified with Organic Self-Assembling Monolayers	
HM CH 400	<b>Cox, Eleanor</b>		<b>Lauren "Gracie" B</b>
Stanhope Elmore High School		The Hotter the Crime, the Longer the Time	

## Earth & Environmental Sciences

1 EA 422	<b>Massey, Brooklyn</b>		
Davidson High School		The Effects of Hormones on Aquatic Life and How They Alter Gender Patterns	

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**Category****Place****Proj. No.****Name****School****Project Title**

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- 2** EA 423 **Abernathy, Briganna**  
Jefferson County International Baccalaureate School      The Potential of Ferric Oxide as a Removal Method for Biochemical Contaminants
- 3** EA 421 **Foster, Margaret**  
Davidson High School      The Effect of Using Daphnia magna to Monitor Water Toxicity
- 4** EA 420 **Palmer, James**  
Saint John Paul II Catholic High School      Efficacy of Select Homemade Filters

## Embedded Systems

- 1** ES 440 **Prevost, Drew**  
Covenant Christian Academy      Development and Systems Integration of a Modular Power Factor Corrected Preconverter, LiFePO4 Battery Charger, DC Motor Controller, and Battery Monitoring System
- 2** ES 441 **Khan, Hamza**  
Alabama School of Fine Arts      Object Detection and Tracking with OpenCV and a Quadcopter

## Energy: Chemical

- 1** EC 462 **Patel, Bela**  
Indian Springs School      Emerging Energy of the Future
- 2** EC 460 **Palanki, Rupa**  
W.P. Davidson High School      Analysis of Glycerol Reactor to Produce Hydrogen for Fuel Cell Applications
- 3** EC 461 **Gonzalez, Miguel**  
Jefferson County International Baccalaureate School      Battery Life of Smartphones in Different Temperature Conditions

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**Category****Place****Proj. No.****Name****School****Project Title**

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**Energy: Physical**

- 1 EP 484 **Lenard, Nolan**  
W.P. Davidson High School Maximizing The Efficiency of Dye-Sensitized Solar Cells
- 2 EP 481 **Greene, Elijah** **Travis Gunn**  
Hewitt-Trussville High School Renewable Power Trekking Pole
- 3 EP 483 **Riggs, Sharee**  
Wetumpka High School Electro-Mechanical Powered Light: Phase II
- 4 EP 480 **Bush, Marcus** **Brenden O'Keefe**  
Stanhope Elmore High School A Cool Way To Make Electricity
- 4 EP 485 **Smitherman, Victoria**  
Murphy High School To Heat or Not To Heat
- HM EP 482 **Hutsler, Clayton**  
Wetumpka High School Efficiency of Solar Panels

**Engineering: Mechanics**

- 1 EM 503 **Lou, Danika**  
Holy Spirit Catholic High School Highly Effective Hybrids
- 2 EM 504 **Lall, Rahul**  
Auburn High School Prognostication of Flexible Batteries in Wearable Electronics
- 3 EM 500 **Burford, Emma** **Amanda Green,**  
Hewitt-Trussville High School Poor Fine Motor Skills Assistive Touchscreen Device

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**Category**

<b>Place</b>	<b>Proj. No.</b>	<b>Name</b>	<b>School</b>
<b>Project Title</b>			
4 EM 505	<b>Lynn, Lucas</b>		
Wetumpka High School		Shear Radial Strength: Using Web Geometry to Create a Better Body Armor	
4 EM 502	<b>Strickland, Edmond</b>		
South Montgomery County Academy		Dual Purpose Muffler	
4 EM 501	<b>Tran, Thuan</b>		<b>Christain Golding</b>
Hewitt-Trussville High School		Save the Turtles	
4 EM 506	<b>Wetter, Maria Alena</b>		
Murphy High School		Testing the Building Techniques of the Times	

## Environmental Engineering

1 EE 533	<b>Lange, Megan</b>		
Auburn High School		Removal of BTEX from Storm Water using Nanoparticle Enhanced Reactive Porous Concrete: Field Testing and Modeling Verification	
2 EE 534	<b>Knight, Abigail</b>		
Hewitt-Trussville High School		The Removal of Arsenic (III) from Contaminated Groundwater in Developing Countries	
3 EE 532	<b>Aragon, Viviana</b>		
James Clemens High School		Pharmaceutical Pollution in Bodies of Water	
3 EE 531	<b>Lange, Noel</b>		
Auburn Junior High School		Kinetic Evaluation of Metal Modified Non-Woven Cotton Fibers Capable of Removing Sulfur Dioxide	
4 EE 530	<b>Bohanan, Victoria</b>		<b>Halley Truesdale</b>
East Limestone High School		How to Stay Cool	

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**Category****Place****Proj. No.****Name****School****Project Title**

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**Mathematics**

1 MA 550 **Kim, Alena**  
Alabama School of Fine Arts The Astroid Survey Problem

2 MA 551 **Walker, David**  
Decatur High School The Theseus Encryption

**Microbiology**

1 MI 571 **McFeely, Mitchell**  
St. John Paul II Catholic High School Analysis of Cell Phone Bacterial Load Reduction and the Effect of Educational Information on Future Behavior: A Multiphase Study

2 MI 570 **Fu, Richard** **Danielle Wu**  
Vestavia Hills High School / Indian Springs School Probiotics in Yogurts and Their Potential Impacts on Human Health

3 MI 572 **Ananthasekar, Skandan**  
St. Paul's Episcopal School Bacterial Profile of Various Illnesses in Order to Determine Distinct Bacterium

3 MI 574 **Burks, Brianna**  
Saint John Paul II Catholic High School The Effects of Toothpaste on Canis Lupus Familiaris' Bacteria on Teeth

3 MI 576 **Summers, Tara**  
W.P. Davidson High School How Various Concentrations of Glucose Affect the Chemotaxis of Phyusarum Polycephalum

4 MI 573 **Rasool, Soha**  
Alabama School of Fine Arts The Effects of Synthetic Chemicals on Staphylococcus Epidermidis

HM MI 575 **Wells, Brianna**  
Cornerstone Christian Academy What Amount of Ultraviolet Radiation Kills Bacteria?

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<u>Place</u>	<u>Proj. No.</u>	<u>Name</u>	<u>School</u>
<u>Project Title</u>			

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### Physics & Astronomy

- 1 PH 600 **Jouve, Mary Alice**  
McGill-Toolen Catholic High School "Clear Sky at Night, Astronomer's Delight": An Analysis of Skyglow(Mobile, AL & Miramar Beach, FL)
- 2 PH 604 **He, Adam**  
Alabama School of Fine Arts Investigation of the Orbital Stability of Circumbinary Planets in the Habitable Zone of the Double-Star System Kepler-16
- 3 PH 606 **Ka, Mamecheikh**  
Auburn Junior High To Warm A Planet
- 3 PH 601 **McGinnis, Michael**  
Jefferson County International Baccalaureate School Growth and Measurement of Ices Depending on Input Flow Rates of Nitrogen Gas for Application in Terahertz Spectroscopy of Interstellar Ices
- 4 PH 603 **Crow, Braden**  
Pell City High School How Much Wind Does It Take To Affect The Flight of a Baseball?
- 4 PH 605 **Good, Kenneth**  
Columbia High School Practically Invisible Using Metamaterials
- 4 PH 607 **Reed, Connor**  
St. John Paul II Catholic High School Ultrasonic Levitation
- HM PH 602 **Wallington, Charles**  
Oakwood Adventist Academy How Do You Use a Laser Pointer to Measure Space on CDs?

### Plant Sciences

- 1 PS 621 **ElQishawi, Rowan** **Rozan ElQishawi**  
Hoover High School Asian Lady Beetles...Infestation Or Curation!"A NoveStudy to Evaluate the Efficacy of Harmonia Axyridis Hemolymph as a Pesticide to Control Diaphorina Citri (Asian Citrus Psyllid), and as an Antibiotic



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<b>Place</b>	<b>Proj. No.</b>	<b>Name</b>	<b>School</b>
<b>Project Title</b>			
2 PS 623	<b>Banker, Zena</b>		
Wetumpka High School		Freshwater not Frackwater:the Effect of Fracking on the Chlorophyll Content in Vigna unguiculata and the Survival of Freshwater Algae	
3 PS 625	<b>Miller, Abigail</b>		
Opelika High School		Pumping Up With Iron: Biofortified Plants	
3 PS 624	<b>Mones, Zistine Jubilly</b>		
Murphy High School		Piezo-Electro-Culture: Harnessing Controlled Piezoelectric Currents to Accelerate the Growth of Vigna radiata	
3 PS 620	<b>Trifas, Maria</b>		
Alabama School of Math and Science		Seasonal Variations of the Physical Features and Chemical Properties of the Leaves of Live Oak	
4 PS 622	<b>Bringham, Devon</b>		<b>Eric Tran</b>
Stanhope Elmore High School		Light Does the Spinach Good	

## Systems Software

1 SS 640	<b>Campbell, DeMarcus</b>		
Alabama School of Fine Arts		A Multi-Functional Algorithm for Audio Steganography	
2 SS 641	<b>Atwood, Benjamin</b>		
Alabama School of Fine Arts		Using Hand Gestures for Alternative User Verification	

## Translational Medical Science

1 TM 660	<b>Lakhanpal, Arjun</b>		
The Altamont school		Apoptotic Effects of Niclosamide and Chemotherapies, With Potential to Overcome Drug Resistance in Triple Negative Breast Cancers	
2 TM 661	<b>Willard, Spenser</b>		
St. John Paul II Catholic High School		Can Sensors Be Used to Measure Step Quality?	