

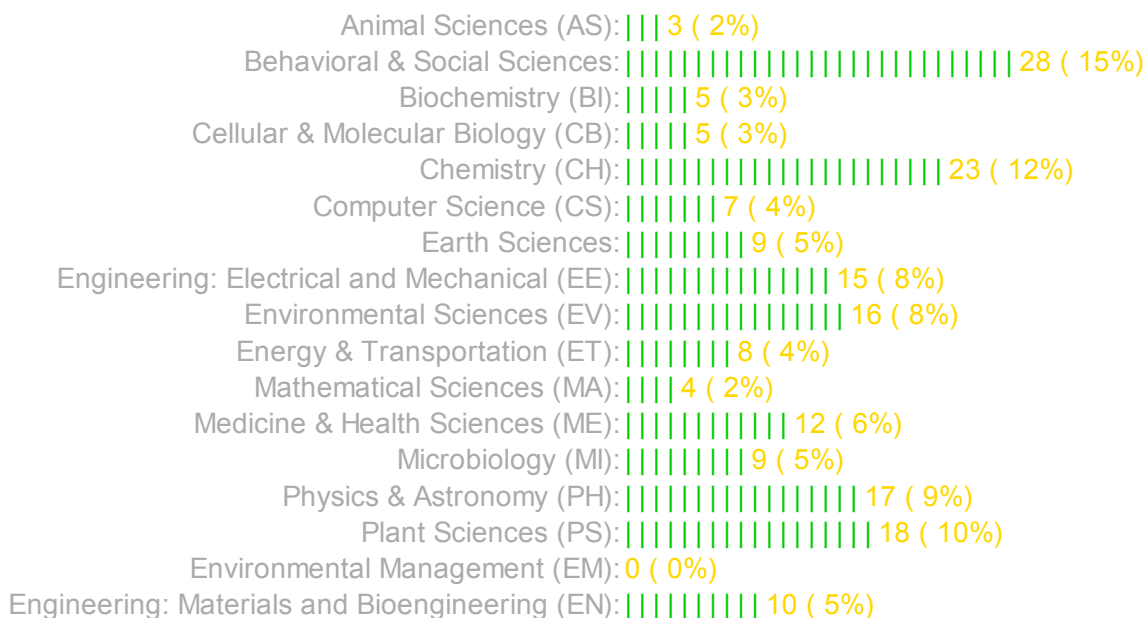


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Total awards given out: 189

Number of awards by category:



Below is a list of all awards for the 2013 event that have been awarded to teams.

Awards sorted by

Award Name: **Alpha Chi Sigma Chemistry Award**
 Award Description: One project will be awarded this prize which recognizes outstanding accomplishments in fundamental or applied chemical sciences
 Awarding Organization: Alpha Chi Sigma
 Winning Project Name: Helping Frozen Toes: Effect of Catalyst on an Exothermic Reaction
 Student: Hannah Goldberg (Grade 5)
 School: Syracuse Hebrew Day School
 Winning Project Category: Chemistry (CH)
 Winning Project Description: Testing to see how the amounts and conditions of use of a warming device will affect its ability to warm an object.

Award Name: **CNY Section of the American Chemical Society Awards in Chemistry**
 Award Description: This award recognizes the 1st place winner in 4th-6th grade for excellence in the understanding or implementation of chemistry principles.
 Awarding Organization: American Chemical Society
 Winning Project Name: Lincoln's Wash
 Student: Ryan Hinshaw (Grade 5)
 School: Syracuse Hebrew Day School
 Winning Project Category: Chemistry (CH)

Winning Project Description: Various methods of cleaning coins will be tested and evaluated for their efficiency.

Award Name: CNY Section of the American Chemical Society Awards in Chemistry

Award Description: This award recognizes the 2nd place winner in 4th-6th grade for excellence in the understanding or implementation of chemistry principles.

Awarding Organization: American Chemical Society

Winning Project Name: Helping Frozen Toes: Effect of Catalyst on an Exothermic Reaction

Student: Hannah Goldberg (Grade 5)

School: Syracuse Hebrew Day School

Winning Project Category: Chemistry (CH)

Winning Project Description: Testing to see how the amounts and conditions of use of a warming device will affect its ability to warm an object.

Award Name: CNY Section of the American Chemical Society Awards in Chemistry

Award Description: This award recognizes the 3rd place winner in 4th-6th grade for excellence in the understanding or implementation of chemistry principles.

Awarding Organization: American Chemical Society

Winning Project Name: Rock Candy

Student: Katelyn Jasmin (Grade 4)

School: Bolivar Road Elementary School

Winning Project Category: Chemistry (CH)

Winning Project Description: Does rock candy grow faster on a pretreated string or on a fresh new string

Award Name: CNY Section of the American Chemical Society Awards in Chemistry

Award Description: This award recognizes the 1st place winner in 10th-12th grade for excellence in the understanding or implementation of chemistry principles.

Awarding Organization: American Chemical Society

Winning Project Name: Reduction of Circulating Tumor Cells by Induction of Apoptosis via a TRAIL-Functionalized, Nanostructured Shunt Device

Student: Olivia Sheppard (Grade 11)

School: Manlius-Pebble Hill School

Winning Project Category: Medicine & Health Sciences (ME)

Winning Project Description: This research has involved the development of an implantable shunt device that can reduce metastatic burden by inducing apoptosis in circulating tumor cells. This shunt device was functionalized by the apoptosis-inducing molecule TRAIL and nanostructured with the use of hallyosite nanotubes. These hallyosite nanotubes coated the inner surface of the shunt device, increasing the inner surface area, thus increasing the amount of protein that can be immobilized on the surface. The protein E-selectin causes the cancer cells to adhere and roll on the surface. A colon cancer cell line designated COLO205, derived from a 70 year old male with Dukes stage D colon cancer, was used for this experiment. The Dukes and TNM methods for staging this type of cancer are the most commonly used. Stage D of the Dukes Staging system signifies that the patients cancer has metastasized to other areas of the body. To simulate in vivo conditions, these cancer cells were passed through the shunt device at a physiologically relevant flow rate utilizing a syringe pump. Processed cells were then analyzed to determine their viability. This study is concerned with the optimization of the shunt device and furthering the research for potential applications of a device such as this in therapeutic treatments for colon cancer.

Award Name: Cornell Women's Club of Syracuse Book Award

Award Description: Three young women will receive a book in celebration of their achievement in their chosen scientific endeavor for science fair participation

Awarding Organization: Cornell Women's Club of Syracuse

Winning Project Name: Does Age Affect Memory?

Student: Kaitlyn Britt (Grade 5)

School: Homer Intermediate School

Winning Project Category: Behavioral & Social Sciences

Winning Project Description: Hypothesis: People from the age of 10-19 will score the fastest time on the memory quiz.

Award Name: **Cornell Women's Club of Syracuse Book Award**

Award Description: Three young women will receive a book in celebration of their achievement in their chosen scientific endeavor for science fair participation

Awarding Organization: Cornell Women's Club of Syracuse

Winning Project Name: Can artificial flavors taste natural?

Student: Abby Morgan (Grade 6)

School: Manlius-Pebble Hill School

Winning Project Category: Behavioral & Social Sciences

Winning Project Description: I compared people's ability to taste the differences between natural and artificial flavors.

Award Name: **Cornell Women's Club of Syracuse Book Award**

Award Description: Three young women will receive a book in celebration of their achievement in their chosen scientific endeavor for science fair participation

Awarding Organization: Cornell Women's Club of Syracuse

Winning Project Name: Cat Toy Enrichment Study

Student: Madeline Scott (Grade 4)

School: Edward Smith Elementary School

Winning Project Category: Behavioral & Social Sciences

Winning Project Description: NA

Award Name: **Earth Science Department (SU) Geology Award**

Award Description: All participants are eligible to receive this award recognizing excellence in Earth Science research.

Awarding Organization: Earth Science Department at Syracuse University

Winning Project Name: The effects of short-term sea level fluctuations on Devonian brachiopods

Student: Martin Welych-Flanagan (Grade 8)

School: Bishop Grimes Junior Senior High School

Winning Project Category: Earth Sciences

Winning Project Description: I examined fossils from the Hamilton Group of the Devonian Period in CNY to determine whether or not the length and width of brachiopods (symmetrical, two-shelled marine invertebrates) would change if sea level changed. Additionally, I wanted to know if the abundance and diversity of certain types of brachiopods would be affected.

Award Name: **IEEE Awards in Electrical and Computer Engineering**

Award Description: Five participants will receive a gift card for showing mastery of projects in the area of electricity and magnetism, electronics, computer science, or optics

Awarding Organization: Institute of Electrical and Electronics Engineers

Winning Project Name: GESPA: A Novel Bioinformatics Tool for Prediction of Genetic Disease

Student: Jay Khurana (Grade 11)

School: Fayetteville-Manlius Senior High School

Winning Project Category: Computer Science (CS)

Winning Project Description: Predicting the association of human genome variation with diseases is challenging. I have designed a novel bioinformatics tool, GESPA (GENomic Single nucleotide Polymorphism Analyzer), that can predict the pathogenic potential and resulting phenotype of the most common human genome variations with high accuracy. The information provided by this software will not only serve as an important bioinformatics framework for researchers focusing on human genome variations but will also allow clinicians to determine the risk in patients for specific genetic diseases.

Award Name: **IEEE Awards in Electrical and Computer Engineering**

Award Description: Five participants will receive a gift card for showing mastery of projects in the area of electricity and magnetism, electronics, computer science, or optics

Awarding Organization: Institute of Electrical and Electronics Engineers

Winning Project Name: Radioactive

Student: Mariah Storie (Grade 8)

School: Manlius-Pebble Hill School

Winning Project Category: Medicine & Health Sciences (ME)

Winning Project Description: This was a measurement of energy emitted from different kinds of cell phones.

Award Name: **IEEE Awards in Electrical and Computer Engineering**

Award Description: Five participants will receive a gift card for showing mastery of projects in the area of electricity and magnetism, electronics, computer science, or optics

Awarding Organization: Institute of Electrical and Electronics Engineers

Winning Project Name: The Growth of Fe₃O₄ Nanoparticles on Graphene As Advanced Electrode Materials for Supercapacitors

Students: Kayla Vidal (Grade 12) and Marwa ALQuraishi (Grade 12)

School: Syracuse Academy of Science Charter School

Winning Project Category: Engineering: Materials and Bioengineering (EN)

Winning Project Description: A novel composite of magnetite (Fe₃O₄) nanoparticles (NPs) grown on graphene oxide (GO) has been synthesized from graphite powder. To synthesis the Fe₃O₄ NPs, facile, fast, non-toxic and environmental friendly microwave synthesis method was developed. After synthesis Fe₃O₄ NPs, Fe₃O₄ /GO nanocomposites were prepared by thermal attachment. The powders were characterized with scanning electron microscope to see the structural change before and after the graphene oxide preparation. The electrochemical properties of the graphite powder, graphene oxide powder and graphene oxide powder with Fe₃O₄ NP (Fe₃O₄ /GO nanocomposite) were investigated as advanced electrode materials for supercapacitors. It is found that the Fe₃O₄ /GO nanocomposite displays much higher specific capacitances than those of graphite and graphene oxide powders. The improvement of the electrochemical performances of Fe₃O₄/GO may be attributed to the chemical interaction between GO and Fe₃O₄, lower agglomeration and smaller particle size of Fe₃O₄.

Award Name: **IEEE Awards in Electrical and Computer Engineering**

Award Description: Five participants will receive a gift card for showing mastery of projects in the area of electricity and magnetism, electronics, computer science, or optics

Awarding Organization: Institute of Electrical and Electronics Engineers

Winning Project Name: Loudspeaker Concept

Student: Zaynah Wazen (Grade 4)

School: Edward Smith Elementary School

Winning Project Category: Engineering: Electrical and Mechanical (EE)

Winning Project Description: NA

Award Name: **IEEE Awards in Electrical and Computer Engineering**

Award Description: Five participants will receive a gift card for showing mastery of projects in the area of electricity and magnetism, electronics, computer science, or optics

Awarding Organization: Institute of Electrical and Electronics Engineers

Winning Project Name: RSA Cryptography

Student: Signe Golash (Grade 9)

School: Corcoran High School

Winning Project Category: Mathematical Sciences (MA)

Winning Project Description: A brief history of RSA cryptography will be presented. A review of the relevant mathematics including prime factorization, modular arithmetic, Euler's and Fermat's Little Theorem will be included. Finally, a simple program written in Python will demonstrate how to formulate the public and private keys for RSA and how to encrypt and decrypt messages.

Award Name: **LeMoyne Excellence in Mathematics or Computer Science Award**

Award Description: One junior level project will receive this award for demonstrating excellence in mathematics or computer science.

Awarding Organization: LeMoyne College

Winning Project Name: What's My HW

Student: Zachary Sussman (Grade 8)

School: Manlius-Pebble Hill School

Winning Project Category: Computer Science (CS)

Winning Project Description: What's My HW is an application that I developed to keep track of homework assignments. You can provide details and due dates and attach a photo such as a picture of notes from the board in class. This is my 8th Grade STEM Fair project for MPH, designed to make it easier for me to keep track of my homework. Future releases will include class schedules, access to teachers' websites and greater sorting capabilities.

Award Name: **LeMoyné Excellence in Mathematics or Computer Science Award**

Award Description: One senior level project will receive this award for demonstrating excellence in mathematics or computer science.

Awarding Organization: LeMoyné College

Winning Project Name: GESPA: A Novel Bioinformatics Tool for Prediction of Genetic Disease

Student: Jay Khurana (Grade 11)

School: Fayetteville-Manlius Senior High School

Winning Project Category: Computer Science (CS)

Winning Project Description: Predicting the association of human genome variation with diseases is challenging. I have designed a novel bioinformatics tool, GESPA (GEnomic Single nucleotide Polymorphism Analyzer), that can predict the pathogenic potential and resulting phenotype of the most common human genome variations with high accuracy. The information provided by this software will not only serve as an important bioinformatics framework for researchers focusing on human genome variations but will also allow clinicians to determine the risk in patients for specific genetic diseases.

Award Name: **Lockheed Martin Awards**

Award Description: Six projects will receive these awards which recognize excellence in engineering and technology.

Awarding Organization: Lockheed Martin

Winning Project Name: The Growth of Fe₃O₄ Nanoparticles on Graphene As Advanced Electrode Materials for Supercapacitors

Students: Kayla Vidal (Grade 12) and Marwa ALQuraishi (Grade 12)

School: Syracuse Academy of Science Charter School

Winning Project Category: Engineering: Materials and Bioengineering (EN)

Winning Project Description: A novel composite of magnetite (Fe₃O₄) nanoparticles (NPs) grown on graphene oxide (GO) has been synthesized from graphite powder. To synthesis the Fe₃O₄ NPs, facile, fast, non-toxic and environmental friendly microwave synthesis method was developed. After synthesis Fe₃O₄ NPs, Fe₃O₄ /GO nanocomposites were prepared by thermal attachment. The powders were characterized with scanning electron microscope to see the structural change before and after the graphene oxide preparation. The electrochemical properties of the graphite powder, graphene oxide powder and graphene oxide powder with Fe₃O₄ NP (Fe₃O₄ /GO nanocomposite) were investigated as advanced electrode materials for supercapacitors. It is found that the Fe₃O₄ /GO nanocomposite displays much higher specific capacitances than those of graphite and graphene oxide powders. The improvement of the electrochemical performances of Fe₃O₄/GO may be attributed to the chemical interaction between GO and Fe₃O₄, lower agglomeration and smaller particle size of Fe₃O₄.

Award Name: **Lockheed Martin Awards**

Award Description: Six projects will receive these awards which recognize excellence in engineering and technology.

Awarding Organization: Lockheed Martin

Winning Project Name: Printing on Air

Student: Max Charlamb (Grade 8)

School: Manlius-Pebble Hill School

Winning Project Category: Computer Science (CS)

Winning Project Description: Max manipulated some variables while signaling a 3D printer to print.

Award Name: **Lockheed Martin Awards**

Award Description: Six projects will receive these awards which recognize excellence in engineering and technology.

Awarding Organization: Lockheed Martin

Winning Project Name: Radioactive

Student: Mariah Storie (Grade 8)

School: Manlius-Pebble Hill School

Winning Project Category: Medicine & Health Sciences (ME)

Winning Project Description: This was a measurement of energy emitted from different kinds of cell phones.

Award Name: **Lockheed Martin Awards**

Award Description: Six projects will receive these awards which recognize excellence in engineering and

technology.

Awarding Organization: Lockheed Martin

Winning Project Name: RSA Cryptography

Student: Signe Golash (Grade 9)

School: Corcoran High School

Winning Project Category: Mathematical Sciences (MA)

Winning Project Description: A brief history of RSA cryptography will be presented. A review of the relevant mathematics including prime factorization, modular arithmetic, Euler's and Fermat's Little Theorem will be included. Finally, a simple program written in Python will demonstrate how to formulate the public and private keys for RSA and how to encrypt and decrypt messages.

Award Name: Lockheed Martin Awards

Award Description: Six projects will receive these awards which recognize excellence in engineering and technology.

Awarding Organization: Lockheed Martin

Winning Project Name: Up, Up, and Away

Student: Jackson Marko (Grade 4)

School: Edward Smith Elementary School

Winning Project Category: Energy & Transportation (ET)

Winning Project Description: In this science fair project, I will launch hot-air balloons, powered by a toaster. I will observe how the size of the balloon affects its flight - specifically, the amount of time it flies.

Award Name: Lockheed Martin Awards

Award Description: Six projects will receive these awards which recognize excellence in engineering and technology.

Awarding Organization: Lockheed Martin

Winning Project Name: Trajectory of an Arrow

Student: Addison Simone (Grade 7)

School: Edward Smith Elementary School

Winning Project Category: Physics & Astronomy (PH)

Winning Project Description: My project tests how the trajectory of an arrow affects distance. I performed an experiment using my bow, arrow, protractor, and measuring tape to measure the distance my arrow went depending upon the angle used. I then compared my data to the results of the equation used to determine the range of a projectile.

Award Name: Lockheed Martin Awards

Award Description: Six projects will receive these awards which recognize excellence in engineering and technology.

Awarding Organization: Lockheed Martin

Winning Project Name: Tyler's Undersea Explorer

Student: Tyler Broschart (Grade 4)

School: Edward Smith Elementary School

Winning Project Category: Engineering: Electrical and Mechanical (EE)

Winning Project Description: Design and assembly of a simple underwater robot capable of transporting up to 5 pounds of cargo while maintaining neutral buoyancy.

Award Name: Lockheed Martin Awards

Award Description: Six projects will receive these awards which recognize excellence in engineering and technology.

Awarding Organization: Lockheed Martin

Winning Project Name: Using inexpensive gyroscopic sensors in robotics competitions

Student: Liza Cotter (Grade 6)

School: A.A. Gates Elementary School

Winning Project Category: Engineering: Electrical and Mechanical (EE)

Winning Project Description: It is difficult to build robots that reliably navigate competition boards. Inexpensive yaw-rate or gyro sensors can help keep track of the robot's orientation, but exhibit unpredictable behavior based on handling, connection to the controlling robot and program instructions from the robot.

Award Name: **Lockheed Martin Awards**

Award Description: Six projects will receive these awards which recognize excellence in engineering and technology.

Awarding Organization: Lockheed Martin

Winning Project Name: Filtering Water Naturally

Students: Aireyanna Kennedy (Grade 10) and Elizabeth Morffi (Grade 10)

School: Syracuse Academy of Science Charter School

Winning Project Category: Environmental Sciences (EV)

Winning Project Description: Elizabeth Morffi & Aireyanna Kennedy Filtering water naturally We decided to do our project on this topic because we wanted to see if there was a more natural way to get rid of our waste. We used things such as Banana peels because we thought there has to be some other way to use these and not just for taking up space in the trash. I and my partner wanted to use real or natural things that grow or made by the earth. That way they are not only good for filtering but also we did a green project. A study done by Harvard students shows that when you filter polluted water so bad that is not safe for people to touch through vegetation will come out so clean you can swim in it. Proving that you can filter water through food to make it risk-free to human beings. Another study done in Cornell University shows the same results. In order to do our project, we first had to make a concentrated solution which consist of Barium (Ba), Iron (Fe) and Copper (Cu). We had to obtain Maple leafs, Banana peels and orange peels then we had to dry them for a couple weeks. We then had to smash them up and weigh the total amount of their weigh and then divide them by twelve because we decided to do three trials of each metal. Then they had to be filtered through the solutions separately and then tested for the concentration. With the data we collected through those tests indicated that we can say that Banana peels, Maple leafs and orange peels do clean Barium, Copper and Iron out of the water. The numbers in our graph represent that the concentration number of these metals has gone down. References for the college study-harvard-(<http://news.harvard.edu/gazette/story/2013/04/with-nature-in-mind/>)cornell-(<http://www.cornell.edu/search/?q=natural+filter&submit=go&tab=>)

Award Name: **Lockheed Martin Awards**

Award Description: Six projects will receive these awards which recognize excellence in engineering and technology.

Awarding Organization: Lockheed Martin

Winning Project Name: Which Windmill

Student: Grace Wright (Grade 5)

School: Homer Intermediate School

Winning Project Category: Energy & Transportation (ET)

Winning Project Description: Hypothesis: I think the three panel windmill will work better because it has less drag.

Award Name: **NASA/NY Space Grant Award**

Award Description: One Junior level project will receive this award that recognizes excellence in an Earth and Planetary Science (EA) project.

Awarding Organization: NASA

Winning Project Name: Our Solar System

Student: Katie Roff (Grade 5)

School: Mae E. Reynolds School

Winning Project Category: Physics & Astronomy (PH)

Winning Project Description: Exploring our solar system by building a 3D model and creating a fact board with interesting facts about its planets.

Award Name: **NASA/NY Space Grant Award**

Award Description: One Senior level project will receive this award that recognizes excellence in a Physics and Astronomy (PH) project.

Awarding Organization: NASA

Winning Project Name: Improvement in Crosswind Landing by use of Intelligent Holonomic Landing Gear

Student: Emerson Czerwinski Burkard (Grade 11)

School: Manlius-Pebble Hill School

Winning Project Category: Energy & Transportation (ET)

Winning Project Description: Optimization of touchdown in a crosswind, by applying the principle of holonomics to the landing gear, offers vast improvement to airplane safety and maneuverability. In a traditional slip landing, the pilot must align the plane to the runway before the wheels touch the ground. This creates drifting of the

plane across the runway due to the crosswind, increasing the risk of accidents. Creating autonomy for the Holonomic landing gear ideally would allow the pilot to maintain the slip beyond touchdown and also keeping the number of pilot monitored systems at a minimum.

Award Name: **SUNY ESF Best Environmental Science Project**

Award Description: Two projects will receive this award which recognizes achievement in environmental science projects.

Awarding Organization: SUNY College of Environmental Science and Forestry

Winning Project Name: BIOPLASTICS: An Exploration of Nature's Plastic

Student: ALEXANDER WULFF (Grade 9)

School: Skaneateles Senior High School

Winning Project Category: Engineering: Materials and Bioengineering (EN)

Winning Project Description: Bioplastics, composed of bio-polymers, are starch-based plastics that have the potential to change the world by virtually eliminating all petroleum-based plastic waste deposited into landfills. These plastics are fully biodegradable. In this project I explored the best methods of formulating, molding, and creating bioplastics as well as their applications, advantages, and disadvantages.

Award Name: **SUNY ESF Best Environmental Science Project**

Award Description: Two projects will receive this award which recognizes achievement in environmental science projects.

Awarding Organization: SUNY College of Environmental Science and Forestry

Winning Project Name: Are you really safe in your home?

Student: M.P. Geiss (Grade 7)

School: Manlius-Pebble Hill School

Winning Project Category: Earth Sciences

Winning Project Description: MP measured and compared home radon levels as well as with NYS mapping.

Award Name: **SUNY Cortland Chemistry Award**

Award Description: All participants are eligible to receive this award that recognizes excellence in chemistry research.

Awarding Organization: SUNY Cortland

Winning Project Name: Reduction of Circulating Tumor Cells by Induction of Apoptosis via a TRAIL-Functionalized, Nanostructured Shunt Device

Student: Olivia Sheppard (Grade 11)

School: Manlius-Pebble Hill School

Winning Project Category: Medicine & Health Sciences (ME)

Winning Project Description: This research has involved the development of an implantable shunt device that can reduce metastatic burden by inducing apoptosis in circulating tumor cells. This shunt device was functionalized by the apoptosis-inducing molecule TRAIL and nanostructured with the use of hallyosite nanotubes. These hallyosite nanotubes coated the inner surface of the shunt device, increasing the inner surface area, thus increasing the amount of protein that can be immobilized on the surface. The protein E-selectin causes the cancer cells to adhere and roll on the surface. A colon cancer cell line designated COLO205, derived from a 70 year old male with Dukes stage D colon cancer, was used for this experiment. The Dukes and TNM methods for staging this type of cancer are the most commonly used. Stage D of the Dukes Staging system signifies that the patient's cancer has metastasized to other areas of the body. To simulate in vivo conditions, these cancer cells were passed through the shunt device at a physiologically relevant flow rate utilizing a syringe pump. Processed cells were then analyzed to determine their viability. This study is concerned with the optimization of the shunt device and furthering the research for potential applications of a device such as this in therapeutic treatments for colon cancer.

Award Name: **SUNY Oswego Genius Olympiad Award**

Award Description: Two 8th-12th grade participants will receive this award which recognizes achievement in promotion of environmental issues and finding solutions to global environmental problems through scientific research, experimentation, and presentation. This award includes

Awarding Organization: SUNY Oswego

Winning Project Name: Rain Garden Soil Suitability

Student: Kaya Pagano (Grade 9)

School: Corcoran High School

Winning Project Category: Environmental Sciences (EV)

Winning Project Description: An analysis of soil properties to determine suitability for water retention in rain garden applications.

Award Name: **SUNY Oswego Genius Olympiad Award**

Award Description: Two 8th-12th grade participants will receive this award which recognizes achievement in promotion of environmental issues and finding solutions to global environmental problems through scientific research, experimentation, and presentation. This award inc

Awarding Organization: SUNY Oswego

Winning Project Name: Analysis and Improvement methods of Solar Energy in Upstate New York

Students: Jamaica Glass (Grade 11) and Alana Barrot (Grade 11)

School: Syracuse Academy of Science Charter School

Winning Project Category: Energy & Transportation (ET)

Winning Project Description: Solar energy is energy we obtain from the sun's rays. To harvest the rays, we used a series of solar cells. A solar cell (also called a photo voltaic cell or photocell) is an electrical device that converts the energy of light directly into electricity by the photo voltaic effect. It is a form of photoelectric cell (in that its electrical characteristicse.g. current, voltage, or resistancevary when light is incident upon it) which, when exposed to light, can generate and support an electric current without being attached to any external voltage source, but do require an external load for power consumption. Light (photons) striking certain compounds, in particular metals, causes the surface of the material to emit electrons. Light striking other compounds causes the material to accept electrons. It is the combination of these two compounds that can be made use of to cause electrons to flow through a conductor, and thereby create electricity. This phenomenon is called the photo-electric effect. Photo voltaic means sunlight converted into a flow of electrons (electricity).

Award Name: **American Meteorological Society Award**

Award Description: Two awards for individual or team project (junior or senior division) for best meteorological exhibit.

Awarding Organization: American Meteorological Society

Winning Project Name: Rain or Snow: How Low Can it Go?

Students: Joanna Maressa (Grade 8) and Jeffrey Bush (Grade 8)

School: Camillus Middle School

Winning Project Category: Environmental Sciences (EV)

Winning Project Description: Acid deposition is extremely harmful to certain soils, trees, bodies of water, aquatic life, buildings, objects, and even us. To potentially help solve the problem of acid deposition, we tested whether snow or rain is more acid. We identified pH immediately after sampling and also bubbled out carbon dioxide to record aerated pH. We then measured inorganic carbon, nitrate, and sulfate to better understand what may have caused the precipitation to be more or less acid. Our hypothesis was that snow would be more acid than rain. Check out our poster for results!

Award Name: **American Psychological Association (APA) Award**

Award Description: This award recognizes outstanding research in psychology (junior or senior division) under the category of behavioral and social sciences. No team award is given.

Awarding Organization: American Psychological Association (APA)

Winning Project Name: CSI Effect

Student: Mark Gonzalski (Grade 12)

School: Syracuse Academy of Science Charter School

Winning Project Category: Behavioral & Social Sciences

Winning Project Description: Crime and courtroom proceedings have long been fodder for film and television scriptwriters. In recent years, however, the media's use of the courtroom as a vehicle for drama has not only proliferated, it has changed focus. In apparent fascination with our criminal justice process, many of today's courtroom dramas are based on actual cases. Court TV offers live gavel-to-gavel coverage of trials over the Internet for \$5.95 a month. Now, that's "reality television"! Reality and fiction have begun to blur with crime magazine television shows such as 48 Hours Mystery, American Justice, and even, on occasion, Dateline NBC. These programs portray actual cases, but only after extensively editing the content and incorporating narration for dramatic effect. Presenting one 35-year-old cold case, for example, 48 Hours Mystery filmed for months to capture all pretrial hearings as well as the 2-week trial; the program, however, was ultimately edited to a 1-hour episode that suggested the crime remained a "mystery" . . . notwithstanding the jury's guilty verdict.

Award Name: **ASM Materials Education Foundation Award**

Award Description: This award is for the best materials engineering project. This is a single award in the junior or senior division. No team award is given.

Awarding Organization: ASM Materials Education Foundation

Winning Project Name: Composite Concrete Compression Strenghts and Their Relation to Different Additives and Concrete Mixtures

Student: Vincent D'Arrigo (Grade 12)

School: Cato-Meridian Senior High School

Winning Project Category: Engineering: Materials and Bioengineering (EN)

Winning Project Description: I made composite samples by introducing various materials into concrete samples. I then tested the samples to conclude which combination was better under certain conditions.

Award Name: Association for Women Geoscientists Award

Award Description: This award is offered to female students or groups with at least one female student. These projects should exemplify high standards of innovativeness and scientific excellence in the geosciences.

Special consideration will be given to projects that increa

Awarding Organization: Association for Women Geoscientists

Winning Project Name: Which Windmill

Student: Grace Wright (Grade 5)

School: Homer Intermediate School

Winning Project Category: Energy & Transportation (ET)

Winning Project Description: Hypothesis: I think the three panel windmill will work better because it has less drag.

Award Name: Intel Excellence in Computer Science Award

Award Description: One senior level team will receive this Intel Award for outstanding achievement in a computer science project.

Awarding Organization: Intel

Winning Project Name: GESPA: A Novel Bioinformatics Tool for Prediction of Genetic Disease

Student: Jay Khurana (Grade 11)

School: Fayetteville-Manlius Senior High School

Winning Project Category: Computer Science (CS)

Winning Project Description: Predicting the association of human genome variation with diseases is challenging. I have designed a novel bioinformatics tool, GESPA (GENomic Single nucleotide Polymorphism Analyzer), that can predict the pathogenic potential and resulting phenotype of the most common human genome variations with high accuracy. The information provided by this software will not only serve as an important bioinformatics framework for researchers focusing on human genome variations but will also allow clinicians to determine the risk in patients for specific genetic diseases.

Award Name: Mu Alpha Theta Award

Award Description: This is the National High School and Two-Year College Mathematics Club. It is intended that this recognition be awarded to a senior division individual or group project demonstrating the most challenging, thorough, creative investigation of a problem invo

Awarding Organization: Mu Alpha Theta

Winning Project Name: The Study of Student Atributes Affect on Mathmatic Pattern Recognition

Student: Juliann Hall (Grade 10)

School: Cato-Meridian Senior High School

Winning Project Category: Behavioral & Social Sciences

Winning Project Description: Using a blind survey student volunteers will be presented with a mathematic pattern. A similar pattern is presented next with different numbers to determine if the pattern is recognized and then utilized to solve the next computation. The results will be analyzed to determine the correlation between student attributes and pattern recognition.

Award Name: NOAA Taking the Pulse of the Planet Award

Award Description: This award goes to research that emphasizes NOAA's mission to understand and predict changes in Earth's environment and to conserve and manage coastal and marine resources to meet our nation's economic, social and environmental needs.

Awarding Organization: National Oceanic and Atmospheric Administration (NOAA)

Winning Project Name: Global warming can give you heart attack

Student: **Clarice Edwards (Grade 11)**

School: **Syracuse Academy of Science Charter School**

Winning Project Category: **Behavioral & Social Sciences**

Winning Project Description: Global warming is the continual rise of average temperatures on Earth. This has been a major issue in the scientific community since the 1970s. Ninety percent of global warming has happened in the Earth's oceans. The Earth's temperature has increased by 0.8°C, since the early 20th century. This rise has raised concerns about things, such as storms, rising sea levels, and tropical climates. Heart rate is the number of times that your heart beats in a minute. Heart rate is affected by air temperature, body position, body size, and medication use. A normal, resting heart rate can be between sixty and one hundred beats per minute. People who are usually more athletic or physically active can have a normal, resting heart rate of lower than sixty. Your heart rate can usually be found in your wrists, the inside of your elbow, top of your foot, or the side of your neck. In my experiment, I want to see if your heart rate can be affected by your emotional state. To test this, I will have people watch an emotional stimulating video about global warming. During the video, I will measure a person's electrolytes and their heart rate.

Award Name: **Office of Naval Research Award**

Award Description: Three junior level individual projects will receive this award for producing and presenting quality science and engineering projects.

Awarding Organization: **U.S. Navy and Marine Corps**

Winning Project Name: **The Effect of Various Professed Topical Healing Agents on the Regeneration Rate in Dugesia tigrina**

Student: **Rachel Annett (Grade 11)**

School: **Cato-Meridian Senior High School**

Winning Project Category: **Medicine & Health Sciences (ME)**

Winning Project Description: This project will study the effect of commonly used topical agents on the rate of regeneration in *Dugesia tigrina*. The agents tested include hydrogen peroxide, Aloe vera, honey, and silver nitrate. The regeneration will be monitored for nine days following cutting the planarian in half. The data will be composed of daily test subject photos treated with each topical agent, and compared to a non-treated control. The photos will be used to determine which agents cause the quickest regeneration in Planaria.

Award Name: **Office of Naval Research Award**

Award Description: Two senior level individual projects will receive this award for producing and presenting quality science and engineering projects.

Awarding Organization: **U.S. Navy and Marine Corps**

Winning Project Name: **The Study of Student Attributes Affect on Mathematic Pattern Recognition**

Student: **Juliann Hall (Grade 10)**

School: **Cato-Meridian Senior High School**

Winning Project Category: **Behavioral & Social Sciences**

Winning Project Description: Using a blind survey student volunteers will be presented with a mathematic pattern. A similar pattern is presented next with different numbers to determine if the pattern is recognized and then utilized to solve the next computation. The results will be analyzed to determine the correlation between student attributes and pattern recognition.

Award Name: **Office of Naval Research Award**

Award Description: Three junior level individual projects will receive this award for producing and presenting quality science and engineering projects.

Awarding Organization: **U.S. Navy and Marine Corps**

Winning Project Name: **Improvement in Crosswind Landing by use of Intelligent Holonomic Landing Gear**

Student: **Emerson Czerwinski Burkard (Grade 11)**

School: **Manlius-Pebble Hill School**

Winning Project Category: **Energy & Transportation (ET)**

Winning Project Description: Optimization of touchdown in a crosswind, by applying the principle of holonomics to the landing gear, offers vast improvement to airplane safety and maneuverability. In a traditional slip landing, the pilot must align the plane to the runway before the wheels touch the ground. This creates drifting of the plane across the runway due to the crosswind, increasing the risk of accidents. Creating autonomy for the Holonomic landing gear ideally would allow the pilot to maintain the slip beyond touchdown and also keeping the number of pilot monitored systems at a minimum.

Award Name: **Office of Naval Research Award**

Award Description: Three junior level individual projects will receive this award for producing and presenting quality science and engineering projects.

Awarding Organization: U.S. Navy and Marine Corps

Winning Project Name: A Physical Analysis of Ingestion Devices for Familial Tremor Patients

Student: Allison Piedmonte (Grade 12)

School: Cato-Meridian Senior High School

Winning Project Category: Physics & Astronomy (PH)

Winning Project Description: My genetic make-up includes an illness called Familial Tremors, the phenotype: tremors are expressed in both my grandmother and my father. My science fair project will be about investigating devices to eliminate the expression of the tremors. I will design, make and test various devices in the lab on tremor patients with a varying range of severity to see which devices minimize tremor induced liquid ingestion spills. My analysis may include the frequency of tremor, the sideways force of the tremor, displacement of the device, the relative amount of liquid ingested, cost of the device and an analysis of the properties the device is constructed of.

Award Name: **Regional Ricoh Sustainable Development Award**

Award Description: All participants are eligible to win this award recognizing projects that demonstrate outstanding efforts in addressing issues of environmental responsibility and sustainable development.

Awarding Organization: Ricoh Americas Corporation

Winning Project Name: More Jobs From The Same Tree

Students: Gillian Lighthenfield (Grade 10) and Safa ALQuraishi (Grade 12)

School: Syracuse Academy of Science Charter School

Winning Project Category: Environmental Sciences (EV)

Winning Project Description: Biorefinery is a clean technology that disassembles woody biomass to generate an increased or improved variety of products from the same amount of wood. The biorefinery concept is analogous to today's petroleum refinery, which produce multiple fuels and products from petroleum. We tried to understand effect of water quality on biorefinery products. Currently, only distilled pH 7 water has been used for hot water extraction. This increases the cost and the time of the production. In our research, we have compared the quality and quantity of hot water extraction products that is extracted by rainwater, lake water and distilled water at pH 7. If rainwater or lake water can give us the same quality of side products, then this would increase the availability of biorefinery. It will minimize the location dependence of biorefinery, and will decrease the cost and time of the water treatment process.

Award Name: **Society for In Vitro Biology Award**

Award Description: The most outstanding 11th grade student exhibiting in the areas of plant or animal in vitro biology or tissue culture will receive this award.

Awarding Organization: Society for In Vitro Biology

Winning Project Name: Inheritance and Segregation of Genes in Transgenic American Chestnut F1 Generation

Student: Jennifer DeRosa (Grade 11)

School: Skaneateles Senior High School

Winning Project Category: Cellular & Molecular Biology (CB)

Winning Project Description: Inheritance and segregation of the transgenes encoding oxalate oxidase (OxO) (used for blight resistance) and GFP (used as a marker gene) in F1 offspring.

Award Name: **Stockholm Junior Water Prize**

Award Description: This is for the three best senior projects related to water quality, water resource management, water protection, water treatment or wastewater treatment.

Awarding Organization: Stockholm International Water Institute

Winning Project Name: The Effect of Water Acidification on Lumbriculus variegatus

Student: Rebecca Hunter (Grade 12)

School: Cato-Meridian Senior High School

Winning Project Category: Environmental Sciences (EV)

Winning Project Description: This experiment tests the effect that decreased pH of water has on the aquatic species, Lumbriculus variegatus. The experiment will examine the genetic differences within the species and how it effects their ability to adapt to the acidification along with their ability to develop resistance over a period of time. The acidification will be caused by a chemical reaction between CaCO₃ and HCl which produces CO₂ in the water.

Award Name: **Stockholm Junior Water Prize**

Award Description: This is for the three best senior projects related to water quality, water resource management, water protection, water treatment or wastewater treatment.

Awarding Organization: Stockholm International Water Institute

Winning Project Name: What is the better growing form?

Student: Caleb Gretsky (Grade 9)

School: LaFayette Big Picture School

Winning Project Category: Plant Sciences (PS)

Winning Project Description: This project is going to see which growing method of three different methods is the best. The methods are aquaponics, hydroponics, and soil.

Award Name: **Stockholm Junior Water Prize**

Award Description: This is for the three best senior projects related to water quality, water resource management, water protection, water treatment or wastewater treatment.

Awarding Organization: Stockholm International Water Institute

Winning Project Name: Rain Garden Soil Suitability

Student: Kaya Pagano (Grade 9)

School: Corcoran High School

Winning Project Category: Environmental Sciences (EV)

Winning Project Description: An analysis of soil properties to determine suitability for water retention in rain garden applications.

Award Name: **U.S. Metric Association Award**

Award Description: This award goes to two individual senior level participants whose project involves a significant amount of quantitative measurement and which best uses the SI metric system for those measurements.

Awarding Organization: U.S. Metric Association

Winning Project Name: Rain Garden Soil Suitability

Student: Kaya Pagano (Grade 9)

School: Corcoran High School

Winning Project Category: Environmental Sciences (EV)

Winning Project Description: An analysis of soil properties to determine suitability for water retention in rain garden applications.

Award Name: **United States Public Health Service - Surgeon Generals Science Award**

Award Description: This is for the best project to expand upon key areas of health prevention as outlined in the National Prevention Strategy.

Awarding Organization: U.S. Surgeon General

Winning Project Name: Rolling with Routinization

Student: Rachel Elman (Grade 7)

School: Manlius-Pebble Hill School

Winning Project Category: Behavioral & Social Sciences

Winning Project Description: I compared the performance of 4 age categories of people on three behavioral sets.

Award Name: **Yale Science and Engineering Association Inc. Award**

Award Description: This award is given to the most outstanding 11th grade student exhibiting in the areas of Computer Science, Engineering, Physics or Chemistry (only individual projects).

Awarding Organization: Yale Science and Engineering Association Inc.

Winning Project Name: Improvement in Crosswind Landing by use of Intelligent Holonomic Landing Gear

Student: Emerson Czerwinski Burkard (Grade 11)

School: Manlius-Pebble Hill School

Winning Project Category: Energy & Transportation (ET)

Winning Project Description: Optimization of touchdown in a crosswind, by applying the principle of holonomics to the landing gear, offers vast improvement to airplane safety and maneuverability. In a traditional slip landing, the pilot must align the plane to the runway before the wheels touch the ground. This creates drifting of the plane across the runway due to the crosswind, increasing the risk of accidents. Creating autonomy for the

Holonomic landing gear ideally would allow the pilot to maintain the slip beyond touchdown and also keeping the number of pilot monitored systems at a minimum.

Award Name: **Honeywell Summer Science Week Scholarship**

Award Description: Ten 8th grade students will receive tuition for Honeywell Summer Science Week at the MOST

Awarding Organization: Honeywell

Winning Project Name: The effects of short-term sea level fluctuations on Devonian brachiopods

Student: Martin Welych-Flanagan (Grade 8)

School: Bishop Grimes Junior Senior High School

Winning Project Category: Earth Sciences

Winning Project Description: I examined fossils from the Hamilton Group of the Devonian Period in CNY to determine whether or not the length and width of brachiopods (symmetrical, two-shelled marine invertebrates) would change if sea level changed. Additionally, I wanted to know if the abundance and diversity of certain types of brachiopods would be affected.

Award Name: **Honeywell Summer Science Week Scholarship**

Award Description: Ten 8th grade students will receive tuition for Honeywell Summer Science Week at the MOST

Awarding Organization: Honeywell

Winning Project Name: Best Way to Preserve Apples

Students: Imane Aitnajim (Grade 8) and Amela Mujak (Grade 8)

School: H. W. Smith School

Winning Project Category: Microbiology (MI)

Winning Project Description: An additional student participated in this project: Eh Tha Yu John. Apples were placed in 6 different solutions to determine if the solutions prevented decay.

Award Name: **Honeywell Summer Science Week Scholarship**

Award Description: Ten 8th grade students will receive tuition for Honeywell Summer Science Week at the MOST

Awarding Organization: Honeywell

Winning Project Name: Phototropism

Student: Nathan Lesch (Grade 8)

School: Manlius-Pebble Hill School

Winning Project Category: Plant Sciences (PS)

Winning Project Description: Growth rates and patterns of pea plants.

Award Name: **Honeywell Summer Science Week Scholarship**

Award Description: Ten 8th grade students will receive tuition for Honeywell Summer Science Week at the MOST

Awarding Organization: Honeywell

Winning Project Name: Tall Enough?

Student: Bianca Melendez Martineau (Grade 8)

School: Manlius-Pebble Hill School

Winning Project Category: Chemistry (CH)

Winning Project Description: The purpose of this experiment is to determine the reactions of acids (buttermilk) to bases (baking soda) and a mix of acids and bases (baking powder) by making pancakes.

Award Name: **Honeywell Summer Science Week Scholarship**

Award Description: Ten 8th grade students will receive tuition for Honeywell Summer Science Week at the MOST

Awarding Organization: Honeywell

Winning Project Name: The Effects of Acid Rain on Non-Vertebrae Organisms in Lakes

Student: Jamila Eatman (Grade 8)

School: Syracuse Academy of Science Charter School

Winning Project Category: Environmental Sciences (EV)

Winning Project Description: Acid waters running into our lakes and rivers have become a problem. It is the leading cause of a decrease in plants and aquatic animals in our salt and fresh water bodies of water. Without

healthy aquatic ecosystems we could not survive. This experiment attempts to replicate the dangerous acidic levels of our lakes by introducing live, non-vertebrae organisms called brine shrimp to different levels of acidity in salt water. After introducing freshly hatched brine shrimp to salt water with a normal pH of 7 and an even more basic pH level of 8, the brine shrimp survived for three days. Brine shrimp that were introduced to waters with a pH of 4 stopped moving and sank to the bottom of the beaker within 3 seconds. The Little Echo Pond in Franklin, New York is the most acidic lake that has been measured with a pH of 4.2. It is important to understand the direct connection between humans and the consequence of unhealthy waters for our aquatic ecosystems.

Award Name: **Honeywell Summer Science Week Scholarship**

Award Description: Ten 8th grade students will receive tuition for Honeywell Summer Science Week at the MOST

Awarding Organization: Honeywell

Winning Project Name: The Greatest Achievement of a Potato Cannon

Student: Max Moore (Grade 8)

School: Lincoln Middle School

Winning Project Category: Engineering: Materials and Bioengineering (EN)

Winning Project Description: Max developed a device to launch a potato

Award Name: **Honeywell Summer Science Week Scholarship**

Award Description: Ten 8th grade students will receive tuition for Honeywell Summer Science Week at the MOST

Awarding Organization: Honeywell

Winning Project Name: The Erupting Valcano

Students: LuAnn Phillips (Grade 8) and Mikayla Lang (Grade 8)

School: East Middle School

Winning Project Category: Earth Sciences

Winning Project Description: We build a volcano out of paper mache. Then put a plastic bag over it so we didn't ruin our volcano, then used baking soda, and vinegar then diet coke and mementos.

Award Name: **Honeywell Summer Science Week Scholarship**

Award Description: Ten 8th grade students will receive tuition for Honeywell Summer Science Week at the MOST

Awarding Organization: Honeywell

Winning Project Name: Color Affects

Student: Mariah McClendon (Grade 8)

School: Syracuse Academy of Science Charter School

Winning Project Category: Behavioral & Social Sciences

Winning Project Description: Color has a profound effect on human behavior and it is better understood now than at any time in history. The Color Affects System of applied color psychology is built on the pairing of colour physics with psychology to evoke consistently reproducible - and predictable - psychological response to color in the great majority of people. Color affects your bottom line in branding, packaging, web design, interiors, product design and fashion.

Award Name: **Honeywell Summer Science Week Scholarship**

Award Description: Ten 8th grade students will receive tuition for Honeywell Summer Science Week at the MOST

Awarding Organization: Honeywell

Winning Project Name: What's My HW

Student: Zachary Sussman (Grade 8)

School: Manlius-Pebble Hill School

Winning Project Category: Computer Science (CS)

Winning Project Description: What's My HW is an application that I developed to keep track of homework assignments. You can provide details and due dates and attach a photo such as a picture of notes from the board in class. This is my 8th Grade STEM Fair project for MPH, designed to make it easier for me to keep track of my homework. Future releases will include class schedules, access to teachers' websites and greater sorting capabilities.

Award Name: **Honeywell Summer Science Week Scholarship**

Award Description: Ten 8th grade students will receive tuition for Honeywell Summer Science Week at the MOST

Awarding Organization: Honeywell

Winning Project Name: Printing on Air

Student: Max Charlamb (Grade 8)

School: Manlius-Pebble Hill School

Winning Project Category: Computer Science (CS)

Winning Project Description: Max manipulated some variables while signaling a 3D printer to print.

Award Name: **Honeywell Summer Science Week Scholarship**

Award Description: Ten 8th grade students will receive tuition for Honeywell Summer Science Week at the MOST

Awarding Organization: Honeywell

Winning Project Name: What Liquid Causes Plants to Grow the Best

Student: Sarah Babcock (Grade 8)

School: Syracuse Academy of Science Charter School

Winning Project Category: Plant Sciences (PS)

Winning Project Description: My science project was carried out to see if there was a liquid, other than water, that would cause a plant to grow up healthy. I carried out this project for a duration of four weeks, watering four plants, three times a week, with 3mL of a liquid assigned to them. I watered one plant with water, another with 2% milk, the other one with orange juice, and the last one with non-diet Pepsi. Before I started the project, I thought that the plant that was given water would grow and develop the most, and after conducting this project, I proved my hypothesis correct. During the four weeks in which I conducted this project, the plants that were given 2% milk and orange juice developed mold in their soil, and fruit flies were attracted to them. The plant that was given Pepsi, however, only developed very brittle, and brown leaves. As predicted, the plant that was given water stayed exceptionally healthy, and therefore, water is the best thing to water a plant with.

Award Name: **Honeywell Summer Science Week Scholarship**

Award Description: Ten 8th grade students will receive tuition for Honeywell Summer Science Week at the MOST

Awarding Organization: Honeywell

Winning Project Name: Radioactive

Student: Mariah Storie (Grade 8)

School: Manlius-Pebble Hill School

Winning Project Category: Medicine & Health Sciences (ME)

Winning Project Description: This was a measurement of energy emitted from different kinds of cell phones.

Award Name: **Honeywell Summer Science Week Scholarship**

Award Description: Ten 8th grade students will receive tuition for Honeywell Summer Science Week at the MOST

Awarding Organization: Honeywell

Winning Project Name: Gel Electrophoresis Chamber

Students: Aubrey Trett (Grade 8) and Alex Piczkur (Grade 8)

School: West Genesee Middle School

Winning Project Category: Cellular & Molecular Biology (CB)

Winning Project Description: In this experiment, a gel electrophoresis chamber was built and used to test and separate the molecules/plant residue DNA in various colors of food dye.

Award Name: **Honeywell Summer Science Week Scholarship**

Award Description: Ten 8th grade students will receive tuition for Honeywell Summer Science Week at the MOST

Awarding Organization: Honeywell

Winning Project Name: Rain or Snow: How Low Can it Go?

Students: Joanna Maressa (Grade 8) and Jeffrey Bush (Grade 8)

School: Camillus Middle School

Winning Project Category: Environmental Sciences (EV)

Winning Project Description: Acid deposition is extremely harmful to certain soils, trees, bodies of water, aquatic

life, buildings, objects, and even us. To potentially help solve the problem of acid deposition, we tested whether snow or rain is more acid. We identified pH immediately after sampling and also bubbled out carbon dioxide to record aerated pH. We then measured inorganic carbon, nitrate, and sulfate to better understand what may have caused the precipitation to be more or less acid. Our hypothesis was that snow would be more acid than rain. Check out our poster for results!

Award Name: **Honeywell Summer Science Week Scholarship**

Award Description: Ten 8th grade students will receive tuition for Honeywell Summer Science Week at the MOST

Awarding Organization: Honeywell

Winning Project Name: Radioactive Bacteria

Student: Haley Morgan (Grade 8)

School: Manlius-Pebble Hill School

Winning Project Category: Cellular & Molecular Biology (CB)

Winning Project Description: Does UV light have any affect on the growth of bacteria?

Award Name: **LeMoyne College Scholarship Award**

Award Description: Two high school juniors will receive \$11,250 tuition assistance to LeMoyne College for four years in recognition of outstanding leadership, research, and accomplishments in the field of science.

Awarding Organization: LeMoyne College

Winning Project Name: Reduction of Circulating Tumor Cells by Induction of Apoptosis via a TRAIL-Functionalized, Nanostructured Shunt Device

Student: Olivia Sheppard (Grade 11)

School: Manlius-Pebble Hill School

Winning Project Category: Medicine & Health Sciences (ME)

Winning Project Description: This research has involved the development of an implantable shunt device that can reduce metastatic burden by inducing apoptosis in circulating tumor cells. This shunt device was functionalized by the apoptosis-inducing molecule TRAIL and nanostructured with the use of hallyosite nanotubes. These hallyosite nanotubes coated the inner surface of the shunt device, increasing the inner surface area, thus increasing the amount of protein that can be immobilized on the surface. The protein E-selectin causes the cancer cells to adhere and roll on the surface. A colon cancer cell line designated COLO205, derived from a 70 year old male with Dukes stage D colon cancer, was used for this experiment. The Dukes and TNM methods for staging this type of cancer are the most commonly used. Stage D of the Dukes Staging system signifies that the patients cancer has metastasized to other areas of the body. To simulate in vivo conditions, these cancer cells were passed through the shunt device at a physiologically relevant flow rate utilizing a syringe pump. Processed cells were then analyzed to determine their viability. This study is concerned with the optimization of the shunt device and furthering the research for potential applications of a device such as this in therapeutic treatments for colon cancer.

Award Name: **LeMoyne College Scholarship Award**

Award Description: Two high school juniors will receive \$11,250 tuition assistance to LeMoyne College for four years in recognition of outstanding leadership, research, and accomplishments in the field of science.

Awarding Organization: LeMoyne College

Winning Project Name: GESPA: A Novel Bioinformatics Tool for Prediction of Genetic Disease

Student: Jay Khurana (Grade 11)

School: Fayetteville-Manlius Senior High School

Winning Project Category: Computer Science (CS)

Winning Project Description: Predicting the association of human genome variation with diseases is challenging. I have designed a novel bioinformatics tool, GESPA (GENomic Single nucleotide Polymorphism Analyzer), that can predict the pathogenic potential and resulting phenotype of the most common human genome variations with high accuracy. The information provided by this software will not only serve as an important bioinformatics framework for researchers focusing on human genome variations but will also allow clinicians to determine the risk in patients for specific genetic diseases.

Award Name: **Morrisville State College Scholarship Award**

Award Description: One senior level participant will receive \$1,250 tuition assistance to Morrisville State College for four years in recognition of exceptional study and accomplishment in a field of technology

Awarding Organization: Morrisville State College

Winning Project Name: **Compost Heated Greenhouse**

Student: **Cameron Baker (Grade 12)**

School: **LaFayette Big Picture School**

Winning Project Category: **Earth Sciences**

Winning Project Description: **I will be designing and testing a prototype for a greenhouse that is heated by compost.**

Award Name: **Onondaga Community College Summer Scholarship**

Award Description: **One senior level participant will receive a certificate for a 3 credit hour course during the summer session at OCC**

Awarding Organization: **Onondaga Community College**

Winning Project Name: **Global warming can give you heart attack**

Student: **Clarice Edwards (Grade 11)**

School: **Syracuse Academy of Science Charter School**

Winning Project Category: **Behavioral & Social Sciences**

Winning Project Description: **Global warming is the continual rise of average temperatures on Earth. This has been a major issue in the scientific community since the 1970s. Ninety percent of global warming has happened in the Earth's oceans. The Earth's temperature has increased by 0.8°C, since the early 20th century. This rise has raised concerns about things, such as storms, rising sea levels, and tropical climates. Heart rate is the number of times that your heart beats in a minute. Heart rate is affected by air temperature, body position, body size, and medication use. A normal, resting heart rate can be between sixty and one hundred beats per minute. People who are usually more athletic or physically active can have a normal, resting heart rate of lower than sixty. Your heart rate can usually be found in your wrists, the inside of your elbow, top of your foot, or the side of your neck. In my experiment, I want to see if your heart rate can be affected by your emotional state. To test this, I will have people watch an emotional stimulating video about global warming. During the video, I will measure a person's electrolytes and their heart rate.**

Award Name: **SUNY Cortland Science Leadership Scholarship**

Award Description: **One senior level participant will receive tuition assistance at SUNY Cortland for four years in recognition of outstanding leadership, research, and accomplishments in the field of science**

Awarding Organization: **SUNY Cortland**

Winning Project Name: **Evaluation of MS and DKW Basal Salts on the Tissue Culture of Juglans nigra**

Student: **Margaret Lovier (Grade 11)**

School: **Skaneateles Senior High School**

Winning Project Category: **Plant Sciences (PS)**

Winning Project Description: **Juglans nigra, commonly known as the black walnut, is a widespread tree of America's forests. Recently, they have been under threat by the Thousand Cankers Disease or TCD. My work this year was to experiment for a medium that can successfully grow walnut embryos by comparing two possible basal salts, Murashige and Skoog medium (MS) and Driver and Kuniyuki walnut medium (DKW), that could be used as components. Two different types of containers, Petri dishes and baby-food jars, were also tested.**

Award Name: **SUNY College of Environmental Science and Forestry Scholarship**

Award Description: **One senior level participant will receive tuition assistance to SUNY ESF for four years in recognition of outstanding accomplishments in the field of environmental science.**

Awarding Organization: **SUNY College of Environmental Science and Forestry**

Winning Project Name: **Effect of Greywater on Plant Growth**

Student: **Cimone Jordan (Grade 11)**

School: **George Fowler High School**

Winning Project Category: **Environmental Sciences (EV)**

Winning Project Description: **An investigation of the environmental implications of using dish water in place of potable water for plant irrigation.**

Award Name: **Syracuse Pulp and Paper Foundation Scholarship**

Award Description: **One senior level participant will receive tuition assistance for four years in the Paper Engineering Program at SUNY ESF from SPPF**

Awarding Organization: **Syracuse Pulp and Paper Foundation at SUNY ESF**

Winning Project Name: **More Jobs From The Same Tree**

Students: **Gillian Lightenfield (Grade 10) and Safa ALQuraishi (Grade 12)**

School: **Syracuse Academy of Science Charter School**

Winning Project Category: **Environmental Sciences (EV)**

Winning Project Description: Biorefinery is a clean technology that disassembles of woody biomass to generate an increased or improved variety of products from the same amount of wood. The biorefinery concept is analogous to today's petroleum refinery, which produce multiple fuels and products from petroleum. We tried to understand effect of water quality on biorefinery products. Currently, only distilled pH 7 water has been used for hot water extraction. This increases the cost and the time of the production. In our research, we have compared the quality and quantity of hot water extraction products that is extracted by rainwater, lake water and distilled water at pH 7. If rainwater or lake water can give us the same quality of side products, then this would increase the availability of biorefinery. It will minimize the location dependence of biorefinery, and will decrease the cost and time of the water treatment process.

Award Name: **Syracuse University Scholarship**

Award Description: Two senior level participants will receive tuition assistance to Syracuse University for four years in recognition of their outstanding achievement in their scientific endeavors

Awarding Organization: Syracuse University

Winning Project Name: More Jobs From The Same Tree

Students: Gillian Lightenfield (Grade 10) and Safa ALQuraishi (Grade 12)

School: Syracuse Academy of Science Charter School

Winning Project Category: **Environmental Sciences (EV)**

Winning Project Description: Biorefinery is a clean technology that disassembles of woody biomass to generate an increased or improved variety of products from the same amount of wood. The biorefinery concept is analogous to today's petroleum refinery, which produce multiple fuels and products from petroleum. We tried to understand effect of water quality on biorefinery products. Currently, only distilled pH 7 water has been used for hot water extraction. This increases the cost and the time of the production. In our research, we have compared the quality and quantity of hot water extraction products that is extracted by rainwater, lake water and distilled water at pH 7. If rainwater or lake water can give us the same quality of side products, then this would increase the availability of biorefinery. It will minimize the location dependence of biorefinery, and will decrease the cost and time of the water treatment process.

Award Name: **Syracuse University Scholarship**

Award Description: Two senior level participants will receive tuition assistance to Syracuse University for four years in recognition of their outstanding achievement in their scientific endeavors

Awarding Organization: Syracuse University

Winning Project Name: Degradation of Polycyclic Aromatic Hydrocarbons in Contaminated Soil Amended with Fishbone Apatite and Iron (III) Oxide

Student: Bilgenur Sirin (Grade 12)

School: Syracuse Academy of Science Charter School

Winning Project Category: **Chemistry (CH)**

Winning Project Description: (C-PAHs and NC-PAHs) in Palmerton Zinc Pile Superfund soil was investigated. This soil was subjected to different types of treatment: a) untreated soil submerged in water (U); b) treated soil mixed with 8% of biogenic fishbone apatite (T); c) T soil amended with different amounts of iron (III) oxide: 6% (T+Fe6), 12% (T+Fe12), and 18% (T+Fe18). The soil samples were analyzed 6 years after the amendments. Degradation of both types of PAHs was significantly greater under anaerobic conditions in the U-soil compared with other types of treatments. The addition of Fe₂O₃ to the T-soil, resulted in reduced degradation of C-PAHs. For NC-PAHs, the increase in Fe₂O₃ to 12% significantly increased their degradation. Further elevation of Fe₂O₃ significantly reduced the degradation of NC-PAHs. This finding indicates that NC- and C-PAHs might be degraded via different pathways or by different types of microorganisms. Researchers and PAH-remediation practitioners should take into account that iron (III) compounds might interfere with electron-transfer mechanisms involved in degradation of PAHs. Inoculation of soil with small amounts of iron (III) oxide might slow down the degradation of complex organic matter. This approach might be particularly helpful in the equatorial regions where the rate of degradation of organic matter is high, which results in a rapid loss of soil nutrients.

Award Name: **College of Engineering & Computer Science and Summer College at Syracuse University Scholarship Award**

Award Description: One senior level participant will receive summer college tuition and room and board for the six week Summer College study program at Syracuse University in recognition of outstanding achievement in their scientific endeavors

Awarding Organization: College of Engineering & Computer Science at Syracuse University

Winning Project Name: Robopollution

Student: [Nyezee Goe \(Grade 11\)](#)
School: [George Fowler High School](#)
Winning Project Category: [Environmental Sciences \(EV\)](#)
Winning Project Description: [An analysis of robotic environmental impacts. Includes a working robot!](#)

Award Name: [Upstate Dean's Award in Biological Sciences](#)
Award Description: [One high school student who's project has demonstrated creativity, innovation and scientific excellence in the biological sciences will receive a renewable monetary award and housing \(if needed\) for a summer internship at an Upstate College laboratory.](#)
Awarding Organization: [Upstate College of Graduate Studies](#)
Winning Project Name: [GESPA: A Novel Bioinformatics Tool for Prediction of Genetic Disease](#)
Student: [Jay Khurana \(Grade 11\)](#)
School: [Fayetteville-Manlius Senior High School](#)
Winning Project Category: [Computer Science \(CS\)](#)
Winning Project Description: [Predicting the association of human genome variation with diseases is challenging. I have designed a novel bioinformatics tool, GESPA \(GENomic Single nucleotide Polymorphism Analyzer\), that can predict the pathogenic potential and resulting phenotype of the most common human genome variations with high accuracy. The information provided by this software will not only serve as an important bioinformatics framework for researchers focusing on human genome variations but will also allow clinicians to determine the risk in patients for specific genetic diseases.](#)

Award Name: [Intel International Science and Engineering Fair Finalist](#)
Award Description: [The two top senior level projects will be chosen to attend the Intel International Science and Engineering Fair on May 11-16, 2014 in Los Angeles, California, all expenses paid.](#)
Awarding Organization: [Intel](#)
Winning Project Name: [Reduction of Circulating Tumor Cells by Induction of Apoptosis via a TRAIL-Functionalized, Nanostructured Shunt Device](#)
Student: [Olivia Sheppard \(Grade 11\)](#)
School: [Manlius-Pebble Hill School](#)
Winning Project Category: [Medicine & Health Sciences \(ME\)](#)
Winning Project Description: [This research has involved the development of an implantable shunt device that can reduce metastatic burden by inducing apoptosis in circulating tumor cells. This shunt device was functionalized by the apoptosis-inducing molecule TRAIL and nanostructured with the use of hallyosite nanotubes. These hallyosite nanotubes coated the inner surface of the shunt device, increasing the inner surface area, thus increasing the amount of protein that can be immobilized on the surface. The protein E-selectin causes the cancer cells to adhere and roll on the surface. A colon cancer cell line designated COLO205, derived from a 70 year old male with Dukes stage D colon cancer, was used for this experiment. The Dukes and TNM methods for staging this type of cancer are the most commonly used. Stage D of the Dukes Staging system signifies that the patients cancer has metastasized to other areas of the body. To simulate in vivo conditions, these cancer cells were passed through the shunt device at a physiologically relevant flow rate utilizing a syringe pump. Processed cells were then analyzed to determine their viability. This study is concerned with the optimization of the shunt device and furthering the research for potential applications of a device such as this in therapeutic treatments for colon cancer.](#)

Award Name: [Intel International Science and Engineering Fair Finalist](#)
Award Description: [The two top senior level projects will be chosen to attend the Intel International Science and Engineering Fair on May 11-16, 2014 in Los Angeles, California, all expenses paid.](#)
Awarding Organization: [Intel](#)
Winning Project Name: [Improvement in Crosswind Landing by use of Intelligent Holonomic Landing Gear](#)
Student: [Emerson Czerwinski Burkard \(Grade 11\)](#)
School: [Manlius-Pebble Hill School](#)
Winning Project Category: [Energy & Transportation \(ET\)](#)
Winning Project Description: [Optimization of touchdown in a crosswind, by applying the principle of holonomics to the landing gear, offers vast improvement to airplane safety and maneuverability. In a traditional slip landing, the pilot must align the plane to the runway before the wheels touch the ground. This creates drifting of the plane across the runway due to the crosswind, increasing the risk of accidents. Creating autonomy for the Holonomic landing gear ideally would allow the pilot to maintain the slip beyond touchdown and also keeping the number of pilot monitored systems at a minimum.](#)

Award Name: New York State Science Congress Award

Award Description: Three senior level projects will receive a certificate from STANYS to attend the New York State Science Congress on May 31, at Brookhaven National Labs, New York.

Awarding Organization: Science Teachers Association of New York State

Winning Project Name: The Effect of Water Acidification on Lumbriculus variegatus

Student: Rebecca Hunter (Grade 12)

School: Cato-Meridian Senior High School

Winning Project Category: Environmental Sciences (EV)

Winning Project Description: This experiment tests the effect that decreased pH of water has on the aquatic species, Lumbriculus variegatus. The experiment will examine the genetic differences within the species and how it effects their ability to adapt to the acidification along with their ability to develop resistance over a period of time. The acidification will be caused by a chemical reaction between CaCO₃ and HCl which produces CO₂ in the water.

Award Name: New York State Science Congress Award

Award Description: Three senior level projects will receive a certificate from STANYS to attend the New York State Science Congress on May 31, at Brookhaven National Labs, New York.

Awarding Organization: Science Teachers Association of New York State

Winning Project Name: Degradation of Polycyclic Aromatic Hydrocarbons in Contaminated Soil Amended with Fishbone Apatite and Iron (III) Oxide

Student: Bilgenur Sirin (Grade 12)

School: Syracuse Academy of Science Charter School

Winning Project Category: Chemistry (CH)

Winning Project Description: (C-PAHs and NC-PAHs) in Palmerton Zinc Pile Superfund soil was investigated. This soil was subjected to different types of treatment: a) untreated soil submerged in water (U); b) treated soil mixed with 8% of biogenic fishbone apatite (T); c) T soil amended with different amounts of iron (III) oxide: 6% (T+Fe6), 12% (T+Fe12), and 18% (T+Fe18). The soil samples were analyzed 6 years after the amendments. Degradation of both types of PAHs was significantly greater under anaerobic conditions in the U-soil compared with other types of treatments. The addition of Fe₂O₃ to the T-soil, resulted in reduced degradation of C-PAHs. For NC-PAHs, the increase in Fe₂O₃ to 12% significantly increased their degradation. Further elevation of Fe₂O₃ significantly reduced the degradation of NC-PAHs. This finding indicates that NC- and C-PAHs might be degraded via different pathways or by different types of microorganisms. Researchers and PAH-remediation practitioners should take into account that iron (III) compounds might interfere with electron-transfer mechanisms involved in degradation of PAHs. Inoculation of soil with small amounts of iron (III) oxide might slow down the degradation of complex organic matter. This approach might be particularly helpful in the equatorial regions where the rate of degradation of organic matter is high, which results in a rapid loss of soil nutrients.

Award Name: New York State Science Congress Award

Award Description: Three senior level projects will receive a certificate from STANYS to attend the New York State Science Congress on May 31, at Brookhaven National Labs, New York.

Awarding Organization: Science Teachers Association of New York State

Winning Project Name: BIOPLASTICS: An Exploration of Nature's Plastic

Student: ALEXANDER WULFF (Grade 9)

School: Skaneateles Senior High School

Winning Project Category: Engineering: Materials and Bioengineering (EN)

Winning Project Description: Bioplastics, composed of bio-polymers, are starch-based plastics that have the potential to change the world by virtually eliminating all petroleum-based plastic waste deposited into landfills. These plastics are fully biodegradable. In this project I explored the best methods of formulating, molding, and creating bioplastics as well as their applications, advantages, and disadvantages.

Award Name: Broadcom MASTERS Award

Award Description: Five junior level projects will be nominated for the Broadcom MASTERS, which is intended to encourage, reward and celebrate the mastery of science, technology, engineering, and math among 6th, 7th and 8th grade science fair participants.

Awarding Organization: Broadcom

Winning Project Name: The Hidden Web: Internet Browsing, Behavioral Targeting and Tracking

Student: Christopher Edmonds (Grade 7)

School: **Edward Smith Elementary School**

Winning Project Category: **Computer Science (CS)**

Winning Project Description: This project will examine how companies use internet cookies to track web users. The researcher will conduct an experiment using and not using anti-tracking software to determine if and how much ads change based on user activity. Results are important to personal privacy and internet security.

Award Name: **Broadcom MASTERS Award**

Award Description: Five junior level projects will be nominated for the Broadcom MASTERS, which is intended to encourage, reward and celebrate the mastery of science, technology, engineering, and math among 6th, 7th and 8th grade science fair participants.

Awarding Organization: **Broadcom**

Winning Project Name: **Building My Battleship: Concerns For Galvanic Corrosion**

Student: **Andrew Goldberg (Grade 7)**

School: **Christian Brothers Academy**

Winning Project Category: **Engineering: Electrical and Mechanical (EE)**

Winning Project Description: This project is about galvanic corrosion or also known as bimetallic corrosion. This is when two metals; one an anode and the other a cathode touch in salt water. This corrodes the anode. The purpose of this project is to find which metals corrode an anode, aluminum.

Award Name: **Broadcom MASTERS Award**

Award Description: Five junior level projects will be nominated for the Broadcom MASTERS, which is intended to encourage, reward and celebrate the mastery of science, technology, engineering, and math among 6th, 7th and 8th grade science fair participants.

Awarding Organization: **Broadcom**

Winning Project Name: **DNA-The Letters of Life**

Students: **Marlena Kruman (Grade 6) and Mattie Riter (Grade 6)**

School: **Homer Intermediate School**

Winning Project Category: **Cellular & Molecular Biology (CB)**

Winning Project Description: Hypothesis: A lemon will contain the most DNA because it contains a lot of juice.

Award Name: **Broadcom MASTERS Award**

Award Description: Five junior level projects will be nominated for the Broadcom MASTERS, which is intended to encourage, reward and celebrate the mastery of science, technology, engineering, and math among 6th, 7th and 8th grade science fair participants.

Awarding Organization: **Broadcom**

Winning Project Name: **The Effects of Acid Rain on Non-Vertebrae Organisms in Lakes**

Student: **Jamila Eatman (Grade 8)**

School: **Syracuse Academy of Science Charter School**

Winning Project Category: **Environmental Sciences (EV)**

Winning Project Description: Acid waters running into our lakes and rivers have become a problem. It is the leading cause of a decrease in plants and aquatic animals in our salt and fresh water bodies of water. Without healthy aquatic ecosystems we could not survive. This experiment attempts to replicate the dangerous acidic levels of our lakes by introducing live, non-vertebrae organisms called brine shrimp to different levels of acidity in salt water. After introducing freshly hatched brine shrimp to salt water with a normal pH of 7 and an even more basic pH level of 8, the brine shrimp survived for three days. Brine shrimp that were introduced to waters with a pH of 4 stopped moving and sank to the bottom of the beaker within 3 seconds. The Little Echo Pond in Franklin, New York is the most acidic lake that has been measured with a pH of 4.2. It is important to understand the direct connection between humans and the consequence of unhealthy waters for our aquatic ecosystems.

Award Name: **Broadcom MASTERS Award**

Award Description: Five junior level projects will be nominated for the Broadcom MASTERS, which is intended to encourage, reward and celebrate the mastery of science, technology, engineering, and math among 6th, 7th and 8th grade science fair participants.

Awarding Organization: **Broadcom**

Winning Project Name: **What's My HW**

Student: **Zachary Sussman (Grade 8)**

School: **Manlius-Pebble Hill School**

Winning Project Category: **Computer Science (CS)**

Winning Project Description: What's My HW is an application that I developed to keep track of homework assignments. You can provide details and due dates and attach a photo such as a picture of notes from the board in class. This is my 8th Grade STEM Fair project for MPH, designed to make it easier for me to keep track of my homework. Future releases will include class schedules, access to teachers' websites and greater sorting capabilities.