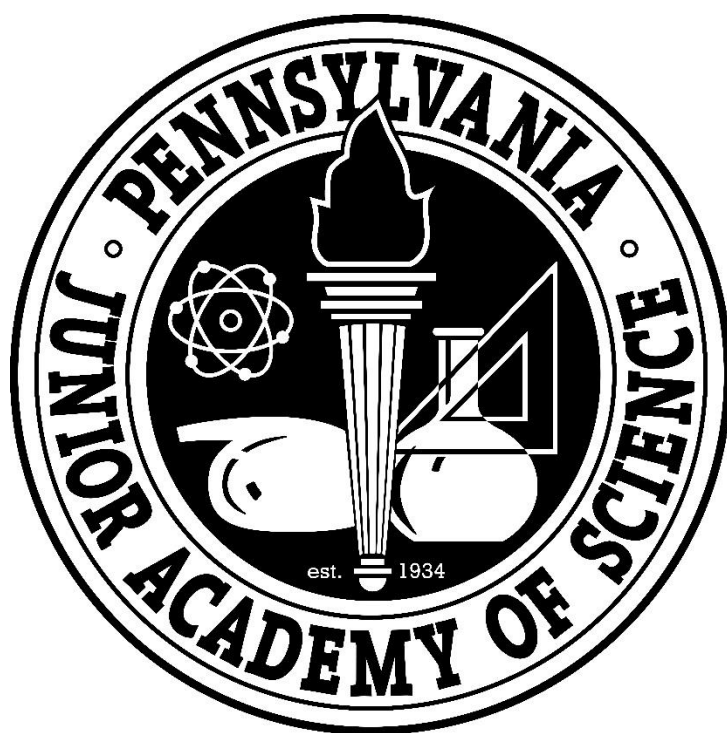


85th ANNUAL STATE MEETING

PENNSYLVANIA JUNIOR ACADEMY OF SCIENCE



MAY 19, 20, & 21, 2019

THE PENNSYLVANIA STATE UNIVERSITY
UNIVERSITY PARK

SCHEDULE for the 2019 PJAS STATE MEETING

Nurse on duty 24 hours a day in the Health Suite – 117 Brill, 814-810-6545

Pollock Commons Housing Desk 814-865-8692, open 24 hours

PJAS Information Desk – Redifer Commons, 814-810-6983

Check the PJAS Twitter Feed: www.twitter.com/pjasinfodesk for updates.

Residence Halls are locked at all times. You must have your meal card with you for building entry.

Participants must wear their nametag at all times.

Sunday, May 19, 2019

1:00 – 11:00 PM	PJAS Information Desk is open to assist you – Redifer Commons
1:00 – 4:30 PM	Resident Registration - All Regions - Pollock Commons
1:00 – 5:30 PM	Sponsors/Judges pick-up judging assignments at Findlay/Johnston Commons All judges must attend one of the mandatory meetings for judges. Option 1 is Sunday 9:00 – 9:30 PM in 112 Forest Resources Building Option 2 is Monday 7:45 – 8:15 AM in 112 Forest Resources Building
2:00 – 9:00 PM	Commuter Packet Pickup is at the Information Desk in Redifer Commons
4:00 – 6:30 PM	Supper – Pollock Commons for Regions 1A, 1B, 2, 3 Supper – Redifer Commons for Regions 1C, 4, 5, 6, 7, 8, 9, 10 Name tag and meal card required for all meals.
5:00 – 10:30 PM	After Hours Registration – Pick up packets at the Information Desk in Redifer Commons
6:00 – 6:45 PM	Penn State Scholarship Interview Information Meeting. For current juniors only. 100 Thomas
7:00 – 8:45 PM	Sponsors/Judges pick up judging assignments at Findlay/Johnston Commons All judges must attend one of the mandatory meetings for judges. Option 1 is Sunday 9:00 – 9:30 PM in 112 Forest Resources Option 2 is Monday 7:45 – 8:15 AM in 112 Forest Resources
7:00 – 7:45 PM	Mandatory Technicians Meeting – 119 Osmund Technicians from Regions 1A, 2, 4, 6, 7, 10
7:00 – 7:45 PM	Mandatory Regional Meetings – All Students and All Adults Region 1B 101 Thomas Region 1C 105 Forum Region 3 100 Thomas Region 5 201 Thomas Region 8 110 Business Region 9 111 Forum
8:00 – 8:45PM	Mandatory Technicians Meeting – 119 Osmund Technicians from Regions 1B, 1C, 3, 5, 8, 9

8:00 – 8:45 PM	Mandatory Regional Meetings – All Students and All Adults Region 1A 201 Thomas Region 2 100 Thomas Region 4 112 Forest Resources Region 6 110 Business Region 7 105 Forum Region 10 101 Thomas
9:00 – 10:30 PM	Directors' Meeting, Findlay/Johnston Commons Glass Lounge
10:00 PM	End of pizza deliveries. Please meet the delivery person in the lobby of your dorm with the money ready. Call early so that your pizza arrives by 10:00
10:30 PM	Curfew. Students must be in their residence hall. Drapes closed. Alarm systems activated.
11:00 PM	Lights Out. All students must be in their rooms and quiet.
Monday, May 20, 2019	
6:30 – 8:30 AM	Breakfast – Pollock Commons for Regions 1A, 1B, 2, 3 Breakfast – Redifer Commons for Regions 1C, 4, 5, 6, 7, 8, 9, 10 Name tag and meal card required for all meals.
7:00 AM – 11:00 PM	PJAS Information Desk is open to assist you – Redifer Commons
7:00 – 7:30 AM	Judges pick up judging assignments at Findlay/Johnston Commons followed by a mandatory meeting for judges in 112 Forest Resources from 7:45 – 8:15 AM.
9:00 AM	Morning Presentations
9:00 – 11:30 AM	Arriving commuter sponsors and presenters should report to the PJAS Information Desk in Redifer Commons to pick up their packets.
9:00 – 11:30 AM	Arriving afternoon judges should report to Findlay/Johnston Commons to receive their assignment
10:00 AM	Eisenhower Chaperones Meeting in the lobby of Eisenhower Auditorium
11:00 AM – 1:30 PM	Lunch – Pollock Commons for Regions 1A, 1B, 2, 3 Lunch – Redifer Commons for Regions 1C, 4, 5, 6, 7, 8, 9, 10 Name tag and meal card required for all meals.
1:00 PM	Awards Program for Morning Presenters – Eisenhower Auditorium All students must be wearing their name tags. Sit quietly. Remove hats. No food or drinks. Turn off cell phones.
1:15 PM	Afternoon Presentations
2:00 PM	Interviews for Trips and PSU Scholarships, 104 Thomas. See page 8.

4:00 – 6:00	Penn State Science Fair - Fun and informative! Penn State invites you to participate in fun science activities and meet with representatives of the Penn State STEM colleges. Where: Science activities will be located on Shortlidge Road near the Thomas Building and Eisenhower Auditorium, under the Huck Life Science Bridge. Penn State representatives will be located upstairs, inside the Huck Life Science connector bridge.																								
4:30 – 7:00 PM	Supper – Pollock Commons for Regions 1A, 1B, 2, 3 Supper – Redifer Commons for Regions 1C, 4, 5, 6, 7, 8, 9, 10 Name tag and meal card required for all meals.																								
6:30 PM	Awards Program for Afternoon Presenters All students must be wearing their name tags. <i>Sit quietly. Remove hats. No food or drink. Turn off cell phones.</i> <table> <tr><td>Region 1A</td><td>110 Business</td></tr> <tr><td>Region 1B</td><td>112 Buckhout</td></tr> <tr><td>Region 1C</td><td>105 Forum</td></tr> <tr><td>Region 2</td><td>119 Osmund</td></tr> <tr><td>Region 3</td><td>100 Thomas</td></tr> <tr><td>Region 4</td><td>110 Business</td></tr> <tr><td>Region 5</td><td>110 Business</td></tr> <tr><td>Region 6</td><td>112 Forest Resources</td></tr> <tr><td>Region 7</td><td>111 Forum</td></tr> <tr><td>Region 8</td><td>112 Forest Resources</td></tr> <tr><td>Region 9</td><td>121 Sparks</td></tr> <tr><td>Region 10</td><td>101 Thomas</td></tr> </table>	Region 1A	110 Business	Region 1B	112 Buckhout	Region 1C	105 Forum	Region 2	119 Osmund	Region 3	100 Thomas	Region 4	110 Business	Region 5	110 Business	Region 6	112 Forest Resources	Region 7	111 Forum	Region 8	112 Forest Resources	Region 9	121 Sparks	Region 10	101 Thomas
Region 1A	110 Business																								
Region 1B	112 Buckhout																								
Region 1C	105 Forum																								
Region 2	119 Osmund																								
Region 3	100 Thomas																								
Region 4	110 Business																								
Region 5	110 Business																								
Region 6	112 Forest Resources																								
Region 7	111 Forum																								
Region 8	112 Forest Resources																								
Region 9	121 Sparks																								
Region 10	101 Thomas																								
8:00 – 9:00 PM	Special Awards Ceremony, Eisenhower Auditorium All students must be wearing their name tags. <i>Sit Quietly. Remove hats. No food or drink. Turn off cell phones.</i>																								
8:30 PM	The PSU Astronomy Department will set up their telescopes on the HUB lawn for Night Sky Viewing. This will take place weather permitting (no clouds).																								
9:00 – 11:00 PM	Student Movies – Thomas Building																								
11:00 PM	End of pizza deliveries. Please meet the delivery person in the lobby of your dorm with the money ready. Call early so that your pizza arrives before 11:00.																								
11:30 PM	Curfew. Students must be in their residence hall. Drapes closed. Alarm systems activated.																								
12:00 Midnight	Lights Out. All students must be in their rooms and quiet.																								
Tuesday, May 21, 2019																									
7:00 – 9:30 AM	Breakfast – Pollock Commons for Regions 1A, 1B, 2, 3 Breakfast – Findlay/Johnston Commons for Regions 1C, 4, 5, 6, 7, 8, 9, 10 Name tag and meal card required for all meals.																								
8:30 – 10:30 AM	Check out/key collection. Ask your Region Director where the keys for your region will be collected.																								

PJAS Essentials

Residence Halls

Residence halls are locked at all times. You must have your meal card with you for building entry. No males in female dorms; no females in male dorms. Locate the stairwells in your residence hall. Use the stairs, not the elevator, in case of emergency.

Buses

Shuttle Buses will be running on Sunday evening and Monday during the day. Check the map for bus stops near you. Use the buses marked PJAS

Room Changes

Sometimes we have to change presentation rooms. The Information Desk has a list. You can also check at www.twitter.com/pjasinfodesk. You do not need a twitter account to access this

Student Movie

Monday 9:00 PM, Thomas Building

Star Gazing

The Penn State Astronomy Department will set up their telescopes on Monday evening, weather permitting (no cloud cover). Check at the PJAS Info Desk on Monday afternoon for more information.

Pins

Pins will be in Pollock Commons on Sunday and Monday. Look for signs in the same area as the shirts sales.

PJAS Shirts

Shirts will be on sale on Sunday and Monday Pollock Commons. Look for the signs.

Presenters

All presenters must attend their region meeting on Sunday evening. Morning presentations start at 9:00 AM. Be in your presentation room at 8:50. Afternoon presentations start at 1:15 PM. Be in your presentation room at 1:05. Presenters who receive a first-place award should attend the Special Awards Program Monday evening. If you do not attend, you forfeit all awards.

Technicians

All technicians must attend the meeting for their region and the technician meeting in the opposite time slot. The technician meetings on Sunday evening in 119 Osmund.

Event Supervisors/Chaperones

The assignment envelopes for all event supervisors will be included in the housing/registration materials for your region. Read the enclosed information carefully. Please be on time to your assignment.

Keys

Place your key in the envelope provided. Sponsors should collect all room keys and return keys to their Regional Directors. Your region director will let you know where your region keys will be collected. There is a fee of \$64 for lost keys so be careful to not lose it.

Awards Program for Morning Presentations

Eisenhower Auditorium 1:00 p.m.

Master of Ceremony Mrs. Karen Iobst
Director, Region 3

Remarks Mrs. Fay Nelson
State Director

Awards Presentations Directors of All Regions

Students: Please line up by units.

Facing the Stage: Even units on the right; odd units on the left.

Make sure your nametag is clearly visible.

Parents and Chaperones must sit in the balcony.

Awards Programs for Afternoon Presentations, 6:30 PM

Region 1A.....	110 Business
Region 1B.....	112 Buckhout
Region 1C.....	105 Forum
Region 2.....	119 Osmund
Region 3.....	100 Thomas
Region 4.....	110 Business
Region 5.....	110 Business
Region 6.....	112 Forest Resources
Region 7.....	111 Forum
Region 8.....	112 Forest Resources
Region 9.....	121 Sparks
Region 10.....	101 Thomas

Decorum for all PJAS Award Programs

- *All in attendance are asked to sit quietly, showing respect and courtesy.*
- *You may not linger in the lobby and/or halls. If you are waiting for someone, wait outside.*
- *Food and drink are prohibited in the building.*
- *Laser pointers are banned at all PJAS events.*
- *Cell phones must be turned off.*
- *Feet should remain on the floor. Do not put your feet on the seats.*
- *Sports equipment of any type is not allowed.*
- *Remove all hats.*
- *Students must be wearing their nametag.*

Awards Program

Eisenhower Auditorium 8:00 PM

Students who received a first place award should attend this program.

Master of Ceremonies.....	Mrs. Karen Iobst Director, Region 3
Remarks and Welcome	Mr. Artemio Cardenas Assistant Director, Eberly College of Science
Remarks and Awards.....	Mrs. Fay Nelson State Director
Pennsylvania State University Scholarships.....	Associate Deans from STEM Colleges
Pennsylvania Academy of Science Awards and	
PJAS Special Awards	Dr. Clay LaCoe PA Science Talent Search Director Chair, State Awards Committee

In order for the student to receive a special award, he/she must be in attendance at this awards ceremony and must be wearing his/her PJAS nametag. If a student does not attend the special awards ceremony, the award and any money that accompanies the award will be forfeited. If a student cannot attend the ceremony because of extenuating circumstances, that student's sponsor must complete a form at the Info Desk before 5:00 PM on Monday afternoon.

Awards

PJAS Directors Awards Junior High	Marine Science Camp at the Chincoteague Bay F.S.
PJAS Directors Awards Senior High	Penn State University College of Engineering
Zappa Physics/Mathematics Awards Junior High	Scholarships
Zappa Physics/Mathematics Awards Senior High	Penn State University Eberly College of Science
Karl F. Oerlein Awards Junior High	Scholarships
Karl F. Oerlein Awards Senior High	Penn State University College of Earth & Mineral
PA Science Talent Search Awards – Juniors	Science Scholarships
PA Science Talent Search Awards – Seniors	Penn State University College of Agricultural Sciences
Ed Owens Memorial Awards	Scholarships
PAESTA Earth Science Award Middle School	
PAESTA Earth Science Award High School	

Interviews for the scholarship/camps/trips listed below will be held in the Thomas Building, room 100, immediately following the morning awards ceremony.

<p><i>Marine Science Camp – Chincoteague Bay Field Station, VA</i></p> <p>1 week, expenses paid, student is responsible for travel, 1 delegate and 1 alternate. July 28 – Aug 2, 2019 (Advanced Coastal Explorers.)</p> <p>For additional information: http://www.cbfieldstation.org/overnight-camps.html</p>	<p><i>Current Grade 10 or 11</i></p> <p><i>Must receive a first-place award at the 2019 State Meeting. Bring your award certificate. Project must be in BC, BIO, BOT, ECO, MIC, or ZOO</i></p>
--	--

Penn State University Scholarships

Maximum of 2 interviews allowed:

Students interested in PSU Scholarships should attend the orientation meeting on Sunday at 6:00 in 100 Thomas.

To interview you must complete a very short online form at

https://pennstate.qualtrics.com/jfe/form/SV_0j6DDZJ0GI2hno1 or see the QR code below.

Award	Information	Requirements
PSU College of Agriculture Scholarships	Must attend PSU Main Campus with a major in the College of Agricultural Sciences	Current Junior Combined SAT or ACT equivalent Reading/Writing and Mathematics score of 1300 or more. Must fill out PJAS scholarship form online by Sunday, May 19 th , 2019 at 11:59pm
PSU College of Earth and Mineral Sciences Scholarships	Must attend PSU Main Campus with a major in the College of Earth and Mineral Sciences	
PSU College of Engineering Scholarships	Must attend PSU Main Campus with a major in the College of Engineering	
PSU Eberly College of Science Scholarships	Must attend PSU Main Campus with a major in the Eberly College of Science	

Link to PSU Scholarship
Form. Current Juniors Only.



Pennsylvania Junior Academy of Science

State Director	Mrs. Fay Nelson
Treasurer	Mrs. Leah Ann Williams
Directors at Large	Mr. Peter Carando, Mr. Joseph Durkin, Dr. Laura Fisanick, Mr. James Maloy, Miss Patricia McGeever, Mr. Edward Testa, Mr. Stanley Tracton
Region 1A Directors	William D. Welde <i>Counties: Chester, Delaware</i>
Region 1B Directors	Mr. Robert Helm, Methacton SD Ms. Karen Wolfe, Souderton SD <i>County: Montgomery</i>
Region 1C Directors	Mr. Dom Fedele Ms. Kate Liese, Bensalem SD <i>Counties: Bucks, Philadelphia</i>
Region 2 Director	Ms. Susan Moyer, MMI Preparatory School Ms. Maureen Elswick, Pocono Mountain SD <i>Counties: Lackawanna, Luzerne, Monroe, Pike, Susquehanna, Wayne, Wyoming</i>
Region 3 Director	Mrs. Karen Iobst, Notre Dame of Bethlehem <i>Counties: Berks, Carbon, Lehigh, Northampton, Schuylkill</i>
Region 4 Director	Ms. Emilie Tekely, Dauphin County Technical School <i>Counties: Adams, Cumberland, Dauphin, Juniata, Lancaster, Lebanon, Mifflin, Perry, York</i>
Region 5 Director	Mr. Robert Everly <i>Counties: Bradford, Clinton, Columbia, Lycoming, Montour, Northumberland, Snyder, Sullivan, Tioga, Union</i>
Region 6 Director	Ms. Alice Flarend, Bellwood-Antis SD <i>Counties: Bedford, Blair, Cambria, Centre, Clearfield, Franklin, Fulton, Huntingdon, Somerset</i>
Region 7 Director	Mrs. Susan Morgan, St. Elizabeth School <i>Counties: Allegheny, Westmoreland</i>
Region 8 Director	Ms. Rebecca Papson, John F. Kennedy School <i>Counties: Fayette, Greene, Washington</i>
Region 9 Directors	Mr. Robert Penrose, United SD Mrs. Leah Ann Williams, New Castle SD <i>Counties: Armstrong, Beaver, Butler, Clarion, Indiana, Jefferson, Lawrence, Mercer, Venango</i>
Region 10 Director	Dr. Jeffrey Nelson <i>Counties: Cameron, Crawford, Elk, Erie, Forest, McKean, Potter, Warren</i>

State Committee Members

Mrs. Heather Cobbey, Mrs. Cathy Greco, Ms. Krista Kowalok, Dr. Clay LaCoe, Ms. Dori Lijewski, Ms. Rachel Neil, Ms. Bonnie Nesbitt, Mr. David Ponist, Mr. Devin Ronge, Mr. Ron Sankey, Mrs. Veronica Sankey, Mr. Jon Tietz, Mr. Jonathan Voytek

Pennsylvania Academy of Science

President	Dr. Amy Diegelman-Parante, Mercyhurst College
President-Elect	Dr. Matthew Wallace, East Stroudsburg University
Immediate Past-President	Dr. Edward Levri, Penn State Altoona
Recording Secretary	Dr. Tammy Tintjer, King's College
Treasurer	Dr. Christopher Brey, Marywood University
Corresponding Secretary	Dr. Sheryl Fuller-Espie, Cabrini College

The Pennsylvania Academy of Science (PAS) was organized on April 18, 1924. Its first annual meeting was held one year later. The purposes of the Academy are:

- To encourage scientific research;
- To promote interest in the teaching of science;
- To stimulate exchange of ideas among those engaged in scientific work, especially in Pennsylvania;
- To assist in the development and distribution of information about the material, educational, and other resources of the Commonwealth of Pennsylvania, and to arrange and prepare for publication such reports as may further these objectives.

The PAS is affiliated with the American Association for the Advancement of Science (AAAS) and the National Association of Academies of Science (NAAS).

The Pennsylvania Junior Academy of Science (PJAS) is a state-wide organization of junior and senior high school students and teachers designed to stimulate and promote interest in science through the development of research investigations. It was established on March 31, 1934 in Reading, Pennsylvania and Dr. Karl F. Oerlein was elected the first director. The PJAS was founded by the members of the Pennsylvania Academy of Science (PAS) and sustained through a partnership of members of both groups. The PAS recognizes the PJAS as an integral part of its organization. The American Association for the Advancement of Science (AAAS) coordinates the various Junior Academies in the United States through the National Association of Academies of Science (NAAS), of which the PAS is a member. The objectives of the PJAS are as follows:

- To promote greater participation in science and mathematics activities among the youth of Pennsylvania.
- To improve the quality of achievement in mathematics and science by encouraging students to participate in research and develop original ideas.
- To develop an understanding of the scientific community through close association with leaders in the sciences.
- To seek the improvement of science activities through cooperative regional and state meetings.
- To inculcate among its members true scientific attitudes and humanistic ideals that shall lead to the greater development of service to man.

MORNING PRESENTATIONS**UNITS 1 - 105****9:00 AM****20 MAY 2019****Unit 1****Behavioral 9****BUSINESS 5**

Gabriella Randazzo, Pranayama Effect on Lung Capacity in the Mature Aging Lung, Region 2, Holy Redeemer HS, Kelsey Reyes, Sponsor
Mary Baka, Optimally Organic, Region 9, New Castle, Chadd Quimby, Sponsor
Kellyanne Conti, Pitch Perfect, Region 9, New Castle, Chadd Quimby, Sponsor
Leah Kristina Scott, Effect of Technological Distractions on Concentration, Region 1B, Mount Saint Joseph Academy, Lisa Ford, Sponsor
Anna Verneti, How Color Affects Taste; and the Perception of Flavor, Region 4, Carlisle HS, Samantha Moyer, Sponsor
Katelynn DeBourelando, Picture This, Region 9, New Castle, Chadd Quimby, Sponsor
Harley Seaburn, Cookie contestants, Region 9, New Castle, Chadd Quimby, Sponsor
Gabriella Gilbert, Studying with Music, Region 2, Old Forge, Nanette Rinaldi, Sponsor
Mark Jones, Inspiring Incentives, Region 9, New Castle, Chadd Quimby, Sponsor
Emily Ewbank, Screens vs Paper: Comparing Effects on Reading Comprehension, Region 8, Trinity HS, Amanda Walk, Sponsor
Emily Popich, Effect of age on cheating, Region 6, Blacklick Valley JSHS, Becky Bennett, Sponsor
Ellie Higdon, Is unintentional blindness developed earlier or later in life, Region 2, Carbondale AHS, Jessica Trichilo, Sponsor

Unit 2**Behavioral 9****BUSINESS 9**

Gracie Hartle, A Focus on Local Heroes: Analyzing PTSD on First Responders, Region 9, South Side HS, Stacie Stonebraker, Sponsor
Ashley Pena, Teen Peer Pressure and Poor Decision Making, Region 4, Harrisburg HS SciTech Campus, Mrs. Roberts, Sponsor
Marli Knox, Seating Preference and Scholastic Comprehension, Region 9, Karns City AHS, Terry MacKrell, Sponsor
Brooke Griffith, On the clock, Region 9, Karns City AHS, Terry MacKrell, Sponsor
Madison Stokes, Academic stress and negative emotions, Region 4, Harrisburg HS SciTech Campus, Mrs. Roberts, Sponsor
Maguire Brady, Music on the Mind, Region 9, Butler Area, Veronica Sankey, Sponsor
Julie Schriver, Are Your Eye's Deceiving You?, Region 2, North Pocono HS, Kara Stanton, Sponsor
Amelia Pope, Rapid Reading, Region 9, New Castle, Chadd Quimby, Sponsor
Peyton Raffel, Appearance of Food on the Brain, Region 1A, Springfield HS, Mary Barry, Sponsor
Mariah Vogus, Draw Battle! Non-Dominant Edition!, Region 9, New Castle, Chadd Quimby, Sponsor
Kaylee Spadaro, Effects of Phone Conversation on Focus, Region 8, Trinity HS, Joseph Smith, Sponsor
Aodhan McMichael, Adding Distraction to Subtraction, Region 9, New Castle, Chadd Quimby, Sponsor

Unit 3**Behavioral 9****BUSINESS 10**

Nicola Dabundo, Effect of Audio Sound on Perception, Region 1A, Springfield HS, Stephanie Elgart, Sponsor
Morgan Rapsky, Fake it Till You Make it: Confidence vs. Success, Region 8, Windber AHS, Gregory Thomas, Sponsor
Akwai Madok, Athletes v. Non-athletes: Who is Better at Brain Adaptation?, Region 3, William Allen HS, Nicole Leskosky, Sponsor
Carmen Bauer, Not So Milk Cake, Region 9, New Castle, Chadd Quimby, Sponsor
Gianna Vent, Effect of Virtual Reality On Male and Female Heart Rate, Region 1A, Springfield HS, Mary Barry, Sponsor
Ryan Fabin, Jumbled Words, Region 9, Homer-Center HS, Christine Yurky, Sponsor
Jordan Weirath, Offbeat: Musicians Vs. Non-Musicians, Region 9, New Castle, Chadd Quimby, Sponsor
Brody Crockett, What's In A Face?, Region 8, California Area, David Lowden, Sponsor
Laney Schulz, Do Brain Games Really Help Your Memory?, Region 2, Holy Redeemer HS, Kelsey Reyes, Sponsor
Emily Dath, Effect of Anaerobic and Aerobic Exercise on Memory, Region 1A, Springfield HS, Mary Barry, Sponsor
Sophia Eastman, How Do Humans Interpret Emotion From Facial Expressions?, Region 9, Homer-Center HS, Christine Yurky, Sponsor

Unit 4**Behavioral 9 & 10****BUSINESS 105**

Lindsay Horvat, The Stroop Effect, Region 2, MMI Preparatory HS, Eckley Cox, Sponsor
Braden Thomas, Effect of Coffee and Cinnamon on an Alzheimer's Patient, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Montana Pastore, Show More Sentimentality, Region 9, New Castle, Chadd Quimby, Sponsor
Ella Parkinson, Artificial vs Real Scents; Can People Tell the Difference, Region 1A, Springfield HS, Mary Barry, Sponsor
Peyton Pry, How do different amounts of exercise effect sleep patterns?, Region 9, Butler Area, Veronica Sankey, Sponsor
Grace Warner, Online vs Paper Testing, Region 2, MMI Preparatory HS, Eckley Cox, Sponsor
Gopiga Dass, The Truth About Lie Detectors, Region 1B, Lower Moreland HS, Richard Becker, Sponsor
Taylor Anderson, If You're Happy and You Know It!, Region 9, New Castle, Chadd Quimby, Sponsor
Kharece Ogunnaike, Race to the Phone, Region 4, Cumberland Valley HS, Mike Floreck, Sponsor

Tsahai Johnson, Negative Home Environment and Low GPA., Region 4, Harrisburg HS SciTech Campus, Mrs. Roberts, Sponsor
Megan McKee, The Role of Imagery and Empathy in Politics, Region 1B, Upper Dublin HS, Dawn Edelman, Sponsor

Unit 5

Behavioral 10

FOREST RESOURCES 112

Macey Mendoza, The Bouba-Kiki Effect, Region 9, Reynolds JSHS, Jane Coburn, Sponsor
Vy Le, How Do Repeated Letter Answers Affect Subjects Scores?, Region 4, Cumberland Valley HS, Mike Floreck, Sponsor
Amna Kasi, Media Effects on Self Esteem of Teenagers and Young Adults, Region 9, Indiana Area, Emily Hixson, Sponsor
Nicole Himes, Herd Behavior, Region 6, Bishop Guilfoyle, Tori Byrne, Sponsor
Alexis Bethle, Mind of Melody, Region 9, New Castle, Russ Carley, Sponsor
Jared Daniel, Children with Early Mental Illness, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Katelyn Grazioli, Whose Stress is Less?, Region 9, Karns City AHS, Terry MacKrell, Sponsor
Anna Blundo, Exceptional Essentials, Region 9, New Castle, Russ Carley, Sponsor
Nina Reider, Music & Memory, Region 9, New Castle, Russ Carley, Sponsor
Lazaro Lopez, Calypso Characteristics, Region 9, New Castle, Russ Carley, Sponsor
Jace Eisler, Can listening to binaural beats reduce stress in teens?, Region 2, Pocono Mt West HS, Tiffany Becker, Sponsor

Unit 6

Behavioral 10

KELLER 113

Isabelle Ritz, Can IQ Tell Me About You, Region 2, Hazleton AHS, Lawrence Pryzblick, Sponsor
Ashley Katchmar, Are You Smarter than a Fifth Grader, Region 2, Old Forge, Nanette Rinaldi, Sponsor
Alexis Hiler, "Learning in Color!", Region 9, New Castle, Russ Carley, Sponsor
Snehal Gupta, Wait... Am I Right?, Region 3, Parkland HS, Michael Post, Sponsor
David Kong, Positive vs. Negative Reinforcement, Region 5, Williamsport Area HS, Chase Smith, Sponsor
Phillip Miller, Calling Out Colors Or Speaking In Scrambles, Region 9, New Castle, Russ Carley, Sponsor
Adam Nevrotski, How Music Affects Concentration?, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Jacob Small, Impact of Consuming Ice on Ability in Controlled Activity, Region 8, Peters Twp. Area, Christopher Allen, Sponsor
Adriana Antuono, Sweet Suspicions, Region 9, New Castle, Russ Carley, Sponsor
Sara Siegel, Effect of Gender on Selective Attention, Region 1A, Springfield HS, Mary Barry, Sponsor
McKenzie Powers, Now You See It, Now You Don't, Region 9, New Castle, Russ Carley, Sponsor

Unit 7

Behavioral 10

KELLER 114

Sophia Naugle, Music in our Blood, Region 9, United HS, Judy Shomo, Sponsor
Zac Gibson, Hands-on shopping, Region 9, New Castle, Russ Carley, Sponsor
Samantha Silk, Adolescents vs Children: Attention during Social Interaction, Region 7, The Ellis School, Erica Holtgraver, Sponsor
Alex Thaler, Does Music Volume Affect a Listener's Heart Rate?, Region 6, Altoona Area HS, David Borst, Sponsor
Amelia Muta, Are Students in Higher Grade Levels more likely to Cheat, Region 2, Carbondale AHS, Jessica Trichilo, Sponsor
Karena Kauffman, Influence of Various Musical Genres on Productivity, Region 6, Altoona Area HS, David Borst, Sponsor
Deana Mancuso, Is Smiling Contagious?, Region 2, Carbondale AHS, Jessica Trichilo, Sponsor
Isabelle Fetzer, Effect of Being Photographed on Test Performance, Region 6, Grier School, Nancy Burke, Sponsor
Moirra Manzella, Presence of the Placebo Effect in High School Exams, Region 3, Allentown Central Catholic HS, J. Winchilla, Sponsor
Ashleigh Meskill, Effect of Caffeine on Typing Accuracy, Region 3, Allentown Central Catholic HS, Jennifer Winchilla, Sponsor
Gavyn Hansotte, Up The Tempo, Region 9, New Castle, Russ Carley, Sponsor

Unit 8

Behavioral 10

BORLAND 110

Amber Earnest, Type and Teamwork, Region 9, Apollo-Ridge, Danielle White, Sponsor
Anthony McCauley, Vibrant Memory, Region 9, New Castle, Russ Carley, Sponsor
Bobby Kretschmer, Peppermints Affect on Completion Time, Region 2, Honesdale HS, Rebecca Kretschmer, Sponsor
Gabriel Perrotta, Do the Eyes Have it?, Region 9, New Castle, Russ Carley, Sponsor
Abigail Nash, Effect of Age on Reaction Time, Region 1A, Springfield HS, Mary Barry, Sponsor
Michael Reiter, How Uniform Color Affects the Perception of a Team, Region 1A, Springfield HS, Stephanie Elgart, Sponsor
Kevin McCann, Effect of Facial Recognition Over Time, Region 1A, Springfield HS, Stephanie Elgart, Sponsor
Abigail Bryson, Oil Marks The Spot, Region 9, New Castle, Russ Carley, Sponsor
Kiera Cartwright, Memory on the Mind, Region 9, New Castle, Russ Carley, Sponsor
Miranda Goodman, Disconnected: Testing Driving Reaction Times With, and Without, Region 6, Tyrone Area MS/HS, Jon Goodman, Sponsor
Jake Peichel, Analysis of Color Interpretation on Marketing Appeals, Region 1A, Springfield HS, Stephanie Elgart, Sponsor

Unit 9

Behavioral 10 & 11

BORLAND 111

Eddie Lutton, Walking Down Memory Lane, Region 9, New Castle, Russ Carley, Sponsor

12 Morning Presentations

Shagufta Haque, Subliminal Messages: Correlation of the Media and Effects, Region 9, Indiana Area, Emily Hixson, Sponsor
Sadie Furgiuele, Expertise vs Celebrity Influence in Statement Believability, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Emily Borroni, ASMR, Synesthesia or a Mind Game?, Region 9, Ellwood City Area, Sean McConahy, Sponsor
Allison Edwards, The Practicality of ASMR, Region 7, Oakland Catholic HS, Amanda Skoner, Sponsor
Ava Duchin, The Effect Test Titles have on Performance, Region 7, Mt Lebanon HS, Joshua Bilak, Sponsor
Zoey Ondako, Like- Minded Learners, Region 9, New Castle, Russ Carley, Sponsor
Giavonna Sprouse, Effect of Listening to Sound Frequencies on Memory, Region 6, Grier School, Nancy Burke, Sponsor
Taja Mazaj, Novel Technique for Improving Eyewitness Identification, Region 1B, Perkiomen Valley HS, Julie Mest, Sponsor
Olivia Hite, Is Technology Stressing You Out?, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Rajeev Godse, Prisoners Dilemma: Can Computers Optimize Cooperation?, Region 7, Fox Chapel AHS, Justin Patterson, Sponsor

Unit 10

Behavioral 11

BORLAND 112

Swetha Rao, Determining the Accuracy of Eyewitness Testimony, Region 4, Cumberland Valley HS, Mike Floreck, Sponsor
Mikayla Tillery, The Impact of Gender on Classroom Dynamics, Region 9, Butler Area, Ben Klugh, Sponsor
Logan Chabal, Musics effect as an antidepressant, Region 2, North Pocono HS, Kara Stanton, Sponsor
Avi Singh, An Investigation into Effect of Misophonia, Region 3, Moravian Acad US, Gabriella Dee, Sponsor
Mallory Sherman, Do Preferences Bias Our Choices?, Region 7, Oakland Catholic HS, Amanda Skoner, Sponsor
Karly Maslonik, Further Investigation Predisposition in Crimes, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Hannah Detwiler, Brain Drain or Brain Boost?, Region 9, United HS, Judy Shomo, Sponsor
Janay Lewis, Therapeutic Animal Behavior Analysis, Region 3, Conrad Weiser HS, Adelle Schade, Sponsor
Kaitlyn Sherwood, Game On or Game Over?, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Sara Rahkonen, The Correlation Between Birth Order and GPA, Region 9, Indiana Area, Emily Hixson, Sponsor
Amanda Bishop, Effect of Positive Encouragement on Short-Term Memory, Region 9, Butler Area, Ben Klugh, Sponsor

Unit 11

Behavioral 11

BORLAND 116

Thomas Betterly, Determining the Outcome of Changing Answers, Region 2, Marian Catholic, Lorraine Piehota, Sponsor
Madison Cost, The Gender of Politics, Region 2, Carbondale AHS, Christy Hinton, Sponsor
Vanessa Sawyer, The Primacy Effect, Region 2, Carbondale AHS, Christy Hinton, Sponsor
Olivia Manarchuck, Fast Acting Peppermint, Region 2, Carbondale AHS, Jessica Trichilo, Sponsor
Dushaun Thompson, Effect of Deliberation on a Mock Jury, Region 2, Pocono Mt East HS, Michael Blough, Sponsor
Ameya Velankar, Metrics of Navigating Mazes, Region 7, Fox Chapel AHS, Annette Sparrow, Sponsor
Marissa Polding, Racial Stereotyping, Region 9, New Castle, Russ Carley, Sponsor
Ryann Piperno, Effect of Cultural Background on Gender Discrimination, Region 1B, Perkiomen Valley HS, Julie Mest, Sponsor
Alison Anilosky, Is Colored Paper Best For Tests?, Region 2, Marian Catholic, Lorraine Piehota, Sponsor
Alaina Popovich, Under Pressure Left & Right, Region 9, United HS, Judy Shomo, Sponsor
Cassandra Nocera, Do Your Beliefs Change Based On Others?, Region 2, Old Forge, Nanette Rinaldi, Sponsor

Unit 12

Behavioral 11 & 12

BORLAND 117

Faith Ursich, Do our Preferences Bias Our Choices?, Region 2, Forest City RHS, Audrey Nebzydoski, Sponsor
Alex Ochs, Modifying interviewing techniques for polygraph accuracy, Region 6, DuBois Central Catholic, Renee Gressler, Sponsor
Dean Nyberg, Introduction of Placebo Effect Into a Testing Environment, Region 2, Pocono Mt East HS, Michael Blough, Sponsor
Zeynep Ozkaya, Manipulation of Memory, Region 7, Fox Chapel AHS, Suzanne Miller, Sponsor
Connor Richards, Effect of Music on Short-Term Memory, Region 2, North Pocono HS, Kara Stanton, Sponsor
Brandon Gebenus, Effect of Location on Memory, Region 2, Holy Redeemer HS, Aaron Bilby, Sponsor
Hannah Lisowski, Sleep Cycles, Region 2, Old Forge, Nanette Rinaldi, Sponsor
Emma McAnulty, Stressed Out, Region 9, United HS, Judy Shomo, Sponsor
Meghan Darrough, Notes of Distraction, Region 2, Marian Catholic, Lorraine Piehota, Sponsor
Madison Weiss, There's Classism in Them There Hills!, Region 2, Crestwood SD, Mickey Harper, Sponsor
Kyle Goldrick, Shared Qualities of Homo Sapiens Seeing Pareidolia Images, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor

Unit 13

Behavioral 12

FERGUSON 3

Amanda Houser, Does Parents' Marital Status Affect Teen Dating Habits?, Region 2, Hazleton AHS, Jeff Koch, Sponsor
Julia Dath, The Impact of Emotional Bias on Facial Recognition, Region 1A, Springfield HS, Mary Barry, Sponsor
Katherine Kubiak, Generational American Consumerism and Environmental Impact, Region 1A, Springfield HS, Mary Barry, Sponsor
Angel Washington, Surveillance of alcohol consumption using social media, Region 1C, Central HS, Robert Herbsttritt, Sponsor
Rory Misko, Does nonsense sharpen intellect?, Region 2, Carbondale AHS, Jessica Trichilo, Sponsor
Alexis Gish, Sophomore See, Sophomore Do, Region 9, New Castle, Leah Ann Williams, Sponsor

Kristina Gorel, Masculine Meal or Feminine Food?, Region 2, Carbondale AHS, Christy Hinton, Sponsor
Amelia Shaddinger, Effect of Self-Efficacy on Performance, Region 1B, Upper Dublin HS, Dawn Edelman, Sponsor
Saarang Mulukutla, Response to Light With Functional Near-Infrared Spectroscopy, Region 7, Sewickley AHS, Suresh Mulukutla, Sponsor
Nicolette Pierce, Not Just Good, Better, Region 9, New Castle, Russ Carley, Sponsor
Amber Goffredo, Does Scent Affect Test Scores, Region 2, North Pocono HS, Kara Stanton, Sponsor

Unit 14

Behavioral 12

FERGUSON 5

Emily Rouse, The Effectiveness Of Surveys, Region 2, North Pocono HS, Kara Stanton, Sponsor
Julio Martinez, Hearts on Fire, Region 2, Hazleton AHS, Lawrence Pryzblick, Sponsor
Bella Jones, Aww, a puppy, Region 10, McDowell HS, Rick Fetzner, Sponsor
Anna Wharry, Battle Of The Buds, Region 9, New Castle, Russ Carley, Sponsor
Emily Leggiero, Do Students Really Achieve Their Academic Potential?, Region 2, North Pocono HS, Kara Stanton, Sponsor
Eman Soliman, Effect of Social Media on Academic Performances, Region 9, Indiana Area, Emily Hixson, Sponsor
Ashley Penrose, Does the Promise of Failure Affect Test Scores?, Region 9, United HS, Judy Shomo, Sponsor
Havyn Steele, Effect of Typing v.s. Handwriting Notes on Memory, Region 3, Bangor High School, Robert Hachtman, Sponsor
Kyle Kroboth, Social Influence in Test Taking, Region 8, Peters Twp. Area, Christopher Allen, Sponsor
Jessica Borders, Correlation between First and Third born children, Region 2, Carbondale AHS, Christy Hinton, Sponsor
Gryffin Romm, The Impact of Associating Tone With Visual Memory, Region 1A, Springfield HS, Stephanie Elgart, Sponsor

Unit 15

Biochemistry 9

FERGUSON 11

Julia Curran, Extracting Fats From Foods, Region 2, Scranton Prep, Bridget Kotchick, Sponsor
Dana Mackin, Lactose in Milk, Region 2, Holy Cross HS, Jillian Rojek, Sponsor
Shivani Watson, Biosensor Detecting Level of Endocrine Disrupting Compounds, Region 7, The Ellis School, Erica Holtgraver, Sponsor
Macy Saxon, Bee Stings and Beef Steaks, Region 9, Sharpsville Area, John Chovanes, Sponsor
Evan Moncheck, Permethrin effects on C2C12 stem cell behavior, Region 7, Pittsburgh Central Catholic, Mark Krotec, Sponsor
Grace Lucci, Testing Drug Solubility, Region 9, Quigley Catholic, Sean McCormick, Sponsor
Katherine Daniels, Effects of Carvedilol on Drosophila Social Interactions, Region 1C, Council Rock North HS, Terese Grateful, Sponsor
Amelia Minzola, How Many Sugars are in Your Smoothie?, Region 2, MMI Preparatory HS, Eckley Cox, Sponsor
Grace Hauenstein, Just a Spoon Full of Sugar, Region 2, North Pocono HS, Kara Stanton, Sponsor
Samar Oubbari, Use of Databases to Analyze Structural Changes in Proteins, Region 1C, Central HS, Robert Herbstritt, Sponsor
Victor Wu, Fermentation - polysaccharides vs disaccharides, Region 9, Indiana Area, Emily Hixson, Sponsor

Unit 16

Biochemistry 9 & 10

FERGUSON 103

Shayl Chetty, Comparison of Different Types of Inhibition on Sucrase, Region 1A, Conestoga HS, Nancy Adams, Sponsor
Aubry Krivak, What's In Your Sports Drink?, Region 8, Burgettstown Area, Timothy Tropeck, Sponsor
Emily Campbell, Effect of Lead on Praying Mantis Growth, Region 6, Blacklick Valley JSHS, Becky Bennett, Sponsor
Stacia Fennell, Denaturing Proteins, Region 9, Sharpsville Area, John Chovanes, Sponsor
Andrew Pritchard, Scaffold composition Effects on Cell Line Behavior, Region 7, Pittsburgh Central Catholic, Mark Krotec, Sponsor
Dominica Delayo, Effectiveness of Turnip Exact, Region 2, Wyoming Seminary US, Andrea Nerozzi, Sponsor
Jason Chang, Effect of UV light on the growth of yeast, Region 1B, Upper Dublin HS, Joanne Lilliendahl, Sponsor
Taylor Hood, How Medications Success is Manipulated by Stomach pH, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Liam Tinker, Dimethylformamide Effects on Stem Cell Behavior, Region 7, Pittsburgh Central Catholic, Mark Krotec, Sponsor
Emory Bewley, Does Catalase Activity Vary Across Species?, Region 2, Mountain View HS, Erin Rupp, Sponsor
Gokul Perugu, Studying Particle Behavior on Carbon Nanotubes, Region 3, Parkland HS, Michael Post, Sponsor

Unit 17

Biochemistry 10

FERGUSON 202

Sophie Kadan, Effect of Cyanobacteria on Noncancer/Cancer Cell Growth, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Sarah Young, Alleviating Acne, Region 1B, Methacton HS, Robert Helm, Sponsor
Sophie Racz, Sticky Situation, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor
Jaelyn Swogger, The Effect a Battery has on the pH Scale, Region 9, South Side HS, Stacie Stonebraker, Sponsor
Maggie Hollobaugh, Do Phthalates Affect the Growth and Development of Zebrafish, Region 9, Freeport Area, Eleanor Savage, Sponsor
Trisha Tsundupalli, Investigating Restriction Digestion Through Various Enzymes, Region 1A, Episcopal Acad, Kelley Bethoney, Sponsor
Purva Gupta, Discovery and Application of a Novel Hemostatic Agent, Region 3, Parkland HS, Michael Post, Sponsor
Alivia Angelos, The Effects Bleach has on Hair, Region 1C, Springside Chestnut Hill Acad, Joyce Zeka, Sponsor
Tanya Mehta, Functional performance of Human mesenchymal stem cell (hMSC), Region 3, Parkland HS, Michael Post, Sponsor
Nicole Giegerich, Acid Rain and the Photosynthesis of Plants, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor
Jackie Snyder, Brain Games: The Neurotransmitter Puzzle, Region 2, MMI Preparatory HS, Eckley Cox, Sponsor

Unit 18**Biochemistry 10 & 11****FERGUSON 205**

Danielle McNutt, Effect of Various Sugars on Yeast Growth, Region 2, North Pocono HS, Kara Stanton, Sponsor
Elizabeth Nemitz, The Growth of Algae With Added Phosphate, Region 2, North Pocono HS, Kara Stanton, Sponsor
Melana Vaughn, Effect of Temperature on Catalase Reactions, Region 9, Lakeview SD, Marie Kohr, Sponsor
Camryn Eby, Effects of High Doses of NSAIDS on Proteins, Region 6, Saint Joseph's, Christian Klepeiss, Sponsor
Roshan Forde, Dissolution Rates of Painkillers, Region 2, Pocono Mt East HS, Michael Blough, Sponsor
Kailey Karas, Soapy Struggles, Region 8, Burgettstown Area, Ashley Ward, Sponsor
Ganesh Selvakumar, Bacoside A: A Novel Synaptic Plasticity Enhancer, Region 1A, Marple Newtown HS, Ponniah Selvakumar, Sponsor
Charlotte Stahlecker, Die, E. Coli!, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor
Sherin Benjamin, "Which Pill Coating Is The Most Effective?", Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Claire Dodds, Lifestraw: Does it Work?, Region 10, North East HS, Noel Mraz, Sponsor
Sharvil Misra, Can Plants be Genetically Resistant to Heavy Metals?, Region 1C, Council Rock North HS, Stacey Gould, Sponsor

Unit 19**Biochemistry 11****FERGUSON 210**

Samantha Zanine, APOA2 Protein in Liver Cancer Cells, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Sarah Huang, Effect of Media on A. Niger Pectinase Production & Activity, Region 1A, The Episcopal Academy, Kelley Bethoney, Sponsor
Janani Iyer, Dopamine Effects on Dynamics of MDN-Like Cells from Humans, Region 4, Lancaster Country DS, Todd Trout, Sponsor
Miranda Song, Anti-Aging Business Creation Through Maestro Protein Docking, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Alana Michener, How Sweet! Measuring Glucose in Our Food, Region 3, Allentown Central Catholic HS, Jennifer Winchilla, Sponsor
Jhanvi Dasaka, Inhibiting the Growth of S. mutans, Region 1C, Council Rock South HS, Matthew Ciaudelli, Sponsor
Megan Winslow, Which Cooking Oil is Better for Making Biodiesel?, Region 2, North Pocono HS, Kara Stanton, Sponsor
Maddie Watts, The Decalcification and Recalcification of Bones, Region 10, North East HS, Noel Mraz, Sponsor
Blake Neiderlander, Effect of Atorvastatin Calcium on Mammalian cell lines, Region 7, Pittsburgh Central Catholic, Mark Krotec, Sponsor
Isabella Swartz, Selective Toxicity of Natural Products in HBV-Infected Cells, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor

Unit 20**Biochemistry 11****TYSON 15**

Claire Tse, Targeting FOP with Small Molecule Therapeutics in Zebrafish, Region 1B, Methacton HS, Robert Helm, Sponsor
Frances Schoenfeldt, What Type of Animal Manure Produces the Most Methane?, Region 10, North East HS, Katie Gallagher, Sponsor
Jason Swope, Clathrate Water Cages Modulate Cellular Communication, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Ling Xu, Effect of Almond Phytochemicals on Tumor Growth in Planaria, Region 1C, Central Bucks HS East, Judy Elinow, Sponsor
Andrew Yang, Effects of Ascorbic Acid on Cisplatin-Induced Cytotoxicity, Region 1C, Central Bucks HS East, Judy Elinow, Sponsor
Grayson Ticer, Effects of Sleep Aides on Planaria Regeneration, Region 10, Fairview HS, Candace Magraw, Sponsor
Katie Jones, Effect of Sugar Substitutes on Fermentation, Region 1A, Springfield HS, Mary Barry, Sponsor
Liam Meyers, Small Molecules Lysing HepB Virions to Release Viral DNA, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Taylor Tonty, pHew!, Region 9, Sharpsville Area, John Chovanes, Sponsor
Rachel Zimmer, Determining Water Potential of Potato Cells, Region 10, Nwca Independent Students, Nick DeSantis, Sponsor

Unit 21**Biochemistry 11 & 12****TYSON 108**

Jocelyn Andrews, Characterizing the Binding Parameters of Ligand Interactions, Region 1A, Episcopal Academy, Kelley Bethoney, Sponsor
Joyce Yoon, Targeting Parkinson's Synuclein, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Alexandra Smythe, Epigenetics in Alzheimer's Disease, Region 1C, Central HS, Robert Herbstritt, Sponsor
Sindhura Siddapureddy, Immuno-Oncology: Small Molecule Inhibition of PD-1 Pathway, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Jayden Thomas, Sucrose, Glucose & Fructose: Uncovering Hidden Sugar in Food, Region 8, Uniontown SHS, Pam Gadd, Sponsor
Abigail Peichel, Effect of A2 Milk on Lactose Sensitive Individuals, Region 1A, Springfield HS, Mary Barry, Sponsor
Julia Iskra, Human VNTR Analysis, Region 2, Wyoming Seminary US, Andrea Nerozzi, Sponsor
Zahra Ahmad, FGFR4 as Prognostic Marker for Endocrine Therapy Resistance, Region 7, North Allegheny SHS, Bruce Allen, Sponsor
Madison Tournay, Investigating the Energy Content of Foods, Region 8, Burgettstown Area, Timothy Tropeck, Sponsor
Tian Schiera, Fluorescence Quenching in Intrinsically Disordered Proteins, Region 9, Indiana Area, Emily Hixson, Sponsor

Unit 22**Biochemistry 12****TYSON 111**

Maria Murphy, Enamel Deterioration and Prevention, Region 6, Hollidaysburg Area SHS, Dawn Elchin, Sponsor
Samuel Barker, Use a Microbial Fuel Cell to Produce Electricity from Waste, Region 9, West Shamokin JSHS, Laurel Glover, Sponsor
Jessica McClellan, Ketones vs Alzheimer's, Region 2, MMI Preparatory HS, Eckley Coxe, Sponsor
Dimple Patel, Effects of Conjugated Linoleic Acids in Cancer Cell Lines, Region 1C, Central HS, Robert Herbstritt, Sponsor

Sophia Lex, Making Life More Effective, Region 9, Butler Area, Ben Klugh, Sponsor
Sarah Farooq, Type of Stomach Environment vs Absorption of Iron, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Helen Li, Correlation between the JAK/STAT Signaling Pathway and Robo2, Region 1C, Central HS, Robert Herbstritt, Sponsor
Lizzy Borchick, What's Your Moisturizer?, Region 2, MMI Preparatory HS, Eckley Coxe, Sponsor
Michelle Rana, Different Fruits Versus Conduct of Electrolytes, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Olivia Zehel, Quantitative Analysis of Acetylsalicylic Acid in Aspirin, Region 2, Holy Cross HS, Jennifer Leone, Sponsor

Unit 23

Biology 9

WAGNER 101

Stella Swanson, Light Pollution and Daphnia, Region 7, St Joseph HS, Cathy Greco, Sponsor
Yasmin Ghaffari, Effect of UV light exposure on bacterial growth, Region 6, Grier School, Nancy Burke, Sponsor
Alexander Seman, Biomarkers of Lung Cancer, Region 4, Harrisburg Acad, Lakshmi Shrikantia, Sponsor
Hyunkyung Lee, How the Retinal Chromophore Detects Color, Region 1A, Conestoga HS, Nancy Adams, Sponsor
Matthew Motichka, Pop That Zit!, Region 2, North Pocono HS, Kara Stanton, Sponsor
Isha Dev, What is the Optimal pH for Catalase?, Region 1C, Council Rock North HS, Terese Grateful, Sponsor
Joelle Williams, Exploring Phototaxis, Geotaxis and Chemotaxis of Drosophila!, Region 1B, Cheltenham HS, Russell Wolff, Sponsor
Jenna Conrad, Hydroponics-Type of Water, Region 9, Indiana Area, Emily Hixson, Sponsor
Mona Gerges, A Natural Approach to Immunotherapy: Change Your Diet, Region 7, Fox Chapel AHS, Justin Patterson, Sponsor
Samuel Lyden, Weights and Rates, Region 9, New Castle, Chadd Quimby, Sponsor
Abby Ambrosini, Static Stretching vs. Dynamic Stretching, Region 9, New Castle, Chadd Quimby, Sponsor
Riley Abersold, Cold Calculation, Region 10, East MS, Carol Fay Nelson, Sponsor

Unit 24

Biology 9

WAGNER 105

Oscar Heller, Alzheimer remedy effect on amyloid plaque formation, Region 7, Pittsburgh Central Catholic, Mark Krotec, Sponsor
Sophia Calzola, Chapstick: Homemade or Name Brand, Region 2, Carbondale AHS, Jessica Trichilo, Sponsor
Sana Siddiqui, Effects of Goldfish on the Growth of Elodea Plants, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor
Alison Carneal, A Study of Effect of Chemicals on Algae, Region 3, Conrad Weiser HS, Adelle Schade, Sponsor
Calina Nerti, Shocking Sucrose, Region 9, New Castle, Chadd Quimby, Sponsor
Maisie Weiss, Finding a Genetic Link to Domestication, Region 1B, Upper Dublin HS, Brian Palme, Sponsor
Erika Rispoli, Effect of Various Geometric Scaffolds on Bone Growth, Region 7, The Ellis School, Erica Holtgraver, Sponsor
Jonalyn Wharry, Fast Fluids, Region 9, New Castle, Chadd Quimby, Sponsor
Janise Kim, Reproductive Hazard Effects on Stem Cell Behaviour, Region 7, Fox Chapel AHS, Annette Sparrow, Sponsor
Samuel Wygonik, Sealing the Wound, Region 7, St Joseph HS, Cathy Greco, Sponsor
Alexandra Koffler, The Consequences of Caffeine, Region 8, Trinity HS, Joseph Smith, Sponsor
Shreeya Gounder, Does UV rays affect the Reproduction of fruit flies?, Region 1C, Pennsbury HS, Jamie Swanson, Sponsor

Unit 25

Biology 9 & 10

WAGNER 115

Kennedy Rogal, Can Birth Control help prevent ligament injuries?, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Haley Drass, Environmental Changes on Brine Shrimp, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Bindu Chunduri, Effect of Spices On Daphnia Heart Rate, Region 4, Cumberland Valley HS, Mike Floreck, Sponsor
Camryn Kollar, Does organic food last longer?, Region 9, Wilmington Area, Sandra Earl, Sponsor
Flavien Moise, Drug to Defeat Diabetes, Region 1C, Council Rock North HS, Terese Grateful, Sponsor
Alison Lloyd, Crustaceans Got Colds!, Region 9, New Castle, Russ Carley, Sponsor
Brett Tyree, Caffeinated Commitment, Region 9, New Castle, Russ Carley, Sponsor
Sasha Elkassas, Enamored By Enamel, Region 6, DuBois Area SHS, Douglas Brennan, Sponsor
Sahith Kurapati, Effect of GMO vs Organic fruit on Drosophila fertility, Region 3, Exeter Township SHS, Amber Bollinger, Sponsor
Dagmar Daniel, Spaceflight and the Toxicity of Amyloid Beta Peptides, Region 1B, Wissahickon HS, Dr. Bruce Rothenberger, Sponsor
Katherine Lewandowski, Title for Project, Region 2, MMI Preparatory HS, Eckley Coxe, Sponsor
Oday Abushaban, Concussions and Fixational Eye Movements: Is There A Link?, Region 7, Sci & Tech Acad, Brian Rose, Sponsor

Unit 26

Biology 10

WAGNER 201

Daniela Collins, Discovering the Best Method of Maintaining Fresh Avocados, Region 3, Allentown Central Catholic HS, Jennifer Winchilla, Sponsor
Peyton Phillips, Effect of Caffeine on the Heart Rate of Daphnia, Region 2, Holy Cross HS, Colleen Gatrone, Sponsor
Griffin Smith, Biological Profile of a Skeleton, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Giovanni Cicala, Cellular Bacteria, Region 9, Apollo-Ridge, Danielle White, Sponsor
Maab Taha, Effects of X-Ray on Drosophila Melanogaster, Region 1C, Central HS, Robert Herbstritt, Sponsor

Eileen Xiao, Wound Healing in a Diabetic Cell Model, Region 1B, Upper Dublin HS, Joanne Lilliendahl, Sponsor
Talia Dellarose, To Flow, Or Not To Flow, That is the Question., Region 8, Brownsville Area, Kathy Lacek, Sponsor
Maxwell Schwabe, Supermarket Vs. Farmer's Market Produce, Region 2, Marian Catholic, Lorraine Piehota, Sponsor
Andrew Maher, Can Lip Prints be a Reliable Factor for Identification?, Region 8, Uniontown SHS, Pam Gadd, Sponsor
Niket Surya, The Spicy Life: Can The Bacteria Take The Heat?, Region 3, Moravian Acad US, Gabriella Dee, Sponsor
Xinyu Wang, Silver Nanoparticles' effect on E.coli, Region 6, Grier School, Nancy Burke, Sponsor
Anthony Nguyen, Steroid Effects on C2C12 Behavior, Region 7, Fox Chapel AHS, Annette Sparrow, Sponsor

Unit 27

Biology 10 & 11

WAGNER 214

Rebecca Wright, Glucose in foods and drinks and what is the healthiest, Region 8, Windber AHS, Gregory Thomas, Sponsor
Amelia Grudkowski, Bug Off!, Region 2, Holy Redeemer HS, Steven Wise, Sponsor
Prateek Adurty, Investigating Cardiovascular Hemodynamic Models In Silico, Region 7, Sewickley Academy HS, Rajashekar Adurty, Sponsor
Caroline Shaffern, Effect of Cold Medicine on the Heart Rate of Daphnia, Region 2, Holy Cross HS, Colleen Gatrone, Sponsor
Nicholas Tysiachney, Effect of light Intensity on rate of O₂ production in Elodea, Region 10, General McLane HS, Nathan Moore, Sponsor
Keegan McConahy, Effect of Dietary Additives on the Lifespan of C.elegans, Region 9, Wilmington Area, Sandra Earl, Sponsor
Catherine Heidenreich, Effect of Lead on the Enzymatic Activity of Catalase, Region 7, Fox Chapel AHS, Suzanne Miller, Sponsor
Caleigh Cessna, Optimum C:N for Growth of White Button Mushrooms, Region 9, Indiana Area, Emily Hixson, Sponsor
Hannah Barsouk, Localization of Alpha-Arrestins in Stress Conditions, Region 7, Allderdice HS, Janet Waldeck, Sponsor
Hannah Merriman, Effects of Heavy Metals on Bioluminescence, Region 6, Hollidaysburg Area SHS, Dawn Elchin, Sponsor
Skylar Geibel, Fuel From Algae, Region 7, St Joseph HS, Cathy Greco, Sponsor
Paige Mitsko, Composting more efficiently, Region 9, Indiana Area, Emily Hixson, Sponsor

Unit 28

Biology 11

WAGNER 303

Molly Coleman, Effect of Algal Turf Scrubbers on Water Purification, Region 7, St Joseph HS, Cathy Greco, Sponsor
Kristin Neeley, HeLa Cell Cytotoxicity Studies, Region 6, Hollidaysburg Area SHS, Dawn Elchin, Sponsor
Sakhi Naik, How PET Plastic Affects HEK293 Cell Growth, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Kai Mele, Decellularization of Cardiac Muscle, Region 2, MMI Preparatory HS, Eckley Coxe, Sponsor
Daniel Baksh, Tumorigenic Effect of a Cannabinoid Receptor Blocker, Region 4, Lancaster Catholic HS, Anne Bleistine, Sponsor
Yajat Bungatavula, Effect of Pesticide Treated Plants on E. coli Growth, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor
John Ashton, Maximizing the Regenerative Abilities of Planaria, Region 2, Hazleton AHS, Jeff Koch, Sponsor
Brynn Thomas, How Does Vitamin D Affect Fish Thyroid Function?, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Eli Lindsay, The Effects On Boar Semen After Rotating before observations, Region 9, Freeport Area, Eleanor Savage, Sponsor
Alec Chrystal, Effect of Epinephrine on Cancer Cell Proliferation, Region 7, Pittsburgh Central Catholic, Mark Krotec, Sponsor
Hayleigh Monroe, Plastic Microfiber Degradation from Horticulture Devices, Region 3, Conrad Weiser HS, Adelle Schade, Sponsor

Unit 29

Biology 11

WAGNER 304

Vinay Patel, Pharmaceutical Effect on Chronotropism of Daphnia Magna, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
India Krug, The Ugly Tooth- Identifying Dinosaur Diet by Teeth Microwear, Region 9, Indiana Area, Emily Hixson, Sponsor
Marc Lubman, Effect of Cognitive Enhancers on Stress, Region 1C, Council Rock North HS, Stacey Gould, Sponsor
Anushka Konka, Effect of NSAIDs on the Fecundity of Drosophila melanogaster, Region 4, Cumberland Valley HS, Nicole Reed, Sponsor
Daniela Naumov, Impact of PPP2R5B DNA Methylation on SAH Outcomes, Region 7, Allderdice HS, Janet Waldeck, Sponsor
Jessica Wang, Novel Lipid Nanoparticles for B-Catenin siRNA Cancer Therapy, Region 1C, Council Rock South HS, Matthew Ciaudelli, Sponsor
Rutuja Kulkarni, Effect of PET Plastic on HEK293 Cell Reproduction Rate, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Betselot Dejene, Regeneration, Region 6, Grier School, Nancy Burke, Sponsor
Bridget Ehrig, Effect of Drugs on the Heart Rate of Daphnia, Region 3, Bethlehem Catholic, Mark Wladyslawski, Sponsor
Abbey Krug, Effect of Non-Ionizing Radiation on DNA, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Kimberly Aldrich, Escape the Vape, Region 2, Holy Redeemer HS, Kelsey Reyes, Sponsor

Unit 30

Biology 11 & 12

WAGNER 305

Love Patel, Type of Sugars vs Yeast Fermentation, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Venkat Daita, Growth Factor Influence on C2C12 Stem Cells, Region 7, North Allegheny SHS, Bruce Allen, Sponsor
Arushi Tiwari, Allosteric Modulation with DFBr: New Treatment for Alcoholism, Region 1B, Methacton HS, Robert Helm, Sponsor
Shana Hartwick, Regeneration and Magnetism, Region 9, Sharpsville Area, John Chovanes, Sponsor
Quanyou Zhang, How does chloroplasts work and do Photosynthesis, Region 9, Indiana Area, Emily Hixson, Sponsor
Grace Dougherty, Effect of Essentials oil Scents on Cricket Respiration, Region 3, Bangor High School, Robert Hachtman, Sponsor

Suhani Patel, Effect of ALS on the Motor Function of Fruit Flies, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Paige McConnell, Safety of Green Cleaners, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Joseph Bujdos, Macroinvertebrates and Water Quality, Region 9, Indiana Area, Emily Hixson, Sponsor
Nathan Phillips, Effect of Magnetism on Planaria Regeneration, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Zachary Young, Determining Effect of Caffeine on Calcium Absorption, Region 2, MMI Preparatory HS, Eckley Coxe, Sponsor

Unit 31

Biology 12

WAGNER 316

Sara Liang, Exploration of Links Between Mammalian and Yeast A-Arrestins, Region 7, Allderdice HS, Janet Waldeck, Sponsor
Kathryn Schwartzman, Is Nicotine the Demon in Vaping? A Biological Assay, Region 7, Fox Chapel AHS, Suzanne Miller, Sponsor
Robert Byrne, N/a, Region 6, Bishop Guilfoyle, Tori Byrne, Sponsor
Marie Gerges, Novel Therapeutic Agents for IDH Mutant Gliomas, Region 7, Oakland Catholic HS, Amanda Skoner, Sponsor
Scott Riner, Wi-Fi Radiation and Daphnia Activity Levels, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Kathryn Metzger, Growth in Redworms as Affected by Protein, Region 9, Indiana Area, Emily Hixson, Sponsor
Charan Santhirasegaran, Anti-aging Drug Discovery and Company Creation, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Saige Sterner, How Different Types of Water Affect Plant Growth, Region 3, Jim Thorpe ASD, Paul Eichelberger, Sponsor
Sydni Ernst, Effect of Essential Oils on Drosophila Behavior, Region 3, Allentown Central Catholic HS, Jennifer Winchilla, Sponsor
Samuel Meil, Neural Regulation of Cockroach Locomotion, Region 9, Indiana Area, Emily Hixson, Sponsor
Chaeyeon Yang, Caffeine and Heart Rate, Region 9, South Side HS, Stacie Stonebraker, Sponsor

Unit 32

Botany 9

WAGNER 317

Maria Spinelli, Effect of Acid Rain on Seedling Germination, Region 2, Forest City RHS, Audrey Nebzdoski, Sponsor
Ava Groth, How Varying Concentrations of Ammonia Affect Plant Growth, Region 2, Crestwood SD, Mickey Harper, Sponsor
Alyssa Clutter, Effects of Caffeine on Seed Germination, Region 8, Trinity HS, Joseph Smith, Sponsor
Sarah Staack, Effective Greenhouse Gardening, Region 3, Salisbury HS, Megan Basile, Sponsor
Madeline MacDougall, Effect of Pollution on Plant Growth, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Owen Funk, Effect of Seed Bomb Composition on Radish Growth, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor
Amy Bohrer, "Eco-friendly" Detergent Versus the Environment, Region 10, North East HS, Noel Mraz, Sponsor
Erin Barno, Electrolyte Hydroponics, Region 2, Crestwood SD, Mickey Harper, Sponsor
Jane Leible, The Effects Cell Phone Radiation Has on Plant Growth, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Veronica Swartz, Effect of Lighting on Anthocyanin Expression in Leaf Lettuce, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
William Raymond, PJAS project, Region 3, Salisbury HS, Megan Basile, Sponsor

Unit 33

Botany 9 & 10

WAGNER 320

Cassandra Askins, UV and Heat Protection for Plants: Plant Sunscreen, Region 10, Millcreek IHS, Amy Halmi, Sponsor
Stargell Fuhr, Effect of Different Types of Water on Pinto Beans, Region 9, Wilmington Area, Sandra Earl, Sponsor
Jadyn Danylko, How Does Caffeine Effect Plant Growth?, Region 10, Millcreek IHS, Amy Halmi, Sponsor
Devang Bhandari, Effect of Detergent Grey Water on Lettuce Seeds, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor
Eva Saranya, Effect of Water Impurities on Plants, Region 3, Moravian Acad US, Gabriella Dee, Sponsor
Christine Mathew, Best Fertilizer in High Salinity, Region 1C, Northeast HS, James Finley, Sponsor
Elizabeth Blymire, Effect of Phosphorus on a Pea Seed's Germination, Region 4, Carlisle HS, Emily Norcross, Sponsor
Devesh Bungatavula, Effect of Sound Frequency on Lettuce Seeds, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor
Danielle Armstrong, Effect of Acid Precipitation on Plant Growth, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Abhijith Bolisetti, How Does Microwave Radiation Impact the Growth of Seeds?, Region 1C, Council Rock North HS, Terese Grateful, Sponsor
Katelyn Schuchardt, Effect of Insecticides on Marigold Health, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor

Unit 34

Botany 10

BOUCKE 306

Aditi Jasapara, Effect of magnetism on the germination rate of lentils, Region 3, Parkland HS, Michael Post, Sponsor
Marleen Pondo, Effect of Household Acids on Plants, Region 10, North East HS, Noel Mraz, Sponsor
Caden Shaw, Effect of different wavelengths of light on plant growth, Region 4, Dauphin County Tech, Emilie Tekely, Sponsor
Julia Boas, The manipulation of plant growth via water temperature, Region 1B, Upper Dublin HS, Dawn Edelman, Sponsor
Therese Coleman, Water and Soil Retention in Pots With Draining Device, Region 3, Conrad Weiser HS, Adelle Schade, Sponsor
Nicole Joseph, Effect of Various Colored Lights on Photosynthetic Rates, Region 2, Crestwood SD, Mickey Harper, Sponsor
Natalie Graham, Shedding Light on the Degradation of Chlorophyll, Region 2, MMI Preparatory HS, Eckley Coxe, Sponsor
Pat Conley, Acidity in Relation to Seed Germination, Region 1A, Springfield HS, Stephanie Elgart, Sponsor
Justin Maund, Effects of Temp on Phenological Phases and Growth of B. Rapa, Region 10, Northwestern HS, Cinda Murray, Sponsor
Baxter Reihman, Effect of Grounding on Cut Flowers, Region 3, Salisbury HS, Megan Basile, Sponsor

18 Morning Presentations

Unit 35

Botany 10 & 11

BOUCKE 307

Grace Kim, Hydroponic Plant Growth with the use of Different Fertilizer, Region 10, Millcreek IHS, Amy Halmi, Sponsor
Colin Metzler, The Efficiency of Hydroponic Plants Compared to Soil Plants, Region 10, Millcreek IHS, Amy Halmi, Sponsor
Yang Yang, Effect of Hydrogen Peroxide on Carrot Seeds Germination, Region 6, Grier School, Nancy Burke, Sponsor
Marshall Miller, Efficient Organic Subsistence Farming in Residential Homes, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Matthew Bird, Impact of Hydroponic System Design on Plant Growth, Region 4, Cumberland Valley HS, Mike Floreck, Sponsor
Joey Chan, Effects of Supplemented UV-A on L. minor Photosynthetic Rate, Region 1C, Central HS, Robert Herbstritt, Sponsor
Ava Swanson, Corn and Nitrogen Fixing Bacteria, Region 7, St Joseph HS, Cathy Greco, Sponsor
Megan Cherpak, The optimal pH for growing grass, Region 10, McDowell HS, Alison Allaman, Sponsor
Daniel Molchansky, Growth Medium Effects on Biomass & Vitamin C Concentration, Region 1C, Central HS, Robert Herbstritt, Sponsor
Natalie Yim, Nitrogen Levels of Plants Based on Fertilizer Types, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Kyra Kucirka, A Study into Digestion by Carnivorous Plant Variations, Region 1A, Springfield HS, Mary Barry, Sponsor

Unit 36

Botany 11 & 12

BOUCKE 308

Lynn Larabi, The Environmental Solution to the Economic World, Region 1C, Central HS, Robert Herbstritt, Sponsor
David Antolick, Fungi, With Dave, Region 2, MMI Preparatory HS, Eckley Cox, Sponsor
Abdul Hameed Kidwai, Exposing Plants to Electricity, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Matt Sandifer, A study of Banana Peel Bioplastics, Region 1B, Germantown Acad, Sarah Kesten, Sponsor
Melanie Nacey, Hemp? The New Fertilizer?, Region 9, Apollo-Ridge, Danielle White, Sponsor
Kruti Patel, Too Much H₂O₂ To Grow?, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Ellie Chibirka, Taxonomic Analysis of Withania somnifera, Region 3, Conrad Weiser HS, Adelle Schade, Sponsor
Emma Gavornik, Effect of Magnets on the Growth of the Radish, Region 3, Jim Thorpe ASD, Paul Eichelberger, Sponsor
Megan Guthrie, A Comparison of Plant Growth in Martian Soil and Earth Soil, Region 10, General McLane HS, Nathan Moore, Sponsor
Elena Kreger, Gold Enriched Trees, Region 3, Allentown Central Catholic HS, Jennifer Winchilla, Sponsor
Maria Romero, Hydrangea Acidity, Region 3, Allentown Central Catholic HS, Jennifer Winchilla, Sponsor

Unit 37

Chemistry 9

BOUCKE 309

Andrew Hines, Can You Take the Heat?, Region 3, Salisbury HS, Megan Basile, Sponsor
Kaitlyn Idhaw, The pH of Electrified Water, Region 2, Holy Cross HS, Jillian Rojek, Sponsor
Shannon Sotter, Testing Effect of Antacids on pH, Region 9, Wilmington Area, Sandra Earl, Sponsor
Regina Anand, Hold It Together!, Region 9, St John Paul II, Robert Kish, Sponsor
Dylan Kuang, Starch Based Bioplastics Reinforced with Cellulose, Region 1B, Methacton HS, Robert Helm, Sponsor
Meghan McDonnell, Citric Acid in Orange Juice, Region 2, Holy Cross HS, Jillian Rojek, Sponsor
Benjamin Pennings, What Keeps Diesel From Gelling the Best, Region 5, Williamsport Area HS, Chase Smith, Sponsor
Jacob Bianchi, The Damaging Effects Beverages Have on Teeth, Region 2, North Pocono HS, Kara Stanton, Sponsor
Olivia White, Bring On The Heat!, Region 9, Sharpsville Area, John Chovanes, Sponsor
Molly Znachko, What Water is the Best to Drink According to pH?, Region 2, Hazleton AHS, Jeff Koch, Sponsor
Will Mason, Are Bioplastics Really The Better Choice?, Region 7, St Joseph HS, Cathy Greco, Sponsor

Unit 38

Chemistry 9

BOUCKE 311

Willow Kaplan, Effect of Scents and Colors on the Burn Rate of a Candle, Region 1B, Upper Dublin HS, Brian Palme, Sponsor
Grace Murtagh, Effect of Cooking Methods on Vitamin C Content, Region 2, Holy Cross HS, Jillian Rojek, Sponsor
Kaci Kranson, Analysis Of Mouthwash, Region 2, Holy Cross HS, Jillian Rojek, Sponsor
Amelia Roch, Going Bananas, Region 9, Sharpsville Area, John Chovanes, Sponsor
Dustin Paul, Vitamin C in Fruits, Region 2, MMI Preparatory HS, Eckley Cox, Sponsor
Tyler Coyne, Burning Calories, Region 9, Sharpsville Area, John Chovanes, Sponsor
Edward H. Ditch, Effect of Microwaves when Brewing Tea, Region 9, St John Paul II, Robert Kish, Sponsor
Makenzie Rummings, Which Stain Remover Most Effectively Removes Stains?, Region 10, North East HS, Noel Mraz, Sponsor
Anthony Puthenpurackal, Can Hydrogen serve as a replacement for fossil fuels, Region 7, North Allegheny SHS, Bruce Allen, Sponsor
Kate Myers, The Pain of Painting, Region 9, Apollo-Ridge, Danielle White, Sponsor
Aravind Turaga, Which Filtration Material Produces the Best Drinking Water, Region 10, Fairview HS, Candace Magraw, Sponsor

Unit 39

Chemistry 9

BOUCKE 312

Meghan McNabb, Changing Amounts of Vitamin C in Ripening Red Bell Peppers, Region 7, The Ellis School, Erica Holtgraver, Sponsor

Vorith Tadjibaev, Effects of pH on Surface Tension, Region 1C, Central HS, Robert Herbstritt, Sponsor
Prem Patel, What Is The Optimal temperature For Rubber?, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Aidan Mathieu, What Substances Remove Ink the Most Effectively?, Region 3, Salisbury HS, Megan Basile, Sponsor
Max Kropinak, Cracker Conundrum, Region 8, Canon-McMillan, Steve Kropinak, Sponsor
Ella Kloss, Stain Removing Enzymes, Region 10, North East HS, Noel Mraz, Sponsor
Angela Lian, Effect of Various Antacids on Vinegar, Region 1B, Methacton HS, Robert Helm, Sponsor
William McGlynn, What Freezes Faster: Hot, Room Temperature, or Cold Water?, Region 3, Allentown Central Catholic HS, Jennifer Winchilla, Sponsor
Kiel Birthwright, Various steeping times of black tea and the effect on PH, Region 2, Pocono Mt West HS, Tiffany Becker, Sponsor
Andrew Kuzneski, How different materials affect beta and gamma rays, Region 9, Indiana Area, Emily Hixson, Sponsor
Jonelle Symonies, The Determination of Citric Acid in Fruit Juices, Region 2, Holy Cross HS, Jillian Rojek, Sponsor

Unit 40 **Chemistry 9 & 10** **OSMOND 106**

Brooke Hite, The Effectiveness of Whitening Toothpaste, Region 10, North East HS, Noel Mraz, Sponsor
Madyson Newingham, Painting With Pigment, Region 9, New Castle, Chadd Quimby, Sponsor
Nate Sirlin, Creating a Cost Effective yet Efficient Water Filter, Region 7, Allderdice HS, Janet Waldeck, Sponsor
Jennalyn Stone, Foundation Durability Test, Region 9, New Castle, Chadd Quimby, Sponsor
Samantha Semler, Briggs-Rauscher Reaction with Various Concentrations of H₂O₂, Region 9, West Shamokin JSHS, Laurel Glover, Sponsor
Eleanor Barth Wu, E-Liquid Degradation and Formaldehyde Production, Region 7, The Ellis School, Erica Holtgraver, Sponsor
Shiv Parekh, Denaturing Proteins, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Jasmine Vamosi, pH Change in Different Electricity Voltages, Region 9, Sharpsville Area, John Chovanes, Sponsor
Kaleigh Matula, Soda vs a Filter, Region 9, New Castle, Russ Carley, Sponsor
Luke Bongivengo, Bitter Sweet!, Region 9, New Castle, Russ Carley, Sponsor
Andy Lau, Effects of Voltage on Salt Solution, Region 1C, Springside Chestnut Hill Acad, Joyce Zeka, Sponsor

Unit 41 **Chemistry 10** **OSMOND 109**

Trinity Smith, Heated Sugar Cracks Under Pressure, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor
Matthew Swift, Measuring Lead Levels in Local Soil, Region 1B, Upper Dublin HS, Dawn Edelman, Sponsor
Victoria Poelcher, How Alkalinity of Different Drain Cleaners Affect Hair, Region 9, South Side HS, Stacie Stonebraker, Sponsor
Prem Modi, Jatropa Biodiesel: Ethanol-Based, Region 1C, Central HS, Robert Herbstritt, Sponsor
Caroline Kenyon, Fastest Ice Melting Agent, Region 3, Salisbury HS, Megan Basile, Sponsor
Kyle VonScio, The Common Ion Effect on the Solubility of KCl, Region 8, Trinity HS, Nicole Welsh, Sponsor
Megan McDonald, Maximizing Energy Produced from Combustion of Ethanol, Region 2, Scranton Prep, Bridget Kotchick, Sponsor
Audra Moore, Metal Emissions From Scented Candles, Region 9, Indiana Area, Emily Hixson, Sponsor
Andrew Lauerman, How Temperature Affects Golf Ball Covers, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor
Katya Huzau, Factors That Affect the Chemiluminescence of Luminol, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor
Maddux Testa, Oxidation and Reduction, Region 2, Crestwood SD, Mickey Harper, Sponsor

Unit 42 **Chemistry 10** **OSMOND 112**

Alexandria Bemis, Permeable Plastics, Region 9, Lakeview SD, Marie Kohr, Sponsor
Alexandra Young, Green Tea Caffeine Extraction Efficiency, Region 2, MMI Preparatory HS, Eckley Coxe, Sponsor
Polly Sweeney, Sunscreen Myth: Busted or Confirmed, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor
Nydia Clement, Chemical lightening's effect on the structure of human hair, Region 10, McDowell HS, Alison Allaman, Sponsor
Caitlin O'Brien, Effect of Radiation on the Decomposition of AgCl, Region 3, Emmaus HS, Brent Landrum, Sponsor
Brandon Skalniak, Which is Safer: Rain Water or Bottled Water?, Region 7, Seton-La Salle HS, Katherine Sopczynski, Sponsor
Lizhou Wang, Testing and Purifying Contaminants in Tap Water, Region 1C, Springside Chestnut Hill Acad, Joyce Zeka, Sponsor
Manuel Mathews, Testing The Effectiveness of Antacids Using Titration, Region 4, Cumberland Valley HS, Mike Floreck, Sponsor
Hunter Cantwell, What Has More Electrolytes: Orange Juice or Sports Drinks?, Region 3, Bethlehem Catholic, M. Wladyslawski, Sponsor
Kayleigh Northrop, Physical vs. Chemical Based Sunscreens, Region 1C, Springside Chestnut Hill Acad, Joyce Zeka, Sponsor
Peri Rabbino, Effectiveness of Luminol at Different Temperatures, Region 1C, Springside Chestnut Hill Acad, Joyce Zeka, Sponsor

Unit 43 **Chemistry 10** **OSMOND 113**

Jinwoo Kim, Rusting out, Region 9, Evangel Hts Christian Acad, Nicole George, Sponsor
Christopher Marinos, Water Bottle Extension, Region 3, Salisbury HS, Megan Basile, Sponsor
Juniper Moscow, Effect of the Anode and Cathode on Voltage, Region 1C, Springside Chestnut Hill Acad, Joyce Zeka, Sponsor

Sarah Boardman, Effects of Starting Temperatures on Hand Warmer Chemistry, Region 3, Allentown Central Catholic HS, Jennifer Winchilla, Sponsor

Abigail Marusak, Burning Calories, Region 2, Greater Nanticoke AHS, Brandon Collins, Sponsor

Yogesh Patel, The Finding of Electrolytes in Drinks, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor

Moirra Mulligan, No Stain! No Pain!, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor

Ella Webb, Bacteria On Your Face!, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor

Lia Jones, I Can't Believe It's Not The Shea Butter, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor

Ahmad Mahmood, Medication and Dissolve Rates, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor

Brendan McKnight, Phytoremediation Rates in Aquatic Plants, Region 1A, Springfield HS, Stephanie Elgart, Sponsor

Unit 44

Chemistry 10

OSMOND 116

Brody Porter, pH and Cooking Speed in Different Egg Types, Region 7, St Joseph HS, Cathy Greco, Sponsor

Emily Moore, What is in Your Drinking Water?, Region 10, Millcreek IHS, Amy Halmi, Sponsor

Celia Mazzarelli, Hydrophobic Sand, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor

Yuze Gu, Different Sunscreen Product Effectiveness on Market Today, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor

Katerina Farrell, What Type of Sugar Produces the Largest Diameter Cookie?, Region 10, Millcreek IHS, Amy Halmi, Sponsor

Sadie Duncan, Creating a Better Plastic With Potatoes, Region 1C, Springside Chestnut Hill Acad, Joyce Zeka, Sponsor

Victoria Cohen, Promoting Efficiency in Drug Absorption, Region 1C, Springside Chestnut Hill Acad, Joyce Zeka, Sponsor

Olivia Garibaldi, What Method Best Removes Sharpie?, Region 2, North Pocono HS, Kara Stanton, Sponsor

Hallee Yoder, Oh My Gerd!, Region 8, Chartiers Houson, Tammy Young, Sponsor

Ashley Sabia, Calcium Carbonate to the Rescue!, Region 2, Hazleton AHS, Jeff Koch, Sponsor

Julia Barrist, Effect of Heat on the Strength of Candy, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor

Unit 45

Chemistry 10

THOMAS 101

Mustapha Salau, Effect of Temperature on Fuel Cell Efficiency, Region 3, Parkland HS, Michael Post, Sponsor

Anne-Marie Martin, Are Liquid Band-Aids Safe?, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor

Marina Miesko, Proving Hess's Law, Region 2, North Pocono HS, Kara Stanton, Sponsor

Finn Seifert, Fingerprint Clarity, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor

Claire Moustafellos, Comparing Drugs Using Thin-Layer Chromatography, Region 1C, Springside Chestnut Hill Acad, Joyce Zeka, Sponsor

Anne Harrower, Effect of Detergent on Protein and Dirt Stains, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor

Morgan Ellison-Jones, Improving Homemade Hot Packs, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor

Margaret Wladyslawski, The Mpemba Effect, Region 3, Bethlehem Catholic, Mark Wladyslawski, Sponsor

Kevin Jumper, Titration of Sodium Hypochlorite in Bleach, Region 2, Holy Cross HS, Jennifer Leone, Sponsor

Jules Colombo, Appealing Plastic, Region 2, Abington Heights HS, Rosa Sabie, Sponsor

Erin McGee, Which Orange Juice Contains the Most Vitamin C?, Region 2, Holy Cross HS, Colleen Gatrone, Sponsor

Unit 46

Chemistry 10

OSMOND 202

Vincent Kaschauer, Solubility of Pills in Simulated Stomach Acids, Region 7, Pittsburgh Central Catholic, Mark Krotec, Sponsor

Darren Zheng, The Distillation Rate of Alcohol-Water Solutions, Region 2, MMI Preparatory HS, Eckley Cox, Sponsor

Hannah Knox, Vitamin Content in Cooked vs. Raw Vegetables, Region 1C, Springside Chestnut Hill Acad, Joyce Zeka, Sponsor

Grace Shaw, Do Breath Mints Affect the Temperature of Water?, Region 10, Millcreek IHS, Amy Halmi, Sponsor

Lenny Lorenz, Sunscreen Contamination in Water, Region 1C, Springside Chestnut Hill Acad, Joyce Zeka, Sponsor

Carly Valen, Instant Ice Pack Investigation, Region 1C, Springside Chestnut Hill Acad, Joyce Zeka, Sponsor

Ian McMullen, Effect of Light Color on Heat Absorption, Region 3, Allentown Central Catholic HS, Jennifer Winchilla, Sponsor

Anna Zhou, Comparing Biodegradability and Durability of Bioplastics, Region 1B, Upper Dublin HS, David Price, Sponsor

Akshatha Manjunatha, Selective Deuteration of Heterocycles using a Sm²-H₂O System, Region 3, Parkland HS, Michael Post, Sponsor

Cole Hershman, How 'Bout Them [Preserved] Apples, Region 3, Bethlehem Catholic, Mark Wladyslawski, Sponsor

Tori Fox, Orange Juice Vs Gatorade, Region 2, Hazleton AHS, Lawrence Pryzblick, Sponsor

Unit 47

Chemistry 10 & 11

WARTIK 106

Isaac Becker, Decay Deterrence, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor

Annabel Coplan, The Use of Hair, Cotton, and Styrofoam to Clean Oil Spills, Region 1B, Upper Dublin HS, Leanne Jones, Sponsor

Lauren Hornsby, Effect of pH on Enzymes, Region 7, Riverview HS, Marion Carson, Sponsor

Nathan Birch, Calcium Carbonate and the Climate, Region 9, Indiana Area, Emily Hixson, Sponsor

Eric Dixon, How High Are The Levels of Carbs in The Milk You Drink?, Region 2, Holy Cross HS, Jennifer Leone, Sponsor

Daria Lapidus, How Does Temperature Affect Vitamin C, Region 1C, Springside Chestnut Hill Acad, Jenna Schieber, Sponsor

Annalisa Quinn, Cellulase Concentration Needed to Disperse a Clog of Wipes, Region 1C, Central HS, Robert Herbstritt, Sponsor

Dora Lau, Does the pH of Lipstick Vary by Finish?, Region 1B, Upper Dublin HS, Dawn Edelman, Sponsor
Joseph Pakulski, The viscosity of egg yolks at increasing temperatures, Region 10, Fairview HS, Candace Magraw, Sponsor
Trinity Frank, How effective are environment friendly cleaners ?, Region 9, West Shamokin JSHS, Laurel Glover, Sponsor

Unit 48

Chemistry 11

WARTIK 107

Aidan Cross, Are plastic bottles contaminating your water?, Region 6, Saint Joseph's, Tammy Badger, Sponsor
Erica Stover, That's Sunfortunate, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor
Sammea Ricciardi, A Chemical Reaction that Changes Color, then Changes Back!, Region 2, Scranton Prep, Bridget Kotchick, Sponsor
Nandini Thaker, Which form of Advil has the fastest effect on the Human Body, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor
Crystal Fan, Does Organic Matter Matter?, Region 4, Lancaster Country DS, Todd Trout, Sponsor
James Marsh, To Be Determined, Region 2, Holy Cross HS, Jennifer Leone, Sponsor*
Carter Eddy, Pathways to Wellness, Region 9, West Shamokin JSHS, Laurel Glover, Sponsor
Brett Thaler, Chemicals and Other Substances on Tooth Breakdown Rates, Region 6, Altoona Area HS, David Borst, Sponsor
Abigail Smith, The Whitest Bite, Region 10, Fairview HS, Candace Magraw, Sponsor
Joseph Osborne, Keeping It Fresh: Measuring Vitamin C Content in Lemon Juice, Region 2, Holy Cross HS, Jennifer Leone, Sponsor

Unit 49

Chemistry 11

HUCK LIFE SCI 5

Kacey Durkin, Peroxide Value (Titration), Region 2, Mid Valley SC, Suzanne Piorkowski, Sponsor
Mitchel Magraw, Cooling down objects through evaporation, Region 10, McDowell HS, Alison Allaman, Sponsor
Samantha Armstrong, How Do Different Chemicals Affect a Plant?, Region 9, West Shamokin JSHS, Laurel Glover, Sponsor
James Bianchi, Exothermic Reactions: Before They Were Cool, Region 2, North Pocono HS, Kara Stanton, Sponsor
Jacob Brown, Keepin' It Hot, Region 9, United HS, Judy Shomo, Sponsor
Jenna Miller, The Comparison of Natural Antacids and Chemical Antacids, Region 9, West Shamokin JSHS, Laurel Glover, Sponsor
Eliza Ray, Fuel from Fungus, Region 9, Indiana Area, Emily Hixson, Sponsor
Daniel Dawson, Drinking water and the potential formation of kidney stones, Region 6, Saint Joseph's, Tammy Badger, Sponsor
Cortney Dushanko, Stoichiometry of Gases, Region 2, Crestwood SD, Mickey Harper, Sponsor
Nicole Flis, Factors Affecting the Pigmentation of Natural Dye, Region 6, Saint Joseph's, Christian Klepeiss, Sponsor

Unit 50

Chemistry 11 & 12

HUCK LIFE SCI 10

Jonathan Larbi, Coating on Aspirin vs Enteric Property, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Dominic Maglione, Effects of Initial Food pH on Rate of Activity of an Antacid, Region 2, Honesdale HS, Rebecca Kretschmer, Sponsor
Julian Yerger, Performance of Transition Metal Catalysts in Mn-H Batteries, Region 9, Indiana Area, Emily Hixson, Sponsor
Julianna Herriott, Percentage of Alcohol in Mouthwash, Region 9, Sharpsville Area, John Chovanes, Sponsor
Gabriel Wingert, Effect of Ca, Mn, and Ge Thin Films on Thermal Conductivity, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Geneva Flarend, Specific Heat Capacity of Cosmetics Relative to Water, Region 6, Altoona Area HS, David Borst, Sponsor
Erin Smith, H2- Oh No!, Region 8, Burgettstown Area, Timothy Tropeck, Sponsor
Debbie Loyd, Producing Copper Nanowires: Its Efficiency and Functionality, Region 3, Jim Thorpe ASD, Paul Eichelberger, Sponsor
Noah Brodecki, Glue Made Of Milk, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Olivia Cullen, Syrup Viscosity in Terms of Chemistry, Region 9, Wilmington Area, Sandra Earl, Sponsor

Unit 51

Chemistry 12

HUCK LIFE SCI 12

Clairese Walker, Effects of Hydrogen Peroxide and Natural Bleaches on Hair, Region 9, West Shamokin JSHS, Laurel Glover, Sponsor
Drew VonScio, Experimental Verification of Hess's Law, Region 8, Trinity HS, Nicole Welsh, Sponsor
Mazin Ahmed, Molecular Solar Cell Efficiency, Region 1C, Central HS, Robert Herbstritt, Sponsor
Jing Lin, Evaluation of Tensile Strength of Recycled Cellulose Fibers, Region 1C, Council Rock South HS, Megan Mohl, Sponsor
Meghan Keenan, Titration of Acetylsalicylic Acid in Aspirin, Region 2, Holy Cross HS, Jennifer Leone, Sponsor
Henry Bartony, Fermentation, Region 9, North Catholic HS, Keith Zielen, Sponsor
Tessia Robison, Does Temperature Affect the Brightness of Luminol?, Region 6, Bishop McCort, Laura Walker, Sponsor
Trisha Poorbaugh, Carbohydrate Levels in Different Kinds of Milk, Region 8, Connellsville Area SHS, Justin Guess, Sponsor
Gaea Lawton, Using Nanoparticles to Trace Explosives on Footwear, Region 1A, PA Leadership Charter School, J Grant Lawton, Sponsor
Trevor Kotchman, How Do You Spell Relief?, Region 8, California Area, David Lowden, Sponsor

Unit 52

Computer Science 9

HUCK LIFE SCI 13

Sarah Teitelman, Hacking the Air Gap, Region 1C, Council Rock North HS, Terese Grateful, Sponsor
Emily Kelly, Optimizing Interplanetary Transfer Orbits, Region 2, Carbondale AHS, Jessica Trichilo, Sponsor
Daniel Luo, Text Analysis Using Patterns in Text, Region 1B, Upper Dublin HS, Brian Palme, Sponsor

Stephan Rupa, How does cooling affect computer performance, Region 3, Salisbury HS, Megan Basile, Sponsor
Alan Everett, Calculating Physics for Digital Natives, Region 4, Greenwood M/HS, Jonathan Everett, Sponsor
David Krull, Whimsical Waves of Harmony, Region 9, New Castle, Chadd Quimby, Sponsor
Varoon Raghupathi, A Sudoku Solution, Region 1C, Council Rock North HS, Stacey Gould, Sponsor
Erin Young, How Can You Create a Neural Network to Analyze Sports Data?, Region 1C, Council Rock North HS, Stacey Gould, Sponsor
Carter Hancock, The Human Mind Vs. Artificial Intelligence, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor
Grant Walker, Hacking the Air Gap, Region 10, North East HS, Katie Gallagher, Sponsor
Lalitha Loka, Unmasking Parkinson's Disease in a Patient Using R, Region 3, Parkland HS, Michael Post, Sponsor

Unit 53

Computer Science 9 & 10

HUCK LIFE SCI 14

Sudhish Reddy, Parkinson's Disease Progression Prediction, Region 1B, Methacton HS, Robert Helm, Sponsor
David Larbi, Making a laptop, but with a twist, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Felix Zhu, **Computer Modeled Mathematics, Region 1A, The Episcopal Academy, Kelley Bethoney, Sponsor**
Michael Rybalkin, A self-driving ground vehicle for search and rescue missions, Region 1C, Central Bucks HS East, Judy Elinow, Sponsor
Hasan Ali, Can Machine Learning Predict Long-Term Stock Market Changes?, Region 9, Indiana Area, Emily Hixson, Sponsor
Corbin Frisvold, Simulating and Analyzing the Spread of Diseases, Region 3, Jim Thorpe ASD, Paul Eichelberger, Sponsor
Nolan Wang, Patient Wait Time Updating System, Region 8, Peters Twp. Area, Christopher Allen, Sponsor
Noah Long, Ball Tap!, Region 2, MMI Preparatory HS, Eckley Coxe, Sponsor
Udit Garg, Predicting Drug-Resistant Causing Mutations in Immunotherapy, Region 3, Parkland HS, **Michael Post**, Sponsor
Rohan Mehta, Artificial Time Layer, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor
Sebastian Campos, Optimizing Rowing Through The Use of Available Data, Region 8, Peters Twp. Area, Christopher Allen, Sponsor

Unit 54

Computer Science 10 & 11

HUCK LIFE SCI 100

Kevin Cui, Automatic "Song" Recognition: Siri for Musicians, Region 1B, Germantown Acad, Sarah Kesten, Sponsor
Ian Eckenrode, Smart Home Connect, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Matthew Habtezi, Algorithm to Discern Tilings of Square Lamina With Proteins, Region 1A, The Episcopal Academy, Kelley Bethoney, Sponsor
Marcus Danchision, Canvas Web Automation, Region 2, MMI Preparatory HS, Eckley Coxe, Sponsor
Jessica Kuo, Python Data Analysis to Raise HBV Awareness, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Meghashyam Krishnasamy, Emergency Locator, Region 8, Peters Twp. Area, Christopher Allen, Sponsor
Dong Hyun Shin, Cyber security education via computer simulation, Region 7, Fox Chapel AHS, Suzanne Miller, Sponsor
Meredith Tropeano, Implementing a Particle Swarm Optimization Algorithm, Region 7, Gbg Central Catholic JHS, Pam Cullen, Sponsor
Aviel Resnick, Phylogenetic Reconstruction via Levenshtein Distance of rRNA, Region 1B, Lower Moreland HS, Richard Becker, Sponsor
Jordan Fischer, A Speech to Sign Language Application, Region 9, Freeport Area, Eleanor Savage, Sponsor
Andrew Zhang, Investigating Prime Numbers and Primality Tests, Region 8, Peters Twp. Area, Christopher Allen, Sponsor

Unit 55

Computer Science 11

THOMAS 102

Vincent Yang, Ramsete: Autonomous Space/State Control, Region 1C, Central HS, Robert Herbstritt, Sponsor
Briana Malik, Auto-AI method that self-learns, Region 3, Parkland HS, Michael Post, Sponsor
Dylan Sheils, Machine Learning: Nonlinearly Separable Patterns (XOR), Region 1C, Council Rock North HS, Stacey Gould, Sponsor
Ryan Young, Early Detection of Alzheimer's Disease with a Neural Network, Region 1C, Council Rock North HS, Terese Grateful, Sponsor
Garrett Fitzgerald, Eliminating Traffic in a World of Fully Robotic Cars, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Yuchen Liang, Using Deep Learning to Detect Malicious URLs, Region 7, Shady Side Academy HS, Jill Schumacher, Sponsor
Vinayak Jayaprakash, Internet Of Things- Study Of Bluetooth Low Energy Security, Region 1C, Council Rock North HS, T Grateful, Sponsor
Yuwei Chen, Wifi-Signals Based Activity Recognition, Region 1B, Perkiomen Sch, Melinda Irven, Sponsor
David Ban, Spatial Transformer Networks for Protein-Ligand Binding, Region 7, North Allegheny SHS, Bruce Allen, Sponsor
Stefania Schoen, Can Computer Generated Music Pass the Turing Test?, Region 3, Emmaus HS, Brent Landrum, Sponsor
Neil Deshmukh, Device for Automatic Medical Diagnosis Using Deep Learning, Region 3, Moravian Acad US, Gabriella Dee, Sponsor

Unit 56

Computer Science 12

THOMAS 118

Marco Polimeni, MNIST Machine Learning, Region 2, Pocono Mt East HS, Michael Blough, Sponsor
Wesley Guarneri, Simple Robotic Waypoint Navigation, Region 2, MMI Preparatory HS, Eckley Coxe, Sponsor
Shane Cranor, Machine Learning for the Parking Lot, Region 7, Sci & Tech Acad, Brian Rose, Sponsor
Rauf Makharov, Artificial Intelligence in Astronomy, Region 1B, Lower Moreland HS, Richard Becker, Sponsor
Brandon Sharkey, Non-Axiomatic Reasoning Predicting Stock Market Stability, Region 1C, Central HS, Robert Herbstritt, Sponsor
David Wan, Medical Database Analysis, Region 2, Crestwood SD, Mickey Harper, Sponsor

Daniel DeMelfi, A Brush Fire Planning Algorithm, Region 2, MMI Preparatory HS, Eckley Coxe, Sponsor
Gulnur Avci, Implementation of RFID for Student Info. in School Buildings, Region 3, Bangor High School, Robert Hachtman, Sponsor
Rocco Polimeni, Pathfinding Algorithms, Region 2, Pocono Mt East HS, Michael Blough, Sponsor
Alexander Kline, Blackjack, Region 2, MMI Preparatory HS, Eckley Coxe, Sponsor
Morgan Long, Personal Assistant, Region 2, MMI Preparatory HS, Eckley Coxe, Sponsor

Unit 57 **Earth and Space 9 & 10** **THOMAS 120**

Alyssa Klim, Turning Up The Heat On Hurricanes, Region 9, South Side HS, Stacie Stonebraker, Sponsor
Sophia Jarrar, Think Before You Drink: To Salt or Not to Salt?, Region 1B, Upper Dublin HS, Dawn Edelman, Sponsor
Yashi Patel, Effect of Carbon Dioxide on the Nutrition of a Plant, Region 1C, Central HS, Robert Herbstritt, Sponsor
Lily Eyvazzadeh, Using Ravioli to Reduce Plastic Pollution, Region 3, Moravian Acad US, Gabriella Dee, Sponsor
Abby Killam, Ocean Acidification Prevention, Region 9, Indiana Area, Emily Hixson, Sponsor
Isaac Schapiro, Exoplanet Location and Size Data Analysis, Region 1C, Springside Chestnut Hill Acad, Alissa Sperling, Sponsor
Sarah Knoble, Sunspot Cycles Onset and Decay Times, Region 3, Bethlehem Catholic, Mark Wladyslawski, Sponsor
Keelie Steiner, Filter This..., Region 9, Sharpsville Area, John Chovanes, Sponsor
Kelly Tang, Microplastics in Soil: Effects on Plant Growth, Region 7, North Allegheny SHS, Bruce Allen, Sponsor

Unit 58 **Earth and Space 10 & 11** **THOMAS 210**

Taran Anantasagar, Leaf-Based Electrolytic Photovoltaics!, Region 3, Parkland HS, Michael Post, Sponsor
Manav Singh, Modeling Effect of Climate Change, Region 1B, Lower Moreland HS, Richard Becker, Sponsor
Natasha Porwal, Salty Soil: Reducing Soil Sodidity Using Magnetism, Region 7, North Allegheny SHS, Bruce Allen, Sponsor
Emma Thompson, Rock's Effect on Acid Rain, Region 2, Pocono Mt East HS, Michael Blough, Sponsor
Erin Gavin, Effect of Dark Energy on Galaxy Movement, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor
Amarah Lee, Cosmic Catastrophe, Region 9, New Castle, Russ Carley, Sponsor
Matthew Reynolds, Effect of Light Pollution on a Picture's Brightness, Region 1A, Springfield HS, Stephanie Elgart, Sponsor
Grace Woolslayer, Calcium Carbonate and Better Understanding Climate Change, Region 9, Indiana Area, Emily Hixson, Sponsor
Jackie Dudley, Climate Change's Affect on Hurricane Severity, Region 2, Pocono Mt East HS, Michael Blough, Sponsor

Unit 59 **Earth and Space 11 & 12** **THOMAS 216**

Ashmitha Sivakumar, Evaluation of Methods for Bioremediation of Petroleum-Contam, Region 1B, Methacton HS, Robert Helm, Sponsor
Matthew Curry, Recording Epicenter Dist. And Mag. With a Budget Seismograph, Region 1C, Central Bucks HS East, Judy Elinow, Sponsor
Devisree Tallapaneni, Varying Atmosphere: Effects of CO2 levels on Cyanobacteria, Region 1C, Pennsbury HS, Jamie Swanson, Sponsor
Miti Patel, Analyzing the Morphology of Mercurys Craters, Region 1B, Methacton HS, Robert Helm, Sponsor
Jonathan Brodak, Fossils: Details Lost and Found, Region 8, Trinity HS, Nicole Welsh, Sponsor
Matthew Berzonsky, Optimization of Lime Based AMD Treatment, Region 9, Indiana Area, Emily Hixson, Sponsor
Laura Floyd, Space Signals: Detecting Radio Emissions from Planets Phase 4, Region 1C, Council Rock South HS, Matthew Ciaudelli, Sponsor
Mirabella Stump, Effect of Engine Type on Carbon Dioxide Emissions, Region 7, Keystone Oaks HS, Madeline Morris, Sponsor
Jonah Carver, On the Use of Multispectral Imaging in Paleontology, Region 1B, Upper Dublin HS, Richard Schmidt, Sponsor

Unit 60 **Ecology 9** **THOMAS 220**

Michael Huwar, Effect of Chlorine on Nitrogen Poisoned Water, Region 7, Pittsburgh Central Catholic, Mark Krotec, Sponsor
Lea Wang, Observing the Impact of Air Quality on Tree Lichens, Region 1C, Council Rock South HS, Matthew Ciaudelli, Sponsor
Grace Jacobs, Which road salt/deicer is best for Daphnia Magna?, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Srimayi Mulukutla, Increasing Efficiency of Biofuel Extraction, Region 7, Sewickley Academy HS, Suresh Mulukutla, Sponsor
Victoria Avanesov, Impact of Nanosilver Presence in Water on Algae Physiology, Region 10, Millcreek IHS, Amy Halmi, Sponsor
Rachel Chase, Biodegradability of Common Plastics, Region 8, Trinity HS, Joseph Smith, Sponsor
Kathleen Ho, Earthworm Mortality Rate From the Use of Grey Water, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Lily Giovanelli, Is there an Environmentally Friendly Solution to Preventing, Region 7, Oakland Catholic HS, Amanda Skoner, Sponsor
Ashlyn Odenwald, What's in the Soil?, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor
Sage Tellish, How does soil affect the pH of water?, Region 9, South Side HS, Stacie Stonebraker, Sponsor
Elsie Lindsay, Effect of Dye Color in Plastic Bags on Superworm Digestion, Region 9, Freeport Area, Eleanor Savage, Sponsor
Maksym Conjelko, Macroinvertebrate Sampling, Region 9, Indiana Area, Emily Hixson, Sponsor

Unit 61 **Ecology 9, 10 & 11** **THOMAS 104**

Lena Shaddinger, What impact does conventional and eco-friendly detergents ha, Region 1B, Upper Dublin HS, Brian Palme, Sponsor
John Blount, Iron Pollution Remediation by Algae, Region 7, Pittsburgh Central Catholic, Mark Krotec, Sponsor

24 Morning Presentations

Adam Klenovich, The effect of landfills on the environment, Region 9, Beaver Area, Jason Beltz, Sponsor
Ella Hartwell, Effect of Microplastic on Algae Growth, Region 1B, Cheltenham HS, Russell Wolff, Sponsor
Anirudh Nangunoori, Viability of Used Oil for Biodiesel, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Lillian Miller, Effect of Micronized Plastic on Daphnia, Region 1B, Perkiomen Valley HS, Julie Mest, Sponsor
Chloe Kocinski, What Kind of Trees Expel More CO₂ in Forest Fires?, Region 9, Indiana Area, Emily Hixson, Sponsor
Aashika Shah, Fuel it Up: Converting Organic Material into Biofuel, Region 3, Parkland HS, Michael Post, Sponsor
Samantha Howey, Effect of Sunscreen on Aquatic Algae, Region 2, Honesdale HS, Rebecca Kretschmer, Sponsor
Santiago Churion, Temperature's Effect on Water Tension, Region 2, Pocono Mt East HS, Michael Blough, Sponsor
Lauren Seliga, Effects of Ocean Acidification on Iron Cycle and Marine Life, Region 10, North East HS, Noel Mraz, Sponsor
Kelsey Rodowicz, Can Mealworms Reduce Polystyrene Waste?, Region 3, Allentown Central Catholic HS, Jennifer Winchilla, Sponsor

Unit 62

Ecology 11

THOMAS 119

Amsala Govindappa, Effects of Fertilizer on Algae Growth and Water Quality, Region 10, McDowell HS, Rick Fetzner, Sponsor
Samuel Mahler, Comparing the Effectiveness of Water Purification Methods, Region 5, Williamsport Area HS, Chase Smith, Sponsor
Miranda Fritz, Leaf Collection Inside v. Outside Deer Exclosures, Region 2, Honesdale HS, Rebecca Kretschmer, Sponsor
Andrew Yonko, Nitrate Uptake of Hydroponically Grown Spinach, Region 10, General McLane HS, Nathan Moore, Sponsor
Jordan Checkoff, Comparing Ideal Salinities of Potential Oil-Eating Bacteria, Region 1C, Council Rock South HS, Megan Mohl, Sponsor
Alice Hoover, How Long Wood It Take?, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Noelle Hutchison, Rising Ocean Temperature and pH level(plastic concentration), Region 8, Ringgold HS, John Laukaitis, Sponsor
Shreya Patil, Enhancing Chemical and Mechanical Properties of Bioplastics, Region 1B, Methacton HS, Robert Helm, Sponsor
Maggie Conjelko, Variation in Pennsylvania Vernal Pools, Region 9, Indiana Area, Emily Hixson, Sponsor
Saikrishna Manojkumar, Mycorrhizal Fungi's Effect on Remediation in the Environ., Region 1C, Cntrl. Bucks HS West, M. Hayden, Sponsor
Mikaela Collins, Effect of Antibacterial Socks on Bacteria, Region 7, Riverview HS, Marion Carson, Sponsor
Daniel Ghaderi, Water Remediation Utilizing Natural Resources, Region 1A, The Episcopal Academy, Kelley Bethoney, Sponsor

Unit 63

Ecology 11 & 12

THOMAS 122

Joseph Anand, Stem The Tide, Region 9, St John Paul II, Robert Kish, Sponsor
David Kinniburgh, Can plants remove ammonia from water as well as chemicals, Region 9, Freeport Area, Eleanor Savage, Sponsor
Elizabeth Rhyne, Effect of Location on Pond Coliform, Region 2, Honesdale HS, Rebecca Kretschmer, Sponsor
Rachel Kromer, The Importance of Riparian Buffers, Region 3, Bangor High School, Robert Hachtman, Sponsor
Jayne Ertter, Effect of Cell Phone Radiation, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Emma Sprowls, Effect of Animal Waste on Soil, Region 8, California Area, David Lowden, Sponsor
Choya Talukder, Analyzing Various Methods of Flocculation using Turbidity, Region 1A, Springfield HS, Mary Barry, Sponsor
Sierra Twigg, Windmill Efficiency, Region 9, Wilmington Area, Sandra Earl, Sponsor
Emily Meinert, Planting a Greener Future, Region 7, North Allegheny SHS, Bruce Allen, Sponsor
Adele Shirmer, Effects of Biopesticides on Callosobruchus maculatus, Region 4, Susquenita HS, Kathy Becker, Sponsor
Daria Zhadanova, Mycorrhizal bioremediation of petroleum-contaminated soil, Region 1C, Central HS, Robert Herbstritt, Sponsor

Unit 64

Engineering 9

THOMAS 201

Mikail Jaffer, Using Graphene to Create a Flexible, Region 3, Moravian Acad US, Gabriella Dee, Sponsor
Samit Mohapatra, Heavy Metal Removal from Wastewater by Activated Carbon, Region 3, Moravian Acad US, Gabriella Dee, Sponsor
Lisa Wang, Portable Energy Generation From Stimulated Human Movements, Region 4, Hershey HS, Jason Ambler, Sponsor
Melanie Navaratna, Wireless Mailbox Alert System Using NodeMCUs, Region 9, Indiana Area, Emily Hixson, Sponsor
Ali Ahmad, Type of Window Frame vs Insulative Effectiveness, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Veda Vundela, Air Pollution Detector, Region 3, Parkland HS, Michael Post, Sponsor
Katherine Shnier, Pitch, Sound Waves, and Crystal Wine Glasses, Region 3, Moravian Acad US, Gabriella Dee, Sponsor
Nicole Wealand, Increasing Wood Strength, Region 1B, Upper Dublin HS, Brian Palme, Sponsor
Ryan Wilson, Best Bang For Your Buck - Comparing 3D Printing Filament, Region 9, Kennedy Catholic, Gretchen Witkowski, Sponsor
Gregorio Soto, Pedal Power! Building a Bike Generator, Region 3, Louis E. Dieruff HS, JoAnn Manjarrez, Sponsor
Benjamin Ash, Lasers and Holograms, Region 7, Mt Lebanon HS, Joshua Bilak, Sponsor

Unit 65

Engineering 9 & 10

THOMAS 207

Aarez Khan, Solar Powered Battery Pack to the Rescue!, Region 2, Wyoming Seminary US, Andrea Nerozzi, Sponsor
James Donnelly, Is it Stable? Depends on Cable!, Region 3, Freedom HS, Graceanne Ruggiero, Sponsor
Madison Flaugh, Using Kinetic Energy to Charge Devices, Region 9, Beaver Area, Jason Beltz, Sponsor
Kaivalya Bhatt, Effectiveness of Intersections, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor
Steven Liu, Electronic Prevention of Rust - The Enemy of Steel, Region 7, Shady Side Academy HS, Jill Schumacher, Sponsor

Yahya Farag, Human Operated Robotic Ulna-based System, Region 9, Indiana Area, Emily Hixson, Sponsor
Nicholas Worrall, Best Base Isolator for Bridges during an Earthquake, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Matthew Sparling, Drone Flight Stability Using Different Sling Configurations, Region 1A, Penncrest HS, Jay Sparling, Sponsor
Maxwell Palamarchuk, Determining the Strongest Spar Web Design by Stress Testing, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Cameron Schmidt, Usability of Recycled PLA and ABS for 3D Printing, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor

Unit 66

Engineering 10

THOMAS 208

Miranda Schramm, Going Green with Insulation, Region 8, Burgettstown Area, Timothy Tropeck, Sponsor
Hudson Oberholzer, Which Insulation Material Allows the Least Temperature Drop, Region 3, Bethlehem Catholic, Mark Wladyslawski, Sponsor
Jeremy Gamble, Determining the Resistivity of Alloys on the Molecular Level, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Sanjay Seshan, Improving Autonomous Vehicle Performance via Infrastructure, Region 7, Fox Chapel AHS, Annette Sparrow, Sponsor
Brandon Decker, Designing an Artificial Pancreas System to Regulate Glucose, Region 1A, Springfield HS, Stephanie Elgart, Sponsor
Ronak Singh, Computational Modeling of a Waveguide using FDTD, Region 3, Parkland HS, Michael Post, Sponsor
Aaron Haber, Hardware Orchestra, Region 2, MMI Preparatory HS, Eckley Cox, Sponsor
James Ertter III, Best Angle to Launch a Rocket, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
David Madurski, Electromagnetic Grinding Table, Region 10, Northwestern HS, Pat Regan, Sponsor
Layan Suleiman, Effect of Curing Time on 3D Printed Concrete, Region 3, Parkland HS, Michael Post, Sponsor

Unit 67

Engineering 10

THOMAS 215

Ee-Ning Ooi, High Data Rate NLOS Underwater Optical Communication, Region 3, Parkland HS, Michael Post, Sponsor
Panari Patel, Tumbling Tsunamis, Region 7, Keystone Oaks HS, Madeline Morris, Sponsor
Louis DeAngelo, Arduino-controlled LED Tie, Region 2, MMI Preparatory HS, Eckley Cox, Sponsor
David Alunni, Effect of Infill Type and Percentage in FDM Printing, Region 2, North Pocono HS, Kara Stanton, Sponsor
Emily Wang, Origami Magic Ball Swimmers: Optimal Structure for Movement, Region 1B, Germantown Acad, Sarah Kesten, Sponsor
Reagan McGill, Fuel Cells: Converting Water into Electricity, Region 3, Bethlehem Catholic, Mark Wladyslawski, Sponsor
Samuel Snyder, Green Gas, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Alondra Rosario, Self-Sufficient Portable Charger, Region 3, Louis E. Dieruff HS, JoAnn Manjarrez, Sponsor
Vedavyas Jampanaboyana, The Development of a Wind Turbine Blade Design, Region 3, Parkland HS, Michael Post, Sponsor
Prathysha Kothare, Re Envisioning RBC Dynamics: Computer/Experimental Modeling, Region 3, Parkland HS, Michael Post, Sponsor

Unit 68

Engineering 10 & 11

WALKER 103

Abdulrahman Jouhari, Effect Of Dune Sand On Workability And Strength Of Concrete, Region 9, Indiana Area, Emily Hixson, Sponsor
Dev Lochan, Reducing Joint Impact with Magnetic Levitation, Region 4, Cumberland Valley HS, Mike Floreck, Sponsor
Joshua Summers, Securing Cargo on Ships with Magnets, Region 1C, Pennsbury HS, Jamie Swanson, Sponsor
Isabella Florian, Determining Prismatic Displacement in Eyeglasses, Region 7, Oakland Catholic HS, Amanda Skoner, Sponsor
Evan Gallagher, The Barrier Effect, Region 1A, Springfield HS, Stephanie Elgart, Sponsor
Ashnaa Bhide, Automated Status Reporting and Control of Systems Using IoT, Region 7, North Allegheny SHS, Bruce Allen, Sponsor
Megan Hoch, Soundproofing part 2, Region 10, Northwestern HS, Cinda Murray, Sponsor
Neera Raychaudhuri, Applying Tetrahedral Kirigami Motifs to Scoliosis Braces, Region 1A, The Episcopal Academy, K. Bethoney, Sponsor
Cecilia Quirk, The Efficacy of Different Sound Barrier Designs, Region 1A, Academy of Notre Dame de Namur, Daniel Cushing, Sponsor
Phoebe Morrill, Suitability of Screw Types for Connecting Bamboo Joints, Region 7, Quaker Valley HS, J. David Robertson, Sponsor

Unit 69

Engineering 11

WALKER 110

Caroline Brustoloni, Piezoelectric Tiles, Region 7, Mt Lebanon HS, Joshua Bilak, Sponsor
Raunaq Singh, iSight, Region 1A, The Episcopal Academy, Kelley Bethoney, Sponsor
Jaimee Cabili, Engineering a Sign Language Translation Glove, Region 7, Carlynton, Cynthia Eddy, Sponsor
Ryan Lim, Effectiveness of Mass by CT Compared to Conventional Mass, Region 1B, Upper Dublin HS, Dawn Edelman, Sponsor
Alexandra Worrall, A Second Skin, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Rajan Patel, Safe Knees, Region 1C, Council Rock North HS, Stacey Gould, Sponsor
Aarushi Singh, Creating a Thermoelectric Generator for Biomass Stoves, Region 1A, The Episcopal Academy, Kelley Bethoney, Sponsor
James Darcy, Obstacle Avoidance with an Arduino, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Faatihah Nayeem, Homemade Water Filter, Region 2, Abington Heights HS, Rosa Sabie, Sponsor
Alison Spadaro, A Complicated Solution to a Simple Problem, Region 8, Trinity HS, Nicole Welsh, Sponsor

Unit 70**Engineering 11 & 12****E E WEST 101**

Rishab Nandan, Programming a Concussion-Detection Software Into a Helmet, Region 1A, The Episcopal Acad., Kelley Bethoney, Sponsor
Abigail Stubenbort, Using the Sun to Solve the World Water Crisis, Region 10, Nwca Independent Students, Nick DeSantis, Sponsor
Thomas Anand, Wash It Well!, Region 9, St John Paul II, Robert Kish, Sponsor
Christopher Gerhart, Electromagnetic Coil Object Control, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor
Christian Gasdaska, Aerodynamic Bicycle, Region 4, Susquenita HS, Kathy Becker, Sponsor
Nathan Nazareth, Efficient Method of De-icing utilizing Biomimicry, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Margaret Cross, Geothermal Refrigeration, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor
Hannah Gorman, Pour Some Sugar On Me! Building a Artificial Pancreas, Region 4, Greenwood M/HS, Jonathan Everett, Sponsor
Joshua Mbogo, Engineering A Shoe Sole To Produce Electricity, Region 9, Indiana Area, Emily Hixson, Sponsor
Evan Carneal, Engineering a Bioink Capable 3D Printer, Region 3, Conrad Weiser HS, Adelle Schade, Sponsor

Unit 71**Engineering 12****E E WEST 103**

Laura Schwendeman, Effect of Bio-Printer Nozzle Design on Cell Viability, Region 7, North Allegheny SHS, Bruce Allen, Sponsor
Daniel Kustaborder, Fairness through Friction, Region 6, Bellwood-Antis HS, Denise Shimel, Sponsor
David Pence, Rafter Strength vs. Truss Strength, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Rachel Gray, Making Alternative Energy, Region 8, Bethlehem Center SD, Dawn Logan, Sponsor
Alison Chipley, 3D Printing a Trombone Mouthpiece, Region 10, Northwestern HS, Pat Regan, Sponsor
Hayley Finogle, Closed Cell Foam in the Construction of Equestrian Helmets, Region 3, Conrad Weiser HS, Adelle Schade, Sponsor
Hannah Xiao, Testing Compostable Composites' Strength and Durability, Region 1B, Upper Dublin HS, David Price, Sponsor
Talia Mastalski, Plastic and Plants: Reducing Waste and Increasing Growth, Region 9, Indiana Area, Emily Hixson, Sponsor
Kevin Ge, Efficiency with Wind Turbine Blades and Axis Orientations, Region 3, Emmaus HS, Brent Landrum, Sponsor
Nick Carrato, Fish Tank Filter, Region 2, MMI Preparatory HS, Eckley Cox, Sponsor

Unit 72**Mathematics 9****E E WEST 105**

Sophie Lee, The Ant on the Rubber Rope, Region 3, Moravian Acad US, Gabriella Dee, Sponsor
Natalie Nareski, Picks Theorem, Region 2, Old Forge, Nanette Rinaldi, Sponsor
Quinn Zabiegalski, Brachistochrone Curve, Region 2, Crestwood SD, Mickey Harper, Sponsor
Stepan Prodanets, Trigonometric Form of Complex Numbers, Region 2, Wyoming Valley West, Maria Konopke, Sponsor
Divik Verma, Using Various Proofs to Show That 0.999... is Equal to 1, Region 3, Moravian Acad US, Gabriella Dee, Sponsor
Zoe Lakkis, Global Poverty: From Correlation to Causation, Region 7, Fox Chapel AHS, Justin Patterson, Sponsor
Victoria Ren, The Gender Distribution Paradox, Region 7, North Allegheny SHS, Bruce Allen, Sponsor
Tanisi Patel, Sine, Cosine & Tangent, Region 2, Crestwood SD, Mickey Harper, Sponsor
Jennifer Cichra, A Polar Reception, Region 9, Butler Area, Veronica Sankey, Sponsor
Yiyi Chen, Art Gallery Theorem, Region 3, Moravian Acad US, Gabriella Dee, Sponsor

Unit 73**Mathematics 9 & 10****E E WEST 107**

Zachary Rolland, Eulers Identity, Region 10, General McLane HS, Nathan Moore, Sponsor
Jessica Zimmermann, Sine, Cosine, and Tangent, Region 2, Crestwood SD, Mickey Harper, Sponsor
Kevin Cheng, Applications of Derivatives, Region 2, Crestwood SD, Mickey Harper, Sponsor
Adam Cavalari, Slope and the Derivative, Region 2, Wyoming Valley West, Maria Konopke, Sponsor
Savanna Willauer, Quadratic Equations: Completing the Square, Region 2, Scranton Prep, Bridget Kotchick, Sponsor
Jacqueline Marinas, Estimation Population on the President's Inauguration, Region 1C, Northeast HS, James Finley, Sponsor
Julia Sheker, Principal Component Analysis of Wealth vs. Mortality in PA, Region 4, St. Theresa School, Michelle Banks, Sponsor
Jordan Kopac, Gabriel's Horn, Region 2, Berwick AHS, Todd Gunther, Sponsor
Hana Bader, Taylor and Maclaurin Series, Region 2, Crestwood SD, Mickey Harper, Sponsor
Mason Grenici, Let's Face the Facts, Region 9, Butler Area, Ben Klugh, Sponsor

Unit 74**Mathematics 10****WILLARD 62**

Nicholas Curry, Complex and Imaginary Numbers, Region 2, Crestwood SD, Mickey Harper, Sponsor
Emily Getty, Just Rolle With It: The Mean Value Theorem, Region 2, Berwick AHS, Todd Gunther, Sponsor
Nadia Merz, Cluster Analysis, Region 9, Wilmington Area, Sandra Earl, Sponsor
Dakota Welch, The Law of Sines and Cosines, Region 2, Berwick AHS, Todd Gunther, Sponsor
Samantha Sparich, De Moivre's Theorem, Region 2, MMI Preparatory HS, Eckley Cox, Sponsor
Katherine Lovelidge, Algebra and Patterns in Music, Region 3, Salisbury HS, Megan Basile, Sponsor
Patrick Le, One-Compartmental Mathematical Clearance Model of Busulfan, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor

Andrea Jones, Statistical Testing, Region 9, Butler Area, Ben Klugh, Sponsor
Priyal Patel, Unit Circle, Region 2, Crestwood SD, Mickey Harper, Sponsor
Minseo Oh, Creating Fractals and Determining the Hausdorff Dimensions, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor

Unit 75 **Mathematics 10 & 11** **WILLARD 73**

Logan Cary, Get There Quicker with Pathfinding, Region 2, Wyoming Valley West, Maria Konopke, Sponsor
Annie Wang, Against the House, Region 1C, Central Bucks HS East, Judy Elinow, Sponsor
Matthew Su, Calculus III: Stoke's Theorem, Region 10, McDowell HS, Rick Fetzner, Sponsor
Hiba Muhammad, The Sizes of Infinity, Region 2, MMI Preparatory HS, Eckley Cox, Sponsor
Nicholas Matthews, Bayes' Theorem, Region 2, Crestwood SD, Mickey Harper, Sponsor
Marin Williamson, The Birthday Paradox, Region 8, Trinity HS, Nicole Welsh, Sponsor
Maryanna Betterly, Archimedean Solids, Region 2, Berwick AHS, Todd Gunther, Sponsor
Aiden Shymanski, Getting a Clue on Queuing Theory, Region 2, Wyoming Valley West, Maria Konopke, Sponsor
Benjamin Putnam, Supertasks and the Ant on the Rubber Rope Problem, Region 2, MMI Preparatory HS, Eckley Cox, Sponsor
Karoline Lopez, Money Makes The World Go Round, Region 1C, Northeast HS, James Finley, Sponsor

Unit 76 **Mathematics 11** **WILLARD 171**

Oliver Berman, The Organization and Limitations of Future Elements, Region 1B, Upper Dublin HS, John Tralie, Sponsor
Abigail Lapinski, Hyperbolic Functions and Applications, Region 2, Holy Redeemer HS, Robert Rowinski, Sponsor
Michala Dennis, Euclidean Constructions, Region 2, Wyoming Valley West, Maria Konopke, Sponsor
Jacob Terkel, The Universal Divisibility Rule, Region 7, Mt Lebanon HS, Joshua Bilak, Sponsor
Jay Bhavsar, Logistic Function, Region 2, Crestwood SD, Mickey Harper, Sponsor
Samantha Remmey, A Variation of the Monty Hall Problem, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Tara Potter, Euler's Method for Differential Equations, Region 9, Butler Area, Ben Klugh, Sponsor
Francis Peng, Relating Combinatoric Identities with Logical Inspection, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Madison Sobolewski, Integrals, Region 2, Crestwood SD, Mickey Harper, Sponsor
Tiffany Zhong, Model Outcomes of a Tennis Game using Markov Chain, Region 1B, Germantown Acad, Sarah Kesten, Sponsor

Unit 77 **Mathematics 11 & 12** **WILLARD 174**

Kevin Regan, Related Rates, Region 2, Crestwood SD, Mickey Harper, Sponsor
Gabe Jenceleski, Minimalism in Music, Region 2, Greater Nanticoke AHS, Barb Warman, Sponsor
Evelyn Moore, Fairness of Dice vs Shape, Region 10, McDowell HS, Rick Fetzner, Sponsor
Doreen Valmyr, The Geometry of Banking a Basket, Region 1C, Central HS, Robert Herbstritt, Sponsor
Kayla Supkowski, Bayes' Theorem, Region 2, Crestwood SD, Mickey Harper, Sponsor
Korina Cheng, Taylor Series, Region 2, Crestwood SD, Mickey Harper, Sponsor
Lindsay Jones, The Mathematics of Rainbows, Region 1A, Springfield HS, Mary Barry, Sponsor
Zach Knapp, $(n+1)$ Dimensional Spacetime, Region 10, McDowell HS, Rick Fetzner, Sponsor
Matthew Schwarzauber, The Fundamental Theorem of Calculus, Region 2, Mountain View HS, Erin Rupp, Sponsor

Unit 78 **Mathematics 12** **WILLARD 258**

Dhruv Patel, Matrices, Region 2, Crestwood SD, Mickey Harper, Sponsor
Olivia Kelly, Is there Significant Evidence of Climate Change in Erie, PA?, Region 10, Nwca Independent Students, Nick DeSantis, Sponsor
Stefan Obradovic, Clustering Retail Sales Time-Series with Missing Data, Region 1B, Upper Dublin HS, Dawn Edelman, Sponsor
Walker Anderson, Computational Complexity of Polyomino Packing Problems, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Karlea Allen, Euler's Method, Region 2, Berwick AHS, Todd Gunther, Sponsor
Marissa Abbott, Save the Bees? Analyzing Population Models, Region 6, Altoona Area HS, David Borst, Sponsor
Coleman Smith, Differential Equations, Region 2, MMI Preparatory HS, Eckley Cox, Sponsor
John Zurisko, Applying Multivariable Calculus, Region 9, Freeport Area, Eleanor Savage, Sponsor
Grace Dacey, Exploring Boolean Algebra, Region 2, Holy Redeemer HS, Robert Rowinski, Sponsor

Unit 79 **Microbiology 9** **WILLARD 270**

Joseph Stern, Sodium Hypochlorite Effects on Bacterial Survivorship, Region 7, Pittsburgh Central Catholic, Mark Krotec, Sponsor
Gabriella Farrell, Which Gender's Cell Phones Carries More Bacteria?, Region 10, McDowell HS, Alison Allaman, Sponsor
Celine Jabbour, Does Ultraviolet Radiation Kill Bacterial Cells?, Region 6, Grier School, Nancy Burke, Sponsor
Thomas Mayernik, To Spice or Not to Spice, Region 2, MMI Preparatory HS, Eckley Cox, Sponsor
Cameron Price, How Does pH Affect Yeast?, Region 3, Parkland HS, Michael Post, Sponsor

Vanessa Moats, What Cleanser Kills the Most Bacteria, Region 7, Oakland Catholic HS, Amanda Skoner, Sponsor
Zoe Stewart, Cleaner Effectiveness, Region 2, Crestwood SD, Mickey Harper, Sponsor
Igor Avanesov, Which Acne Medication Can Really Zap That Zit?, Region 1C, Central HS, Robert Herbstritt, Sponsor
Jessica Divens, A Growing Attraction, Region 9, Sharpsville Area, John Chovanes, Sponsor
Ansh Malik, Microbial Fuel Cell, Region 3, Emmaus HS, Brent Landrum, Sponsor
Natalie McGee, Cross-linking as a Microbicide, Region 7, Mt Lebanon HS, Joshua Bilak, Sponsor

Unit 80

Microbiology 9

WILLARD 273

Nick Stein Snyder, Are Your Hands Really Clean?, Region 9, Hermitage SD, Garrett Rowe, Sponsor
Norah Alavi, The Optimal Energy Source for Yeast Respiration, Region 1B, Upper Dublin HS, Brian Palme, Sponsor
Mia Perri, Do Different Disinfectants Affect Bacterial Resistance?, Region 2, Carbondale AHS, Jessica Trichilo, Sponsor
Kayla Radu, What type of disinfectant kills E. coli the best?, Region 10, McDowell HS, Alison Allaman, Sponsor
Garrett Mann, Effect of Cigarette Smoke on Microflora, Region 7, Pittsburgh Central Catholic, Mark Krotec, Sponsor
Sarah Miskovich, Has E. coli Met Its Match?, Region 3, Bethlehem Catholic, Mark Wladyslawski, Sponsor
Prisha Srivastava, Effect of Antibiotics on Bacteria, Region 3, Parkland HS, Michael Post, Sponsor
Aishwarya Gowrishankar, Effect of Light on Yeast Growth, Region 3, Parkland HS, Michael Post, Sponsor
Ezra Greenberg, Comparison of Antimicrobial Effects of Hand Sanitizers, Region 1C, Pennsbury HS, Jamie Swanson, Sponsor
Kaylin Homa, Is your phone really cleaner than your toilet?, Region 9, Butler Area, Veronica Sankey, Sponsor

Unit 81

Microbiology 9 & 10

WILLARD 360

Shivani Kumar, Sunlight vs. Clay Pots: Cheap Water Decontamination, Region 1C, Council Rock South HS, Megan Mohl, Sponsor
Ryan Anderson, Does Oregano Affect the Potency of Antibiotics, Region 7, St Joseph HS, Cathy Greco, Sponsor
Shivani Nangia, Natural and Synthetic Antibacterial Agents vs. Staph, Region 7, The Ellis School, Erica Holtgraver, Sponsor
Carlee Davidson, Impacting Yeast Growth, Region 3, William Allen HS, JoAnn Manjarrez, Sponsor
Colton Mell, What are Effect of different beverages on teeth?, Region 9, Freeport Area, Eleanor Savage, Sponsor
Ella Urosevich, Solar Water Purification, Region 2, MMI Preparatory HS, Eckley Coxe, Sponsor
Praneeta Bandi, Effect of Black Carbon on the Potency of Antibiotics, Region 4, Harrisburg Acad, Lakshmi Shrikantia, Sponsor
Claire Emch, Studying the Properties and Effects of Light Therapy on Acne, Region 1A, Springfield HS, Mary Barry, Sponsor
Megan Hughes, Determining the Primary Antibacterial Agent in Local Honey, Region 1B, Perkiomen Sch, Melinda Irvén, Sponsor
Madeline Leggiero, Do Breathmints Truly Kill Bad Breath Bacteria?, Region 2, North Pocono HS, Kara Stanton, Sponsor

Unit 82

Microbiology 10

WILLARD 362

Haley Doyle, The Spread of the Resistance, Region 9, Quigley Catholic, Sean McCormick, Sponsor
Vinisha Sant, Gene Expression Profile of Endothelial Cells in Human Aorta, Region 7, Fox Chapel AHS, Annette Sparrow, Sponsor
Arielle Breuninger, Exploring Nickel to Combat Bacteria, Region 4, Lancaster Country DS, Todd Trout, Sponsor
Gianna Donahue, Can Silver Nanoparticles Neutralize E. coli Bacteria?, Region 2, Greater Naticoke AHS, Amanda Schraeder, Sponsor
Grace Taylor, Dilutions of Disinfectants Effect on Bacteria Development, Region 8, Laurel Highlands SHS, Amanda Sisson, Sponsor
Rebecca Ottensman, Effects of Caffeine on Daphnia Magna, Region 2, Greater Naticoke AHS, Amanda Schraeder, Sponsor
Sarah Rojas, Effect of a Vegan Diet on an Omnivorous Gut Microbiome, Region 1B, Germantown Acad, Sarah Kesten, Sponsor
Saadya Rao, Mighty Microorganisms, Region 1B, Methacton HS, Robert Helm, Sponsor
Hayya Khan, Effects of Acids, Salts, Bases on Different Types of Yeast, Region 3, Parkland HS, Michael Post, Sponsor
Kayla Eckrote, Ultraviolet Light on Yeast, Region 2, Greater Naticoke AHS, Anthony Fleury, Sponsor

Unit 83

Microbiology 10 & 11

WILLARD 365

Rachel Bina, Characterization of Freshwater Phages from Pittsburgh, PA, Region 7, North Allegheny SHS, Bruce Allen, Sponsor
Alina Mazur, Exploring Effect of Mouthwash on Bacteria, Region 8, Brownsville Area, Kathy Lacek, Sponsor
Rachel Li, Naturopathic Medication against Fungal Infections, Region 3, Parkland HS, Michael Post, Sponsor
Megha Varghese, Effectiveness of Garlic on Bacterial Growth, Region 1B, Methacton HS, Robert Helm, Sponsor
John Zagrocki, Effect of Atrazine Herbicide on Microbial Life, Region 7, Pittsburgh Central Catholic, Mark Krotec, Sponsor
Madison Ravotti, Does Vaping Have a Positive or Negative Effect on S. aureus?, Region 9, Freeport Area, Eleanor Savage, Sponsor
Elizabeth Misner, KomBooBoo, Region 4, Susquenita HS, Kathy Becker, Sponsor
Emily Hayes, Rays the Roof: Ultraviolet Sanitation, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Emma Jones, Zapping That Zit, Region 2, Carbondale AHS, Jessica Trichilo, Sponsor
Shrinidhi Dandibhotla, Effective Inhibition of Bacteria Growth Using Natural Antibiotics, Region 1B, Methacton HS, Robert Helm, Sponsor

Unit 84

Microbiology 11

WILLARD 367

Alec Maraska, Apoptotic Hepatocellular Death Induced by SMAC Mimetic, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor

Atharv Bhawe, Effect of Acid on Microorganism Growth in Fish Tissue, Region 8, Canon-McMillan, Steve Kropinak, Sponsor
Gowtham Pichaiyan, Effect of Biofiltration on E coli K12, Region 1C, Council Rock North HS, Terese Grateful, Sponsor
Abhimanyu Nangunoori, Temp.'s Effect on Biodegradation by P. Putida's, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Ashley Uppani, NAC Inhibiting Gemcitabine Oxidative Stress and Cytotoxicity, Region 1B, Methacton HS, Robert Helm, Sponsor
Paige McMullen, Ampicillin Resistance on Bacteria, Region 6, Cambria Hts. SHS, Nathaniel Wharton, Sponsor
Melissa Murin, Ground Beef and Bacteria Growth, Region 6, Bishop McCort, Laura Walker, Sponsor
Hannah Holbert, Gamma radiations effect on bacterial growth, Region 2, Honesdale HS, Rebecca Kretschmer, Sponsor
Rehan Devaravar, Examining the MIC of Various Antibiotics for S. pneumoniae, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Treesha Brahmabhatt, Antifungal Medications vs. Yeast, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor

Unit 85

Microbiology 11

WILLARD 369

Rishi Vaidyanath, Kinetics of G10 induced Apoptosis in hSTING Hepatocytes, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Sachin Thiagarajan, Antiviral Efficacy of Ocimum Sanctum on BK Virus, Region 7, Sci & Tech Acad, Brian Rose, Sponsor
Melody Chen, The Role of Inhibitors in hSTING Producing Hepatocytes, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Brianna Smith, Apple Cider Vinegar & Benzoyl Peroxide: Mixing it Up, Region 1B, Cheltenham HS, Rebecca Sheridan, Sponsor
Grace Darling, Effect of Different Bleach Dilutions on E. Coli Bacteria, Region 1B, Cheltenham HS, Russell Wolff, Sponsor
Elizabeth Schawl, Kombucha Fermentation, Region 9, Armstrong JSHS, Christie Orlosky, Sponsor
George Panousis, Functionality of CD8 Isoforms, Region 7, Pittsburgh Central Catholic, Mark Krotec, Sponsor
Maria-Yamouna Zarour, Evaluating the Role of NRP1 on Conventional Dendritic Cells, Region 7, Allderdice HS, Janet Waldeck, Sponsor
Myrna Khalouf, What Duration of Ultraviolet Exposure Kills Bacteria?, Region 3, Bethlehem Catholic, Mark Wladyslawski, Sponsor
Isabelle Beatus, Prevalence of Antibiotic Resistance in the Environment, Region 1B, Cheltenham HS, Rebecca Sheridan, Sponsor

Unit 86

Microbiology 11 & 12

WILLARD 370

Eva Mischler, Testing the physical interaction of Shrm and Enabled invitro, Region 7, Allderdice HS, Janet Waldeck, Sponsor
Madison Charnigo, Exosomal Haptoglobin Potential as Protein Biomarker for HCC, Region 1C, CBHS West, Mark Hayden, Sponsor
Karen Li, Natural vs Synthetic Acne Medication: Which Can You Trust?, Region 1B, Methacton HS, Robert Helm, Sponsor
Nathan Rojas Ocampo, Quorum Sensing Disruption, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Madison Berger, Veterinary Suturing Vs. Staphylococcus Epidermidis, Region 8, Connellsville Area SHS, Justin Guess, Sponsor
Sabrina Antonucci, SMAC Mimetic Induces HBV Surface Antigen-Mediated Apoptosis, Region 1C, CBHS West, Mark Hayden, Sponsor
Morgan Shriver, The importance of finishing your antibiotic regiment, Region 3, Bangor High School, Robert Hachtman, Sponsor
Megan Wallis, Looking Downstream- Silver Nanoparticles, Region 2, Carbondale AHS, Jessica Trichilo, Sponsor
Kristina Rinaldi, The Prevalence of Toxoplasma and Salmonella in Swine, Region 2, Pocono Mt East HS, Michael Blough, Sponsor
Lauren Spadt, Exosomal Presence of Alpha1-Antitrypsin as Biomarker for HCC, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor

Unit 87

Microbiology 12

HAMMOND 209

Jakobi Deslouches, Effect of Salamander Peptides on the Inhibition of Bacteria, Region 7, Allderdice HS, Janet Waldeck, Sponsor
Nicola Kaye, Effect of Sugar Alcohol on gastrointestinal normal flora, Region 3, Bangor High School, Robert Hachtman, Sponsor
Cassidy Pitts, Bioremediation of Bitumen with Naturally Present Bacteria, Region 1C, Central Bucks HS West, Mark Hayden, Sponsor
Izaac Wilkinson, ALU Gene Testing, Region 6, Hollidaysburg Area SHS, Dawn Elchin, Sponsor
Abigail LaCour, Effect of Ascorbic Acid on Bacterial Growth, Region 3, Bangor High School, Robert Hachtman, Sponsor
Keiana Faltz, The Cultivation of Lactobacilli from Commercial Yogurts, Region 2, Holy Redeemer HS, Steven Wise, Sponsor
Isabel Smith, Effects of Caffeine on Gastrointestinal Bacteria, Region 3, Bangor High School, Robert Hachtman, Sponsor
Jessica Hao, Natural Compound Potency on Bacteria Induced Atherosclerosis, Region 1A, The Episcopal Acad., Kelley Bethoney, Sponsor
Kianna Savage, Which Band-Aid Inhibits Bacterial Growth Most Effectively?, Region 2, Carbondale AHS, Jessica Trichilo, Sponsor
Emilio Mercado, Sanitization: What Happens To The .01%?, Region 3, Jim Thorpe ASD, Paul Eichelberger, Sponsor

Unit 88

Physics 9

HAMMOND 214

Nathan Bartlett, Measuring Lux Output as a Product of Voltage/Current Ratios, Region 10, North East HS, Noel Mraz, Sponsor
Chuck Norton, Speed of a Parachute, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor
Shannon Dougherty, Effect of Temperature on Mono- and Polycrystalline Solar Cells, Region 3, Palmerton Area High School, Julia Dougherty, Sponsor
Corinn Brewer, Angular Velocity and Centripetal Force in Gymnastics, Region 7, Gbg Central Catholic JHS, Pam Cullen, Sponsor
Alisa Jia, The Affect Different Materials Have on Sound, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor
Kiera Skuntz, You Can't Tune a Fish, But You Can Tune a Fork, Region 2, Hazleton AHS, Lawrence Pryzblick, Sponsor
Josh Merlino, The Optimal Wavelength, Region 1A, Springfield HS, Stephanie Elgart, Sponsor
Desiree Hancq, Diameter vs. Speed of a Rolling Ball, Region 8, Chartiers Houson, Tammy Young, Sponsor
Jakub Dingo, Testing Einstein Theory of Relativity With a Microwave, Region 9, Beaver Area, Jason Beltz, Sponsor

30 Morning Presentations

Nicholas Brown, Hooked on 3D Printing, Region 7, Serra Catholic HS, Jeanine Wilcox, Sponsor

Lucy Pearson, The Conductive Abilities of Different Types of Wire, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor

Unit 89

Physics 9

HAMMOND 215

Frances Downs, The Physics Behind Surface Tension, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor

Kayla Stephan, Electrical Currents in Liquids, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor

Gavin Zheng, Contrasting Temperatures vs. Solar Cell Output, Region 9, New Castle, Chadd Quimby, Sponsor

Alyssa Cosklo, Temperature's Effect on a Single-Engine Aircraft, Region 2, Carbondale AHS, Jessica Trichilo, Sponsor

Junlin Yu, Rooke's Law - spring/ tension, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor

Caitlyn Kratzer, Effect of Temperature on Pressure in a Soccer Ball, Region 3, Northampton Area HS, Julia Dougherty, Sponsor

Luke Price, Effect of Air Pressure on Distance of Ball Skip on Water, Region 1B, Upper Dublin HS, Judith Winship, Sponsor

Aj Ambrosecchia, Preventing Football Related Concussions, Region 2, North Pocono HS, Kara Stanton, Sponsor

Joseph Scruppi, Can We Stop Leaks Fast?, Region 8, Burgettstown Area, Ashley Ward, Sponsor

Sally Thistle, Types of Water Bottles Effect on Water Temperature, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor

Riley Powers, Shoot for the Stars, Region 9, New Castle, Chadd Quimby, Sponsor

Unit 90

Physics 9

HAMMOND 217

Brynn Withey, Sugar Concentration's Affect on Freezing Point, Region 2, Pocono Mt East HS, Michael Blough, Sponsor

Tyler Girman, The Study On Hockey Tapes, Region 9, New Castle, Chadd Quimby, Sponsor

Ryan Hathaway, The Best Angle in the Game, Region 10, North East HS, Noel Mraz, Sponsor

Maya Winter, Heavy Hitters: The Physics of Softball, Region 7, The Ellis School, Erica Holtgraver, Sponsor

Gracie Seybert, Wingin' It, Region 9, New Castle, Chadd Quimby, Sponsor

Leila Rosala, The Physics Behind Wave Energy, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor

Nathaniel Stuart, Which engine is more efficient: EFI or Carburetor?, Region 9, Kennedy Catholic, Gretchen Witkowski, Sponsor

Madeline Mahoney, The Bounce Height of Tennis Balls, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor

Tony Regli, String Gauge vs. Frequency using Guitar Strings, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor

Bryan Henriquez, Throwing Footballs, Region 9, New Castle, Chadd Quimby, Sponsor

Gaby Leon-Palfrey, Bottle Bops, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor

Unit 91

Physics 9

HAMMOND 221

Sarah Hunyadi, Can You Dig It?, Region 9, New Castle, Chadd Quimby, Sponsor

Eliza Russell, Effects of Temperature and Source of UV Light on UV Beads, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor

Jennifer Parsons, Optimal Impact Location for Paddle Ball Energy Transfer, Region 1B, Upper Dublin HS, Brian Palme, Sponsor

Emily Glover, The Truth Behind Flag Material, Region 9, New Castle, Chadd Quimby, Sponsor

Josephine Patosky, How can Distance Affect Speed?, Region 9, South Side HS, Stacie Stonebraker, Sponsor

Lexi Brink, Blood Splatter Analysis, Region 2, Greater Naticoke AHS, Anthony Fleury, Sponsor

Ben Rodgers, Beams of Bridges, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor

Allison Courtenay, Sticky Note Friction, Region 1B, Upper Dublin HS, Judith Winship, Sponsor

Oliver Moscow, Brachistochrone Model, Region 1C, Springside Chestnut Hill Acad, Alissa Sperling, Sponsor

Iven Bai, Heat Received in a Microwave Oven?, Region 1C, Springside Chestnut Hill Acad, Alissa Sperling, Sponsor

Timothy Levin, Air Permeability of Sailcloth, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor

Unit 92

Physics 9

HAMMOND 206

Emily Carter, Racing Under Pressure, Region 9, New Castle, Chadd Quimby, Sponsor

Billy Donato, The Temperature of The Bounce, Region 1C, Springside Chestnut Hill Acad, Alissa Sperling, Sponsor

Alex Haskins, Does the Density of a Liquid affect the rate of sinking?, Region 10, North East HS, Noel Mraz, Sponsor

Amanda Cooney, Friction and Weight's Effect on the Speed and Kinetic Energy, Region 1C, Springside Chestnut Hill, Ellen Kruger, Sponsor

Nia Hodges, Effect of Color on the Memory of a Teenager, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor

Iris Wilde, The Many Materials that May Modify Magnets, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor

Kayla Runkel, Gymnastics Mats: Whats right for you?, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor

Alexa Rhodes, Effects Water and Pressure Have on Plastic Water Bottle Caps, Region 1C, Springside Chestnut Hill, Ellen Kruger, Sponsor

Jackson Busche, On the Acceleration of Rolling Objects, Region 8, Peters Twp. Area, Christopher Allen, Sponsor

Rian Garvey, The Speed of Light Through Different Substances, Region 9, South Side HS, Stacie Stonebraker, Sponsor

David Yang, How sound-absorbing abilities of ABS plastic is going to be, Region 1C, Springside Chestnut Hill Acad, Alissa Sperling, Sponsor

Unit 93**Physics 9 & 10****HAMMOND 207**

Madison Soukovich, Watered Down, Region 9, New Castle, Chadd Quimby, Sponsor

Aiden Druschel, Stances For Days, Region 9, New Castle, Russ Carley, Sponsor

Pasquale Fiello, He Shoots, He Scores.... Or Does He?, Region 9, New Castle, Russ Carley, Sponsor

Isha Vyas, Household Batteries: Price vs Performance, Region 7, Norwin HS, Subhash Vyas, Sponsor

Charles Gibson, Effect of Temperature on the Refractive Index, Region 10, McDowell HS, Rick Fetzner, Sponsor

Sebastian Zhao, Reynold's Number as an Approximation for Drag, Region 10, McDowell HS, Rick Fetzner, Sponsor

Jack Rafferty, Green Energy on the Rise, Region 2, Scranton HS, Katona L Miller, Sponsor

Shawn Li, Effect of Temperature on Pitch and Amplification, Region 1B, Upper Dublin HS, Brian Palme, Sponsor

Sharon Liu, Big Fan of Renewable Energy, Region 10, Millcreek IHS, Amy Halmi, Sponsor

Aashka Gupta, Effect of the Angle of Elevation on Solar Cell Output, Region 10, McDowell HS, Rick Fetzner, Sponsor

Taylor Koda, Shielding Effectiveness Against Electromagnetic Events, Region 4, Hershey HS, Jason Sibbach, Sponsor

Unit 94**Physics 10****THOMAS 111**

William Walsh, Mention Tension, Region 2, Scranton HS, Katona L Miller, Sponsor

Amara Taddeo, Best Under the Sun?, Region 9, Sharpsville Area, John Chovanes, Sponsor

Elizabeth Schwartz, Growth of Ghost Crystals, Region 10, North East HS, Katie Gallagher, Sponsor

Steven Austin, Testing the Strength of Magnetic Fields, Region 2, Greater Nanticoke AHS, Anthony Fleury, Sponsor

Aiden Klik, Super Swift Spikes, Region 9, New Castle, Russ Carley, Sponsor

Rachel Zona, Swift Swings, Region 9, New Castle, Russ Carley, Sponsor

Aaron Falk, The Power of Paper, Region 9, Riverside HS, Raylene Boots, Sponsor

Jordan Nuzback, Which is the Best Insulation Material?, Region 10, McDowell HS, Rick Fetzner, Sponsor

Ethan Winters, Fruit Battery, Region 9, Wilmington Area, Sandra Earl, Sponsor

Travis Emery, Perfect Pass!, Region 9, New Castle, Russ Carley, Sponsor

Unit 95**Physics 10****SACKETT 107**

Malcolm Hawker, How do sound waves affect liquid solutions?, Region 1C, Northeast HS, James Finley, Sponsor

Sarah Seader, Get There With Traction, Region 8, PA Cyber Charter, Linda Seader, Sponsor

Zach Egan, Does PSI Affect How Far a Soccer Ball Travels?, Region 10, North East HS, Noel Mraz, Sponsor

Bode Wildgrube, Effect of Curved Wingtips on Lift, Region 1C, Council Rock North HS, Stacey Gould, Sponsor

Erin Bright, The Mpemba Effect, Region 10, McDowell HS, Rick Fetzner, Sponsor

Jade Miller, Testing the Efficiency of Drink Coolers, Region 8, Trinity HS, Joseph Smith, Sponsor

Thanh Huynh, Magnetic Linear Accelerator, Region 3, Bethlehem Catholic, Mark Wladyslawski, Sponsor

Ankhiitha Manjunatha, Efficient CE Modeling for Nanoscale Device Optimization, Region 3, Parkland HS, Michael Post, Sponsor

Travis Lane, Measuring the Speed of Light with a Microwave Oven, Region 2, North Pocono HS, Kara Stanton, Sponsor

Lauren Lancaster, Bernoulli Wind Patterns, Region 3, Bethlehem Catholic, Mark Wladyslawski, Sponsor

Unit 96**Physics 10****SACKETT 108**

Chadric Flarend, Bluetooth connectivity through liquids, Region 6, Altoona Area HS, David Borst, Sponsor

Janam Patel, Effect of Different Surface Areas on Turbine Efficiency, Region 3, Parkland HS, Michael Post, Sponsor

Khoshi Ahmed, How Does Time Affect The Amount Of Radiation Emitted, Region 4, Cumberland Valley HS, Anthony Thoman, Sponsor

Sami Rana, What Type of Wiring is best for Electric Generators?, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor

Keefer Wu, Exploring Electromagnetism, Region 2, Wyoming Seminary US, Andrea Nerozzi, Sponsor

Derek Hillhouse, Absorption of Radiant Energy by different colors, Region 10, McDowell HS, Rick Fetzner, Sponsor

Patricia Olsen, Temperature's Effect on the Conductivity of Copper Wiring, Region 2, Pocono Mt East HS, Michael Blough, Sponsor

Sean Malencia, Measuring the Speed of Light Through a Medium, Region 9, Evangel Hts Christian Acad, Nicole George, Sponsor

Eric Zhong, Reducing the Attenuation of SPR Induced Plasmonic Signals, Region 1B, Upper Dublin HS, Brian Palme, Sponsor

Priya Ramprabhu, Optimizing the Lifespan of Dye Synthesized Solar Cells, Region 3, Parkland HS, Michael Post, Sponsor

Unit 97**Physics 10 & 11****SACKETT 111**

Dharshan Tharumia, A CFD Numerical Study of Biomimetic Tubercles on Hydrofoils, Region 3, Parkland HS, Michael Post, Sponsor

Alyse Johnson, Investigating the Index of Refraction of Sugar Solutions, Region 7, Riverview HS, Brian Ludwig, Sponsor

Yvonne Chen, Modeling Quantum Phenomena with Walking Droplets, Region 1A, The Episcopal Academy, Kelley Bethoney, Sponsor

Tobi Farbstein, Poiseuille's Law In The Human Body, Region 1C, Springside Chestnut Hill Acad, Ellen Kruger, Sponsor

Jack White, The "Ease" of Lacrosse, Region 10, McDowell HS, Rick Fetzner, Sponsor

Patrick Johnson, The Most Effective Material for Electromagnetic Shielding, Region 6, Saint Joseph's, Christian Klepeiss, Sponsor

Cj Donston, Ready, Aim, Fire, Region 9, New Castle, Russ Carley, Sponsor

Lance Jensen, Effects of Temperature on the Speed of Sound, Region 2, Greater Naticoke AHS, Anthony Fleury, Sponsor
Chelsea Weid, Paper Rubs Me the Wrong Way, Region 8, Bethlehem Center SD, Dawn Logan, Sponsor
Jacob Snyder, Tennis racket resistance vs. Rebound of a tennis ball, Region 8, Trinity HS, Nicole Welsh, Sponsor

Unit 98

Physics 11

SACKETT 113

Elizabeth Herrnberger, Velocity Affecting Distance, Region 8, Trinity HS, Nicole Welsh, Sponsor
Kevin Xu, Aerodynamics of Golf Balls, Region 10, Nwca Independent Students, Nick DeSantis, Sponsor
Elliott Salvatori, Momentum and the Length of a Sound, Region 8, Trinity HS, Nicole Welsh, Sponsor
Kerrisa Moyer, How does wind speed affect the cooling rate of water?, Region 10, McDowell HS, Rick Fetzner, Sponsor
Charlie Mcilvaine, Testing Insulation of travel mugs with thermodynamics, Region 8, Trinity HS, Nicole Welsh, Sponsor
Anthony Haskins, Does the Angle of Wings Affect the Flight of a Bottle Rocket, Region 10, North East HS, Noel Mraz, Sponsor
Patrick Bryant, Malleability Vs Conductivity, Region 8, Trinity HS, Nicole Welsh, Sponsor
Alexis McCollum, Finding the Electromagnetism in a Solenoid, Region 8, Bethlehem Center SD, Dawn Logan, Sponsor
Lexi Livingood, Resistance of Playdough, Region 8, Trinity HS, Nicole Welsh, Sponsor
Lena Bartoe, Determining coefficient of friction on different surfaces, Region 8, Trinity HS, Nicole Welsh, Sponsor

Unit 99

Physics 11

SACKETT 117

Caitlyn Scott, Temperature VS. Strength of Magnets, Region 8, Trinity HS, Nicole Welsh, Sponsor
Ann Kozak, The Mpemba Effect, Region 8, Trinity HS, Nicole Welsh, Sponsor
Carson White, Force and Tone for Pianos, Region 8, Trinity HS, Nicole Welsh, Sponsor
Mary Wilson, Effect of Various Lubricants on Axle Friction, Region 3, Allentown Central Catholic HS, Jennifer Winchilla, Sponsor
Justin Walther, Effect of Intake Length on Torque and Efficiency Output, Region 8, Trinity HS, Nicole Welsh, Sponsor
Gaoyu Lin, Materials vs Energy Conserved of Electromagnetic Accelerator, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Jason Hess, How does temperature affect impact absorption?, Region 9, Wilmington Area, Sandra Earl, Sponsor
Taylor Staub, How the Angles of One's Body Causes a Volleyball to React, Region 8, Trinity HS, Nicole Welsh, Sponsor
Amber Harvey, Marble Drop Experiment, Region 8, Bethlehem Center SD, Dawn Logan, Sponsor
Andrew Schoener, Electrifyingly Fast, Region 8, Uniontown SHS, Pam Gadd, Sponsor

Unit 100

Physics 11

SACKETT 120

Brianne Coatsworth, Playing Hooke, Region 8, Trinity HS, Nicole Welsh, Sponsor
Dominic Hancq, Does a medium effect a magnetic field?, Region 8, Chartiers Houson, Tammy Young, Sponsor
James Piersol III, Deflategate: Fact or Fallacy, Region 10, North East HS, Noel Mraz, Sponsor
Meghan Smitherman, Lets Spring Into Physics!, Region 6, Bishop McCort, Laura Walker, Sponsor
Nicholas Phillips, Height Ramp vs. Acceleration, Region 8, Trinity HS, Nicole Welsh, Sponsor
Frank Wang, Maximizing Return Clarity of Echolocation, Region 1B, Upper Dublin HS, Doug Sample, Sponsor
Phillip Grabovsky, Simulating Large Multiparticle Systems, Region 1B, Lower Moreland HS, Richard Becker, Sponsor
Nancy Xiao, Why do Voice Recognition Systems Misinterpret Accents?, Region 8, Trinity HS, Nicole Welsh, Sponsor
Jenna Piper, Frozen Energy, Region 8, Bethlehem Center SD, Dawn Logan, Sponsor
Augustin Towers, Effects of Friction on Water, Region 8, Trinity HS, Nicole Welsh, Sponsor

Unit 101

Physics 11 & 12

SACKETT 207

Sohaib Nauman, A study of aerodynamic lift between different airfoils, Region 3, Parkland HS, Michael Post, Sponsor
Gideon Tan, Material of Covering vs Magnus Effect on Flettner Rotor, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Sarah Pritchard, Improving the Aerodynamic Efficiency of Drone Blades, Region 7, Oakland Catholic HS, Amanda Skoner, Sponsor
Quintin Nelson, Thinking Outside The Box- Quantum Tunneling, Region 6, Bellwood-Antis HS, Denise Shimel, Sponsor
Amanda Moody, How a building's shape affects its motion in an earthquake?, Region 2, Pocono Mt West HS, Tiffany Becker, Sponsor
Max Guthrie, Optimal Wind Turbine Blade Design Using Rotational Analysis, Region 7, Mt Lebanon HS, Joshua Bilak, Sponsor
Natasha Kuklis, Altering viscosity of common liquids to alleviate Dysphagia, Region 3, Allentown CCHS, Jennifer Winchilla, Sponsor
Sneh Patel, Effect of color on Light Dependent Resistor, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Sanil Hira, Effect of Temperature on Electrical Resistivity, Region 1A, Springfield HS, Stephanie Elgart, Sponsor
Benjamin Solomon, Determining The Relationship Between Volume and Frequency, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor

Unit 102

Physics 12

SACKETT 318

Rachel Nagy, Insulation: Is there a good alternative?, Region 6, Bishop McCort, Laura Walker, Sponsor
Savannah Alfaro, Can One sustain a car with Two Phonebooks?, Region 10, McDowell HS, Rick Fetzner, Sponsor
Alexander Lindenbaum, Exponential Decay in RC Circuits, Region 2, Pocono Mt East HS, Michael Blough, Sponsor

Noah Rodgers, Slippery Screws, Region 3, Jim Thorpe ASD, Paul Eichelberger, Sponsor
Michael Fleck, Exploring Ohm's Law, Region 3, Allentown Central Catholic HS, Jennifer Winchilla, Sponsor
Michael Olsen, The Relationship Between Radius Length and Linear Velocity, Region 2, Pocono Mt East HS, Michael Blough, Sponsor
Matthew Schwarzauber, Density's Effect on Bottle Flipping, Region 2, Mountain View HS, Erin Rupp, Sponsor
Gabe Hay, Effect of Wire Gauge on Resistance in Magnetic Induction, Region 8, Turkeyfoot Valley, Megan Barlow, Sponsor
Eric Frohnapfel, Effect of Density on Water Bottle Rocket Performance, Region 8, Canon-McMillan, Steve Kropinak, Sponsor
Megan Debski, Harnessing the Power of the Sun, Region 7, Chartiers Valley HS, Charles Barber, Sponsor

Unit 103 **Zoology 9 & 10** **SACKETT 320**

Vaishnavi Joshi, Reversing Melatonin-Induced Cardiac Distress in *Daphnia*, Region 3, Parkland HS, Michael Post, Sponsor
Bridget Magee, Olfactory Stimulant Effect on Calorie-Restricted Gryllidae, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor
Keira Trout, Effect of Proximity of Male/Female Zebrafish on Clutch Size, Region 1B, Perkiomen Valley HS, Julie Mest, Sponsor
Gloria Mancilla, Effect of Grooming Techniques on Equine Heart Rate, Region 7, Shady Side Academy HS, Jill Schumacher, Sponsor
Sarah Steffy, S. Lanternflies: Chemical Effectiveness on Speed of Death, Region 1B, Souderton Area HS, Karen Wolfe, Sponsor
Shihan Li, Planarian regeneration, Region 6, Grier School, Nancy Burke, Sponsor
Peyton Green, Feline Frenzy, Region 9, New Castle, Russ Carley, Sponsor
Maya Yagan, Temperatures Effect on Maggot Decomposition, Region 2, Pocono Mt East HS, Michael Blough, Sponsor

Unit 104 **Zoology 10 & 11** **SACKETT 322**

Hannah Sciulli, Effects of Survivorship on *Drosophila melanogaster* in UV, Region 7, North Hills SHS, Heather Cobbey, Sponsor
Tanvi Patnaik, Effects of Carbon Based Molecules on ALS in Fruit Flies, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Sophi Schneider, Male *Centris Pallida* Bees and Brain Development, Region 1B, Upper Dublin HS, Joanne Lilliendahl, Sponsor
Julia Madsen, Bioactive glass on *Drosophila melanogaster* appendage injury, Region 3, Conrad Weiser HS, Adelle Schade, Sponsor
Nathan Roppelt, Effect of Radiation on Planaria Regeneration, Region 2, Holy Redeemer HS, Steven Wise, Sponsor
Ethan Schroeder, EMFs Effects on S-methoprene as a Mosquito Control Method, Region 7, St Joseph HS, Cathy Greco, Sponsor
Deesha Patel, Effects of Huntington on the Climbing Assay of Fruit Flies, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Aditya Gunturi, Role of Nitric Oxide in Heart Rate Flux in *Daphnia Magna*, Region 1C, Central Bucks HS East, Judy Elinow, Sponsor

Unit 105 **Zoology 11 & 12** **SACKETT 325**

Sumaiya Difaa, Aversive Stimuli vs. Memory in *Drosophila* with Huntington's, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Logan Anema, Temperatures on relationship of zooxanthellae and sea anemone, Region 3, Bangor High School, Robert Hachtman, Sponsor
Julia Ting, Effects of Vitamins on *Drosophila Melanogaster* with SCA 3, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Anne Puchalsky, Evaluating the Impact of buffer zones on fall pollinators, Region 4, Cumberland Valley HS, Mike Floreck, Sponsor
Christiana Wagner, *Drosophila* Imaginal Disc Cells and Bioactive Glass, Region 3, Conrad Weiser HS, Adelle Schade, Sponsor
Brittany Hood, How does Caffeine Affect the Heart Rate of *Daphnia Magna*?, Region 1C, Bensalem HS, Lisa Tokmajian, Sponsor
Jessica Baggett, Effect of salinity on photosynthesis of zooxanthellae, Region 3, Bangor High School, Robert Hachtman, Sponsor
Katie Nebzdoski, IR Analysis of Raw vs Pasteurized Milk, Region 2, Forest City RHS, Audrey Nebzdoski, Sponsor

AFTERNOON PRESENTATIONS**UNITS 201 - 301****1:15 PM****20 MAY 2019****Unit 201****Behavioral 7****BUSINESS 5***Sophia Steckel, How does gender affect a human curiosity profile?, Region 3, St Thomas More, Tricia Maskiell, Sponsor**Carter Simko, Decoding scrambled messages, Region 9, Butler Area, Veronica Sankey, Sponsor**Jaime Hamoui, Do Facts Affect Perception?, Region 3, Harrison-Morton MS, Kelly Caflin, Sponsor**Myla Madera, Does the Color of Food Effect How Much You Want To Eat It?, Region 7, St Joseph - Verona, Mary Chirdon, Sponsor**Gracie Alubery, Memorization Test, Region 1A, E.T. Richardson MS, Lauren Christiansen, Sponsor**Coral Alcantara, How Does Color Affect the Way A Person Feels?, Region 3, Harrison-Morton MS, Kelly Caflin, Sponsor**Eli Smith, Effect of Music Volume on Concentration, Region 7, St Anne Catholic, Nancy Laird, Sponsor**Juliette Racht, Which Gender is More Susceptible to The Stroop Effect?, Region 2, Carbondale AHS, Christy Hinton, Sponsor**Grace Goslin, Do we Lose Memory with Age?, Region 7, Jefferson MS, Edward Petsko, Sponsor**Jaqueline Kelly, Does physical activity affect grades?, Region 2, Carbondale AHS, Christy Hinton, Sponsor**Holly Burke, Does age affect a photographic memory?, Region 2, Carbondale AHS, Christy Hinton, Sponsor***Unit 202****Behavioral 7****BUSINESS 9***Jocelyn Brown, Willingness to Conform in Different Age Groups, Region 2, Carbondale AHS, Christy Hinton, Sponsor**Molly Kelly, Are You Right Sided Or Left Sided?, Region 2, Carbondale AHS, Christy Hinton, Sponsor**Jamie Noonan, Do Distractions Affect Accuracy When Retaining Information?, Region 7, St Joseph - Verona, Mary Chirdon, Sponsor**Lydia Hessel-Robinson, Warped Words and the Stroop Effect, Region 1B, Cedarbrook MS, Beth Kenna, Sponsor**Daniella Idrovo, How do genders react to frustrating stimuli, Region 4, Harrisburg Acad, Lakshmi Shrikantia, Sponsor**Hazel Black, The Race of Recognition, Region 10, Woodrow Wilson MS, Beth Crider, Sponsor**Anya Chadha, The Stroop Effect, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor**Alivia Kocan, Does Time of Day Affect Your Ability to Learn?, Region 10, Seton School, Cathleen Gorman, Sponsor**Maeve Kennedy, Does Chewing Gum Improve Concentration on Tests?, Region 2, Howard Gardner Sch, Michael Rescigno, Sponsor**Analise Wolf, What Color Do People Find Most Appetizing?, Region 10, JS Wilson MS, Katie Giles, Sponsor**Kylie Kelly, Does having a sibling affect a test grade, Region 2, Carbondale AHS, Christy Hinton, Sponsor***Unit 203****Behavioral 7****BUSINESS 10***Silas Lashbrook, Is Memory Heightened if One is Left-handed?, Region 10, Seton School, Cathleen Gorman, Sponsor**Nathan Gonser, Music, anyone?, Region 10, St Luke, Rachel Burbules, Sponsor**Jayla Cleckley, How color affects mind and taste, Region 10, Woodrow Wilson MS, Beth Crider, Sponsor**Rosaria Burkett, Does Marketing Influence the Subconscious Mind?, Region 10, Seton School, Cathleen Gorman, Sponsor**Brittain Banull, CAUTION: Children at Play!, Region 2, South Scranton IS, Katona Miller, Sponsor**Sid Karthik, Are Middle School Students Scared of Losing their Phones?, Region 1B, Wyndcroft US, David Johnson, Sponsor**Samantha Roth, Which bird seed is the favorite of winter backyard birds?, Region 3, St Thomas More, Tricia Maskiell, Sponsor**Jaley French, How does watercolor affect stress?, Region 10, Westlake MS, Andrew Wride, Sponsor**Jack Lochran, Sneaky Scents, Region 8, St Patrick School, Lauren Hoover, Sponsor**Joshua Mehler, Does color affect memory?, Region 10, Seton School, Cathleen Gorman, Sponsor**Elizabeth Samer, Gutenberg Principle: The Significance of Image Placement, Region 3, St Thomas More, Tricia Maskiell, Sponsor***Unit 204****Behavioral 7****BUSINESS 105***Brooke Woll, Distracted Driving, Region 5, The Children's Museum, Ginny Weibel, Sponsor**Mackenna Loch, Do different types of videos influence a person pulse?, Region 9, Butler Area, Veronica Sankey, Sponsor**Dikchaya Monger, How vision influences flavor, Region 10, Woodrow Wilson MS, Beth Crider, Sponsor**Sam Schneider, The Impact of Vaping Information on Viewer Comprehension, Region 1B, Sandy Run MS, Jeanie Kellock, Sponsor**Peter LaPointe, What is Effect of Gender Upon Stroop Test Performance?, Region 3, Notre Dame of Bethlehem, Karen Iobst, Sponsor**Cecilia Christ, Does age affect the ability to spot a real or fake smile?, Region 3, St Thomas More, Tricia Maskiell, Sponsor**Adelyn Clemmer, Adventurous Eater?, Region 1B, Indian Valley MS, Amy Welsh, Sponsor**Kanchan Gupta, Music: Help or Distraction For Testing?, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor*

Abby Williams, Drop the Beat!, Region 2, Good Shepherd Acad, Janice Ambrulavage, Sponsor

Sarah D'Angelo, C Is for Cookie - Does Appearance Matter in Food?, Region 3, St. Catharine of Siena School, Kellee Fries, Sponsor

Cora Fiedler, Truth Behind Conformity, Region 9, St Gregory, Matthew Dunker, Sponsor

Unit 205

Behavioral 7 & 8

FOREST RESOURCES 112

Erin Schaeffer, Does YouTube Affect Memory?, Region 9, Freeport Area, Eleanor Savage, Sponsor

Elena McCutcheon, Effect of School Environment Change on Students, Region 7, Springdale JSHS, Susan Mellon, Sponsor

Francesca Oberholzer, The Mere Exposure Effect, Region 3, Notre Dame of Bethlehem, Karen Iobst, Sponsor

Aidan Richter, Family Look-A-Likes, Region 10, St Luke, Rachel Burbules, Sponsor

Julia Kopera, Chromatic Adaptation, Region 6, Cambria Hts. MS, Christina Fetsko, Sponsor

Morgan Friel, "How many numbers can you remember?", Region 1C, St Isidore School, Christine Oconnor, Sponsor

Emma Steadman, Does Dance Training Affect Normal Physical Coordination, Region 9, Butler Area, Veronica Sankey, Sponsor

Anjana Mosakowski, Effect of Personality on Handwriting, Region 1A, E.T. Richardson MS, Lauren Christiansen, Sponsor

Dominic Heiser, Do different communication methods help kids with apraxia?, Region 3, St Thomas More, Tricia Maskiell, Sponsor

Mckayla Sedgwick, Does chewing gum make you smarter, Region 9, Ellwood City Area, Sean McConahy, Sponsor

Olivia Giancola, What Do U Mean? An Interpretation of Ambiguous Text Messages, Region 9, Freeport Area, Eleanor Savage, Sponsor

Unit 206

Behavioral 8

KELLER 113

Bella White, Shaping Your Thoughts!, Region 7, Blessed Francis Seelos, David Blozowich, Sponsor

Hayley Baranowski, The Cognitive Effect of Yoga, Region 7, Blessed Francis Seelos, David Blozowich, Sponsor

Eduardo Olivas, Hey Genius! Is Your Password Strong Enough?, Region 9, Clarion Cnty Homeschoolers, Xhonane Olivas, Sponsor

Erineah Quan, Effects of Blood pressure and Stress Rates, Region 3, Nitschmann MS, Kurt Amen, Sponsor

Laurny Whiting, Public Speaking Induced Stress as Measured by Heart Rate, Region 5, Mifflinburg AHS, Shawn Welch, Sponsor

Faith Lam, Stressful Test? Which Learning Style Help You Study Best?, Region 1B, Cedarbrook MS, Beth Kenna, Sponsor

Kaitlynn Harry, Is Eyewitness Testimony Reliable?, Region 10, Seton School, Cathleen Gorman, Sponsor

Ethan Rapp, Which Gender Has Better Depth Perception, Region 9, Freeport Area, Eleanor Savage, Sponsor

Cael Nicoletta, Can You Remember ?, Region 8, John F Kennedy CS, Rebecca Papson, Sponsor

Alyssa Minton, The Science of Frustration, Region 7, Holy Cross Acad, Bryan Annis, Sponsor

Annabel Dobash, Comparing the attractiveness of faces, Region 2, MMI Preparatory MS, Sophia Coxe, Sponsor

Unit 207

Behavioral 8

KELLER 114

Lauren Campbell, Children and Gender Stereotypes., Region 7, St Anne Catholic, Nancy Laird, Sponsor

Cooper Eckenrode, Pitch Preference, Region 6, Cambria Hts. MS, Christina Fetsko, Sponsor

Anita Bhat, Influence of Musical Genres on Ambiguous Image Perception, Region 9, Freeport Area, Eleanor Savage, Sponsor

Joseph Harmanos, Runnin' Down a Dream, Region 9, St Gregory, Matthew Dunker, Sponsor

Jonathan Allen, Ice Ice Baby, Region 9, St Gregory, Matthew Dunker, Sponsor

Kaitlyn Konopka, Child-Proof Container Crisis, Region 1B, Indian Valley MS, Amy Welsh, Sponsor

Will Draper, Gender Evaluation of Risk, Region 1A, E.T. Richardson MS, Lauren Christiansen, Sponsor

Elijah Vangura, Which Font Will You Use?, Region 7, Aquinas Academy, Dorina Manolache, Sponsor

Jessica Phares, The Cold Never Bothered Me Anyway, Region 2, Good Shepherd Acad, Janice Ambrulavage, Sponsor

Paisley Conver, The Stroop Effect, Region 9, St Gregory, Matthew Dunker, Sponsor

Alexandria Nagle, How good is your memory?, Region 10, North East MS, Ian Williams, Sponsor

Unit 208

Behavioral 8

KELLER 104

Crystal Zheng, Effect of Age and Gender on Short-Term Memory, Region 8, Laurel Highlands MS, Natalie Grote, Sponsor

Ariana Lane, Testing the Accuracy of an Eyewitness, Region 2, Mid Valley SC, Suzanne Piorkowski, Sponsor

Lydia Perry, How Stress Affects Working Time, Region 9, Kennedy Catholic, Gretchen Witkowski, Sponsor

Nora Collins, Organic vs. Conventional, Region 2, Our Lady of Peace, Dan Banicky, Sponsor

Priscilla Nguyen, Where Are My Keys? Age Vs. Memory, Region 1B, Cedarbrook MS, Beth Kenna, Sponsor

Isaiah Daniels, What's in the Box?, Region 9, Kennedy Catholic, Gretchen Witkowski, Sponsor

Cecily Brown, Does Showering at Various Times Affect Cognitive Awareness?, Region 8, Connellsville Area JHS, Jace McClean, Sponsor

Bianca Talarico, Does The Bouba-Kiki Effect Differ By Age?, Region 2, St Clare/St Paul, Lisa Owens, Sponsor

Isabella Jones, Which Gender Can Solve Pattern Puzzles Quicker?, Region 9, New Castle, Leah Ann Williams, Sponsor

Shauna Durst, Is anxiety more common in women than in men?, Region 2, Carbondale AHS, Christy Hinton, Sponsor

Taylor Bayley, Favorite Colors, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor

Unit 209**Behavioral 8****BORLAND 110**

Drew Malizia, *Battle of the Sexes: Who Has the Better Brain?*, Region 1B, Sandy Run MS, Jeanie Kellock, Sponsor
Faith Lihvarchik, *Color vs. Memory*, Region 6, Cambria Hts. MS, Christina Fetsko, Sponsor
Samuel Coppola, *Reaction Time Visual vs. Auditory*, Region 10, Seton School, Cathleen Gorman, Sponsor
Ava Pierce, *Does Gender Affect Color Differentiation?*, Region 9, New Castle, Leah Ann Williams, Sponsor
Joselyn Parkinson, *The effect nicotine has on Lumbricus Terrestris*, Region 7, Christ the Divine Teacher, Lindsey Marci, Sponsor
Jonathan Maffei, *Gender preference of music*, Region 7, Blessed Francis Seelos, David Blozowich, Sponsor
Rita Collins, *Does Color Affect Recall?*, Region 2, St Clare/St Paul, Lisa Owens, Sponsor
Maddy Kelly, *Testing Bias in a Police Lineup*, Region 9, St Gregory, Matthew Dunker, Sponsor
Benjamin Pintof, *How Music Affects Test Scores*, Region 1A, E.T. Richardson MS, Lauren Christiansen, Sponsor
Allison Gay, *Which Candy Increases Concentration the Most*, Region 1B, Sandy Run MS, Gary Hite, Sponsor
Faith Burick, *Does Eating Breakfast Affect Memory?*, Region 9, New Castle, Leah Ann Williams, Sponsor

Unit 210**Behavioral 8****BORLAND 111**

Erica Gildea, *Mixing light to make colors.*, Region 1C, St Isidore School, Christine Oconnor, Sponsor
Anna Opatowiecki, *Effect of Essential Oils on Human Behavior*, Region 3, Nitschmann MS, Kurt Amen, Sponsor
Courtney Dorsey, *Anxiety In Assessments*, Region 3, Northampton Area MS, Amie Marks, Sponsor
Saxon Stoner, *Speed Racers...Male or Female?*, Region 9, Butler Area, Veronica Sankey, Sponsor
Grace Seita, *Which Gender Has a Better Memory Tolerance?*, Region 9, Freeport Area, Eleanor Savage, Sponsor
Morgan Piatt, *Musical Feelings*, Region 9, New Castle, Leah Ann Williams, Sponsor
Sean Dasovich, *Which Gender is More Affected by the Mandela Effect*, Region 1A, E.T. Richardson MS, Lauren Christiansen, Sponsor
Lena Ligorio, *Whats Your Prefrence*, Region 2, All Saints Acad, Shari Hilfiger, Sponsor
Lexi Vakulick, *How Much of 8th Grade Curriculum is Applicable for Adulthood*, Region 9, Freeport Area, Eleanor Savage, Sponsor
Kailey Tickner, *Effect of music on memory*, Region 2, Western Wayne MS, Christine McClure, Sponsor
Preston Masciantoni, *How Gaming Affects the Reaction Time of Students*, Region 9, South Side MS, Michael Stewart, Sponsor

Unit 211**Behavioral 8****BORLAND 112**

Sarah Glaneman, *Do the Phases of the Moon Affect the Way We Feel?*, Region 8, Madonna Catholic, Jessica Garrett-Willis, Sponsor
Benjamin Tarquinio, *Managing Pain With Music*, Region 7, Aquinas Academy, Dorina Manolache, Sponsor
Gianna Beichner, *School Domination*, Region 8, John F Kennedy CS, Rebecca Papson, Sponsor
Jj Glaneman, *Effect of Board Games on Mathematical Thinking*, Region 8, Madonna Catholic, Jessica Garrett-Willis, Sponsor
Dylan Paulson, *Tuned In*, Region 9, St Gregory, Matthew Dunker, Sponsor
MKenna Gerard, *Visual vs. Auditory Comprehension*, Region 10, Seton School, Cathleen Gorman, Sponsor
Delaney O'Shea, *Afterimages*, Region 9, St Gregory, Matthew Dunker, Sponsor
Heidi Williams, *Do Your Eyes Tell Lies?*, Region 2, Good Shepherd Acad, Janice Ambrulavage, Sponsor
Ryan Burda, *Is Your Personal Info, "Public" Info ?*, Region 2, All Saints Acad, Shari Hilfiger, Sponsor
Lauren Rajasenana, *What is Effect of Physical Activity on Memory?*, Region 7, Blessed Francis Seelos, David Blozowich, Sponsor
Samantha Cruz, *Do the Phases of the Moon have any effect on mood?*, Region 3, Springhouse MS, Daniel Christman, Sponsor

Unit 212**Biochemistry 7****BORLAND 116**

Luke Melicharek, *How does heat effect enzymatic activity*, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Liya Zhang, *Sweet Apple/Sour Apple*, Region 1B, Arcola Int Sch, Sharon Branca, Sponsor
Arnav Tiwari, *Humble Yogurt as Superfood*, Region 1B, Arcola Int Sch, Sharon Branca, Sponsor
Ava Hurl, *Stop and Smell the Roses... For Longer*, Region 9, Sharpsville Area, Nanci Dickson, Sponsor
Azriella Marra, *Find That Mold*, Region 9, Butler CS, Jayne Chobot, Sponsor
Alizeh Ali, *Moisturizers: What Types Actually Prevent Dryness in Skin?*, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor
Annabella LaCastro, *Which Fruit Rots the Slowest?*, Region 10, Blessed Sacrament, Maricarol Schoenfeldt, Sponsor
Matthew Jordan, *Energy Drink Acidity*, Region 7, Mother of Sorrows Catholic EL, Kristen Morton, Sponsor
Vivek Shepherd, *Effect of Temperature and Oxygen on Melanin Formation*, Region 3, Springhouse MS, Jennifer Karetsky, Sponsor
Alexis Abbett, *What type of pain pill dissolves the fastest in the stomach?*, Region 7, Christ the Divine Teacher Acad, Lindsey Marci, Sponsor

Unit 213**Biochemistry 7****BORLAND 117**

Ella Miller, *How Does Acid Rain Effect The Growth of Flowers*, Region 6, Northern Cambria MS, Amber Miller, Sponsor
Vidhi Desai, *What type of Algae Can Create the Most Calories in Oil?*, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Ananya Gope, *What effect does Microwave Radiation have on Plant Seeds?*, Region 3, Springhouse MS, Troy Minarovic, Sponsor

Jacob Considine, Bacteria Busters, Region 2, St Nicholas St. Mary, Diane Bojarcik, Sponsor
Maximilian Lin, Pineapple Pandemonium, Region 1C, Newtown MS, Mary Joy Troxel, Sponsor
Kieran Chetty, Improving Lactose Intolerance: Factors that Affect Lactase, Region 1A, Tredyffrin-Easttown MS, Kristen Connelly, Sponsor
Kassidy Birmer, Sweet to eat, Region 2, St Nicholas St. Mary, Diane Bojarcik, Sponsor
Nanditha Patil, Which Milk Suits You Best?, Region 1B, Arcola Int Sch, Sharon Branca, Sponsor
Olivia Long, Will Soaking Teeth in Coke Affect the Weight of the Teeth?, Region 4, Susquenita MS, Beth Johnson, Sponsor

Unit 214 **Biochemistry 8** **FERGUSON 3**

Aishwarya Suresh, Optimizing Algae Growth for Sustainable Environment, Region 3, Springhouse MS, Scott Bauer, Sponsor
Allison Barilla, Soothing Your Stomach the Natural Way, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Alexandra Rossi, Types of Burt's Bees Lip Balm VS Grams of Melted Wax, Region 1C, Shafer MS, Diana Kelly, Sponsor
Marcus Smith, Impact of Protein Isolation and Environment on Catalase, Region 1B, Indian Valley MS, Amy Welsh, Sponsor
Nicole Jerich, Glucose level after adding the enzyme invertase, Region 7, Christ the Divine Teacher Acad, Lindsey Marci, Sponsor
Saqara Green, Which Crunch Has More Calories?, Region 1B, Cedarbrook MS, Beth Kenna, Sponsor
Samuel Praetzel, It takes a shower to keep your dirt., Region 10, St James, Catherine Kern, Sponsor
Noah Oxfeld, Water Temperature and the Dissolution of Alka Seltzer, Region 3, Springhouse MS, Daniel Christman, Sponsor
Anna Lorenzo, Taking Control of Blood Glucose Levels, Region 3, Orefield MS, Brian Holtzhafer, Sponsor

Unit 215 **Biochemistry 8** **FERGUSON 5**

Farishta Faruk, Tooth Decay, Region 3, Springhouse MS, Susan Stern, Sponsor
Abigail Weinstein, How Do Different Solutions Affect the Oxidation of Fruit?, Region 10, Walnut Creek MS, Jennifer Haller, Sponsor
Sarah Lyons, Why can't all medicines be pills?, Region 2, Holy Rosary Sch, James Rose, Sponsor
Jasmine Kovalevich, Which whitening toothpaste is most effective?, Region 10, Walnut Creek MS, Jennifer Haller, Sponsor
Siya Patel, Which Fruit Generates the Most Electricity?, Region 10, Walnut Creek MS, Jennifer Haller, Sponsor
Krista Partusch, Quorum Sensing Inhibition in Bacteria using Tea Extracts, Region 10, Walnut Creek MS, Jennifer Haller, Sponsor
Aayati Patel, Antioxidant Activity on Different Vitamins, Region 1B, Arcola Int Sch, Sharon Branca, Sponsor
Nikhil Chitluru, Enzyme Catalyst Reactions, Region 3, Springhouse MS, Scott Bauer, Sponsor
Tavleen Rahal, Which Teeth Whitening Toothpaste is the Most Effective?, Region 3, Notre Dame of Bethlehem, Karen Iobst, Sponsor

Unit 216 **Biology 7** **FERGUSON 11**

Drake Burke, Effect of Salinity on Plant Height, Region 9, Butler Area, Veronica Sankey, Sponsor
Vipin Bhat, Is EMG Data Correlated with One Rep Max Strength for Biceps?, Region 7, Pittsburgh Colfax K-8, Douglas Wolfe, Sponsor
Jayla Olson, Which Toothpaste Whitens Teeth Better, Region 7, St Elizabeth, Susan Morgan, Sponsor
Emily Rychel, Effect of Baking Products on Spider Plant Lengths, Region 10, Westlake MS, Andrew Wride, Sponsor
Yara Almoussa, Glucose Concentration's Affect on Physarum Chemotaxis, Region 7, Sci & Tech Acad, Brian Rose, Sponsor
Tobias Broun, Respiration and Temperature Change in Hyla cinerea, Region 3, St Michael the Archangel, Lisa Kline, Sponsor
Emily Lukasewicz, The Affects of Acid Rain on Planaria Regeneration, Region 7, St Louise De Marillac, Dori Lijewski, Sponsor
Francesca Veltri, Dissolving Medicine, Region 7, St Elizabeth, Susan Morgan, Sponsor
Kiley Leary, Does gender affect heart rate during exercise?, Region 3, St Thomas More, Tricia Maskiell, Sponsor
Matthew Longoria, Do Family Members Display Similarities in Fingerprints, Region 10, Seton School, Cathleen Gorman, Sponsor
Audrey Gregori, Are Fingerprints Incompletely Dominant?, Region 9, Freeport Area, Eleanor Savage, Sponsor

Unit 217 **Biology 7** **FERGUSON 103**

Isabelle Johnson, How does age affect the ability to hear sound frequencies?, Region 3, St Thomas More, Tricia Maskiell, Sponsor
Milan DeNicola, Effect of Caffeine on Earthworms, Region 9, Butler CS, Jayne Chobot, Sponsor
Jaelyn Baxter, Do Ants Prefer Sugar or Artificial Sweeteners, Region 3, Trexler MS, Kathryn Murray, Sponsor
Caroline Cunningham, Bioluminescence of the marine dinoflagellate, Region 4, Harrisburg Acad, Lakshmi Shrikantia, Sponsor
Lakshanya Rajaganapathi, Molecular Tomatoes, Region 7, Dorseyville MS, Ginger Wilson, Sponsor
Jayna McIntyre, The Capacity of Lungs, Region 2, St Clare/St Paul, Lisa Owens, Sponsor
Julian Ettinger-Finley, Effect of Energy Drink Additives on Daphnia Magna Heart Rate, Region 3, Springhouse MS, T. Minarovic, Sponsor
Trevor Grice, Measuring Plant Growth in Different Soils, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Brianna McClain, Eye color and PTC tasting ability, Region 3, St Thomas More, Tricia Maskiell, Sponsor
Lauren Beggs, The Citrus Secret, Region 9, Butler Area, Veronica Sankey, Sponsor
Finn Kane, What's That Smell? Determining Natural & Artificial Scents, Region 2, Our Lady of Peace, Dan Banicky, Sponsor

Unit 218**Biology 7****FERGUSON 202**

Stephen Mescan, Effect of Caffeine on Daphnia Heart Rate., Region 7, St Anne Catholic, Nancy Laird, Sponsor
Robert John, Are Fingerprints Inherited?, Region 9, Armstrong JSJS, Cynthia Lindahl, Sponsor
Annalise Ramirez, Temperature's Effect on Bottled Water, Region 9, Wilmington Area, Sandra Earl, Sponsor
Aubrey Siwula, Effect of Acid on Tooth Enamel, Region 8, Madonna Catholic, Jessica Garrett-Willis, Sponsor
Alexander Hood, How fast is your reaction time?, Region 1C, Snyder MS, Kathryn Liese, Sponsor
Victoria Temple, What substance melts ice the fastest?, Region 3, St Michael the Archangel, Lisa Kline, Sponsor
Jack Valuntas, Magnetic Plants, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Dalton Wickel, The Fastest Way to Cool a Soda, Region 3, Notre Dame of Bethlehem, Karen Iobst, Sponsor
Sean McClain, How Clean Is It? Rain Water vs. Creek Water!, Region 3, St Thomas More, Tricia Maskiell, Sponsor
Amelia Perri, How does a four-week exercise program affect heart rate?, Region 7, Blessed Francis Seelos, David Blozowich, Sponsor

Unit 219**Biology 7 & 8****FERGUSON 205**

Dylan Tost, How Much Mercury is in your Fish?, Region 2, Howard Gardner Sch, Michael Rescigno, Sponsor
Shyanne Ly, Does Gender Affect the Ability to see Optical Illusions?, Region 3, St Thomas More, Tricia Maskiell, Sponsor
David Thomas, Effects of energy drinks on Drosophila Melanogaster, Region 7, Holy Cross Acad, Bryan Annis, Sponsor
Maria DeLeon, Capillary Action, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Mary Claire Miller, How Does Ocean Acidification Affect Sea Life?, Region 10, St. Jude School, Jeff Till, Sponsor
Will Collins, Which Drink has the Most Glucose After Invertase is Added?, Region 7, Christ the Divine Teacher, Lindsey Marci, Sponsor
Matthew Vogel, Effect of UV and Infrared Light on Planaria Regeneration, Region 7, St Anne Catholic, Nancy Laird, Sponsor
Noah Planey, Does Vaping Have an Effect on Bladder Cancer Cell Growth?, Region 2, Howard Gardner Sch, Michael Rescigno, Sponsor
Katherine Riley, Comparing Blood Oxygen Levels During Different Activities, Region 9, Holy Sepulcher, Rick Rechenberg, Sponsor
Neel Gupta, "Manarians", Region 6, DuBois Central Catholic, Renee Gressler, Sponsor

Unit 220**Biology 8****FERGUSON 210**

Riva Kaneria, What is Effect of Turmeric on Tumorigenesis in Planaria?, Region 3, Springhouse MS, Susan Stern, Sponsor
Mark Banbury, Killer Sunscreen, Region 7, St Louise De Marillac, Dori Lijewski, Sponsor
Madeline Mumma, Are thumbprint patterns influenced by genetics?, Region 3, Notre Dame of Bethlehem, Karen Iobst, Sponsor
Maci Orbin, Inherited Fingerprint Characteristics, Region 7, Riverview HS, Marion Carson, Sponsor
Andrew Logan, Effect of Cell Phone Radiation on Planaria Regeneration, Region 7, St Anne Catholic, Nancy Laird, Sponsor
Krishiv Gandhi, Types of Bread vs Area of Molding, Region 1C, Shafer MS, Diana Kelly, Sponsor
Rahela Dolha, The Flu Shot: Good or Bad?, Region 1B, Indian Valley MS, Amy Welsh, Sponsor
Anthony Frank, Comparison of Natural Meat Preservatives, Region 7, St Louise De Marillac, Dori Lijewski, Sponsor
Asia Spooner, Acids's Effect on Fat, Region 2, Pocono Mt East HS, Maureen Elswick, Sponsor
Tiffany Gao, Amt of Lemon Juice in Henna vs # of Wsh Cycle to Remve Stain, Region 1C, Shafer MS, Diana Kelly, Sponsor

Unit 221**Biology 8****TYSON 15**

Diamante Daniel, Nature's Nanotechnology to Protect Astronauts, Region 1B, Wissahickon HS, Dr. Bruce Rothenberger, Sponsor
Jacquelyn Fekula, Spotted Lanternfly, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Aaron Mathias, Effect of Honey on Planarian Regeneration, Region 7, St Anne Catholic, Nancy Laird, Sponsor
Prathum Arikeri, Effect of Pharmaceuticals on Plants, Region 4, Good Hope MS, Heather Castle, Sponsor
Louis Scalise, Disinfectant Effectiveness, Region 2, Hazleton AMS, Ryan Wilner, Sponsor
Brooke Rhoads, Phototaxes in Planarians, Region 5, The Children's Museum, Ginny Weibel, Sponsor
Colton Brenneman, Effects of Musicianship on Hand Dexterity, Region 9, Freeport Area, Eleanor Savage, Sponsor
Leslieann Peers, Will bioactive glass cause Interferon Gamma to heal faster?, Region 3, Conrad Weiser MS, Phleane Kissling, Sponsor
Zaid Shaik, Caloric Restriction vs Mortality Rate of Brine Shrimp, Region 1C, Shafer MS, Diana Kelly, Sponsor
Cristian Meregildo, What is Effect of physical activity on heart rate?, Region 10, East MS, Carol Fay Nelson, Sponsor

Unit 222**Biology 8****TYSON 108**

Abigail Meyers, Apple Oxidation: How Can We Prevent It?, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Jason Small, Keeping Your Toothbrush Clean, Region 1B, Sandy Run MS, Gary Hite, Sponsor
Clare Devine, How is the bacteria in my water affecting my overall health?, Region 2, Our Lady of Peace, Dan Banicky, Sponsor
Jason Weller, Effect of Energy Drinks on Planarian Cell Regeneration, Region 4, Hershey MS, Kaitlyn Roberts, Sponsor
Luke Ball, Does caffeine affect the heart rate of Daphnia, Region 7, Blessed Francis Seelos, David Blozowich, Sponsor
Delaney Curley, Huddle & Cuddle, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Luke Brokenshire, Dissolution of Egg Shells, Region 5, St Joseph School, Donna Brown, Sponsor

Madeline Bormes, Does Salt Actually Raise the Boiling Point of Water?, Region 2, Our Lady of Peace, Dan Banicky, Sponsor
Sofia Ferrandez, Generational Cross Breeding Fruit Flies vs # of Winged Flies, Region 1C, Shafer MS, Diana Kelly, Sponsor
Skye Williamson, Can Cooked Beans Grow?, Region 2, Our Lady of Peace, Dan Banicky, Sponsor

Unit 223

Botany 7

TYSON 111

Camryn Munoz, What is the most effective liquid for sprouting seeds?, Region 10, Seton School, Cathleen Gorman, Sponsor
Ronald Weisenstein, Water or Light - Which factor is more important?, Region 10, Seton School, Cathleen Gorman, Sponsor
Colten Vietmeier, Effect of Filtered Light On Plant Growth, Region 9, Butler Area, Veronica Sankey, Sponsor
Mujtaba Jaffer, How Much Water Should Plants Receive?, Region 3, Springhouse MS, Troy Minarovic, Sponsor
Gabriella Gavirati, Which type of grass has the most bioenergy?, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Katie Hines, How do different types of fertilizer affect plant growth, Region 3, St Thomas More, Tricia Maskiell, Sponsor
Natalie Gordon, Effect of caffiene on plants., Region 10, St James, Catherine Kern, Sponsor
Sydney Magda, Avocado Preservation, Region 2, Crestwood SD, Mickey Harper, Sponsor
Abigail Cornish, Salty Wheatgrass, Region 9, Butler Area, Veronica Sankey, Sponsor
Gianna DiCerbo, How does pollution affect the growth of plants?, Region 9, Ellwood City Area, Sean McConahy, Sponsor
Nina Vigilante, Effect of Wood Mulches on the Growth of Bush Bean Plants, Region 7, Mary Queen of Apostles, Cheryl Kestner, Sponsor

Unit 224

Botany 7

WAGNER 101

Philip Pandolph, Do Magnets Affect Plant Growth?, Region 10, Seton School, Cathleen Gorman, Sponsor
Navya Manne, Which Seeds Can Survive Cold Temperatures?, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor
Aastha Patel, Effect of Liquids on Plant Molding, Region 1C, Snyder MS, Kathryn Liese, Sponsor
Mackenzie Hall, How Do Nanoparticles Influence the Growth Of Plants?, Region 2, Greater Nanticoke AHS, Amanda Schraeder, Sponsor
Caroline Kowalczyk, Does Sugar Affect the Growth of a Bean Plant, Region 8, John F Kennedy CS, Rebecca Papson, Sponsor
Antony Tomy, Which type of light makes plants grow tallest?, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Theresa Khoudary, Plant Growth - Alkalinity versus Acidity, Region 2, Good Shepherd Acad, Janice Ambrulavage, Sponsor
Thomas Mawn, Effect of Colored Lights on Plant Growth, Region 10, Seton School, Cathleen Gorman, Sponsor
Khushi Thaker, Help or Hurt?, Region 1B, Indian Valley MS, Amy Welsh, Sponsor
Gabriele Ciullo, Do Plants Grow in the Dark?, Region 2, Old Forge, Nanette Rinaldi, Sponsor
Ruby Glass, What level of pH best benefits plants?, Region 10, Walnut Creek MS, Jennifer Haller, Sponsor

Unit 225

Botany 7

WAGNER 105

Alexandra Ost, Soils & Starch:Effect of Soil Type on Starch Level of Leaves, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Molly Driscoll, How do different liquids affect lettuce plant growth?, Region 3, St Thomas More, Tricia Maskiell, Sponsor
Emma Shashura, Feeding Flowers, Region 8, Bethlehem Center SD, Carol Shashura, Sponsor
Rocco Rinaldi, Effect of Different Liquids on Plant Growth, Region 2, St Clare/St Paul, Lisa Owens, Sponsor
Gabriella Cincinnati, Does Temperature Effect Seed Germination?, Region 8, John F Kennedy CS, Rebecca Papson, Sponsor
Tyler Janick, Save the Berries! (Aloe Juice and Mold Prevention), Region 3, St Michael the Archangel, Lisa Kline, Sponsor
Madi Seed, Which Substance Will Increase Cut Flower Viability?, Region 3, St Thomas More, Tricia Maskiell, Sponsor
Journey Lewonas, Plant growth of natural and prepackaged seeds, Region 10, Woodrow Wilson MS, Beth Crider, Sponsor
Kyle Lockhead, Dread the Lead, Region 1B, Indian Valley MS, Amy Welsh, Sponsor
Lucy Fassler, Does The Ph level of water affect plant growth?, Region 1B, Murray Ave Sch, Denise Meyers, Sponsor
Hayleigh Gorog, Which Water?, Region 9, Butler Area, Veronica Sankey, Sponsor

Unit 226

Botany 7 & 8

WAGNER 115

Brooke Santana, Epsom Salts Enhancement on the Wisconsin Fast Plant, Region 2, South Scranton IS, Katona Miller, Sponsor
Keira Metzger, What effect will saltwater have on sunflowers?, Region 3, Notre Dame of Bethlehem, Karen Iobst, Sponsor
Michael Todd, Effect of Salt on Plants, Region 7, St Anne Catholic, Nancy Laird, Sponsor
Alaina Fabin, O, Christmas Tree, Please Stay Alive For Me!, Region 9, Homer-Center HS, Christine Yurky, Sponsor
Hanae Takahashi, Ready, Set, Grow!, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Hannah Miskovich, Tea, Does It Do A Plant Good?, Region 3, Notre Dame of Bethlehem, Karen Iobst, Sponsor
Adriana Sandy, Plant Hidrosis, Region 2, North Pocono MS, Larry Dombek, Sponsor
Madison Thai, Wavelength of Light vs Growth Rate of Dwarf Sunflowers, Region 1C, Shafer MS, Diana Kelly, Sponsor
Meghan Edinger, Effect of Sound Waves on Plants, Region 3, Trexler MS, Kathryn Murray, Sponsor
Morgan Phillips, Effect of Green Tea and Deionized Water on Rye Grass, Region 7, Mary Queen of Apostles, Cheryl Kestner, Sponsor
Lanell Edwards, Do Plants Grow Better In Black Light Or White Light?, Region 9, New Castle, Leah Ann Williams, Sponsor

Unit 227**Botany 8****WAGNER 201**

Abigail Walker, Does the pH of Water Affect the Growth Rate of Green Beans?, Region 10, Parker MS, Rachel Barczyk, Sponsor
Nathan Fickert, Hydroponic Lettuce, Region 1B, Indian Crest MS, Jennifer Odenwald, Sponsor
Sameeksha Panda, Plant Moisture Sensor vs Daily Watering Technique, Region 1B, Arcola Int Sch, Sharon Branca, Sponsor
Lauren Wakefield, Organic vs Non Organic Produce, Region 2, Hazleton AMS, Ryan Wilner, Sponsor
Alaina Suhar, Soil Chemical vs Organic, Region 9, Kennedy Catholic, Gretchen Witkowski, Sponsor
Shivam Patel, Type of Soil vs Mass of Radish, Region 1C, Shafer MS, Diana Kelly, Sponsor
Amira Johnson, Does Coffee Really Stunt Growth?, Region 9, New Castle, Leah Ann Williams, Sponsor
Hazel Polesiak, Analyzing Changes in Leaf Pigmentation, Region 7, Riverview HS, Marion Carson, Sponsor
Holly Shreve, Effects of Acid Rain on Rye Grass, Region 10, Parker MS, Rachel Barczyk, Sponsor
Andria Fierros, Effect of Music on Plants, Region 9, New Castle, Leah Ann Williams, Sponsor

Unit 228**Botany 8****WAGNER 214**

Abigail Wystepek, Dandelion Detective, Region 8, Lafayette MS, Rob Schiffbauer, Sponsor
Ashlee Kitzhoffer, Effect of Aquaponics to Hydroponics on Lettuce Growth, Region 3, Northampton Area MS, Amie Marks, Sponsor
Finnbarr Whittaker, Effect of Heavy Metals on Lentic Plant Life, Region 2, Howard Gardner Sch, Michael Rescigno, Sponsor
Madeline Ashton, Effect of the pH of Water on Grass Seed Germination, Region 2, Valley MS, Jon Weaver, Sponsor
Ayush Patel, Effect of salt water on plant growth, Region 1C, Snyder MS, Kathryn Liese, Sponsor
Maykyla MacBlain, Does the presence of detergent in water affect plant growth?, Region 2, Greater Nanticoke AHS, A. Schraeder, Sponsor
Faith Clayton, Which Aquatic Plant will Neutralize the pH the best?, Region 9, Kennedy Catholic, Gretchen Witkowski, Sponsor
Katie Brady-Bishop, How Leaf Pigments Flow, Region 8, Madonna Catholic, Jessica Garrett-Willis, Sponsor
Alaina Peltonen, Does Colored Light Affect Plant Growth?, Region 9, Kennedy Catholic, Gretchen Witkowski, Sponsor
Adriana Simmons, What is Effect of Caffeine on Plant Growth, Region 3, Notre Dame of Bethlehem, Karen Iobst, Sponsor

Unit 229**Botany 8****WAGNER 303**

Miles Roberts, Cloning Cabbages, Region 2, North Pocono MS, Larry Dombek, Sponsor
Melody Velez Rios, Can You Propagate Plants Without Using Seeds?, Region 2, West Hazleton Elem MS, Becky Rutkowski, Sponsor
Sathvika Rajkumar, Don't Belittle the Microbead, Region 3, Springhouse MS, Susan Stern, Sponsor
Matthew Reitz, What preserves flowers best?, Region 10, St Luke, Rachel Burbules, Sponsor
Hannah Figurski, Effect of Vitamins on Plant Growth, Region 10, Our Lady of Peace, Maria Ehrman, Sponsor
Rosemary John, Soil pH vs. Plant Growth, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor
Meera Kumar, How Natural vs. Synthetic Fertilizers Affect Plants' Growth, Region 7, Quaker Valley MS, Margot Bruno, Sponsor
Lyndzie Springer, Battle of the Heights, Region 9, Sharpsville Area, Erin Labbiento, Sponsor
Mark Collins, How Fish Waste Affects Plant Growth, Region 9, Butler Area, Veronica Sankey, Sponsor
Augusta Kosco, Does pH affect plant growth?, Region 10, Seton School, Cathleen Gorman, Sponsor

Unit 230**Chemistry 7****WAGNER 304**

Sarah Scheidel, Which Laundry Detergent Removes Stains the Best?, Region 3, St Michael the Archangel, Lisa Kline, Sponsor
Madeleine Nichelson, How expandable graphite affects the flammability of paint., Region 3, Notre Dame of Bethlehem, Karen Iobst, Sponsor
Layla MoDavis, Paper Towel Absorbancy, Region 3, St Michael the Archangel, Lisa Kline, Sponsor
Anthony Florian, Does The Cost Affect The Durability of Paint?, Region 7, Mary Queen of Apostles, Cheryl Kestner, Sponsor
Matthew Price, Which battery brand lasts the longest?, Region 7, Blessed Francis Seelos, David Blozowich, Sponsor
Isabella Jobes, Does Flour Affect the Height of a Cupcake, Region 8, John F Kennedy CS, Rebecca Papson, Sponsor
Liam Merolla, What helps ice melt?, Region 1C, St Isidore School, Christine Oconnor, Sponsor
Gareth Graham, Does Chlorine or Salt affect the Buoyancy of an Egg, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Julia McConahy, Calculating Crystals, Region 9, Sharpsville Area, Nanci Dickson, Sponsor
Natalie Hunsinger, The Great Grape Decay, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Roberto Vidal, Is your smoke detector radioactive?, Region 1B, Wyndcroft US, David Johnson, Sponsor
Emma Roiz, How Strong Is It?, Region 10, St Luke, Rachel Burbules, Sponsor

Unit 231**Chemistry 7****WAGNER 305**

Kyle Kocon, Sponge Plunge, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Yechan Cho, Effects of pH on the Temperatures of Liquids and Solutions, Region 3, Springhouse MS, Jennifer Karetsky, Sponsor
Gabriella Madeira, Which Drink Contains the Most Electrolytes?, Region 3, Notre Dame of Bethlehem, Karen Iobst, Sponsor
Om Desai, Effect of Salt on the Freezing Point of Water, Region 3, Springhouse MS, Jennifer Karetsky, Sponsor

Molly Brady-Bishop, Potato Chip Bag Insulation, Region 8, Madonna Catholic, Jessica Garrett-Willis, Sponsor
Lillian Kovach, What type of nail polish lasts the longest?, Region 3, St Joseph the Worker, Kristi Tripoli, Sponsor
Lainey Conway, Saucy Sugar Content, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Aidan Friel, Does caffeine affect a beverages ability to stain teeth?, Region 3, St Thomas More, Tricia Maskiell, Sponsor
Gunjan Patel, What Gives Me More Energy?, Region 1C, Snyder MS, Kathryn Liese, Sponsor
Ericka Grandy, Popping Pop Rocks, Region 9, Sharpsville Area, Nanci Dickson, Sponsor
Anand Karamcheti, It's Electric, Region 8, John F Kennedy CS, Rebecca Papson, Sponsor
Maya Eid, Which SPF Will Block the Most UV Radiation?, Region 7, Providence Heights Alpha, Linda Cessar, Sponsor

Unit 232

Chemistry 7

WAGNER 316

Lauren Wiesen, Which Temperature Grows the Largest Crystals?, Region 10, Blessed Sacrament, Maricarol Schoenfeldt, Sponsor
Lauren Ervin, Which liquid keeps apples from browning the most?, Region 3, Springhouse MS, Troy Minarovic, Sponsor
Avery Chepolis, Cease the Grease, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
George Sabatini, Got Fizz?, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Zara Mansoor, Effect of Stain Removers on Grape Juice Stains, Region 3, The Swain Sch, Debbie Lindsay, Sponsor
Carly Glaser, Light it Up!, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Treyvon Shaffer, What type of water is best for humans to drink?, Region 3, St Thomas More, Tricia Maskiell, Sponsor
Chudar Pichaiyan, Which type of candle wax burns the fastest, Region 1C, Newtown MS, Mary Joy Troxel, Sponsor
Cameron Minnick, A Cool Way to Make Electricity!, Region 8, John F Kennedy CS, Rebecca Papson, Sponsor
Emma Kennedy, Don't Slip!, Region 9, Riverside MS, Jeff Gonzales, Sponsor
Isabel Owens, Local Water Testing, Region 10, Fairview MS, Rebecca Andrews, Sponsor
Riya Verma, Water Purification Using Adsorption, Region 3, Springhouse MS, Noel Mahmood, Sponsor

Unit 233

Chemistry 7

WAGNER 317

Anthonett Cuellar-Suarez, How Does Temperature Affect the Viscosity of Oobleck?, Region 3, Harrison-Morton MS, Kelly Caflin, Sponsor
Chloe DiFranco, Candy Chromatography, Region 10, St George, Lisa Fuss, Sponsor
Clancey Benfer, Alka-Seltzer Dissolve Time Depending on Water Temperature, Region 1B, Murray Ave Sch, Denise Meyers, Sponsor
Jayce Braggins, Will the Ice Last?, Region 10, Woodrow Wilson MS, Beth Crider, Sponsor
Sophia Signoriello, Blue Garlic, Region 9, St Gregory, Matthew Dunker, Sponsor
Addison Geibel, The Popcorn Test, Region 9, Butler Area, Veronica Sankey, Sponsor
Gayath Karunararatne, Could Sugar Conceal Vitamin C Content in Oranges?, Region 6, Westmont JSJS, Malika Karunararatne, Sponsor
Sophia Hu, Do Mints Truly Give Your Mouth A "Cooling" Sensation?, Region 1B, Murray Ave Sch, Denise Meyers, Sponsor
Ethan Brenner, Viscosity of Liquids, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Ashly Meeker, Which Substance Melts an Ice cube the Fastest, Region 10, J S Wilson MS, Katie Giles, Sponsor
Molly Grove, Vitamin C Truths, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor

Unit 234

Chemistry 7

WAGNER 320

Aayushi Patel, Effect of Liquids on Steel Wool Rusting, Region 1C, Snyder MS, Kathryn Liese, Sponsor
Samantha Baumgratz, What Fruit is the Best Conductor of Electricity?, Region 10, St James, Catherine Kern, Sponsor
Katherine White, Which Fruits Rot the Fastest, and Why?, Region 9, Butler Area, Veronica Sankey, Sponsor
Paige Belton, What Laundry Detergent is Most Effective On Stains, Region 10, Walnut Creek MS, Jennifer Haller, Sponsor
Carson Bish, Mentos with Different Sodas, Region 9, Butler Area, Veronica Sankey, Sponsor
Prerna Khire, Can I Change The Rate Of A Chemical Reaction?, Region 10, Walnut Creek MS, Jennifer Haller, Sponsor
Erin Durso, How much gluten is in flour?, Region 3, St Ann Sch - Emmaus, Taylor Grapsy, Sponsor
Olivia Caminiti, Which Detergent is Best for Removing Dirt from Pointe Shoes, Region 9, St Vitus, Marguerite Wills, Sponsor
Tristyn Righi, Plop Plop, Fizz Fizz, Region 10, St George, Lisa Fuss, Sponsor
Alexandra King, What is the most effective way to whiten your teeth?, Region 2, South Scranton IS, Katona Miller, Sponsor
Nora Kolucki, Dry Ice Ice Baby, Region 2, Our Lady of Peace, Dan Banicky, Sponsor

Unit 235

Chemistry 7

BOUCKE 306

Donato Strish, Flaming Fabrics, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Julia Axler, Rain Acidity in the Philadelphia Metropolitan Area, Region 1B, Sandy Run MS, Jeanie Kellock, Sponsor
Mallory Becker, The Coke Effect, Region 10, Walnut Creek MS, Jennifer Haller, Sponsor
Elizabeth Baum, What Temperature Does A Bath Bomb Dissolve Fastest?, Region 9, St Vitus, Marguerite Wills, Sponsor
Leah Kanter, The Height and Weight of Cupcakes Based on Types of Sugar, Region 3, Springhouse MS, Jennifer Karetsky, Sponsor

Emily Davis, Tye Dyeing Different Materials, Region 3, Springhouse MS, Jennifer Karetsky, Sponsor
Smrithi Ramanathan, pHinding pH opH pHluids!, Region 1C, Pennsbury HS, Jamie Swanson, Sponsor
Francesca Basalyga, Exuberant Electrolytes, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Margaret Mary Ganter, Sweet Substitutes, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Joseph Althof, Which drink is best at replenishing electrolytes?, Region 10, St James, Catherine Kern, Sponsor
Bryce Hucaluk, What sealant has the strongest adhesion to aluminum, Region 3, Springhouse MS, Noel Mahmood, Sponsor

Unit 236

Chemistry 7

BOUCKE 307

Ariana Herrmann, What Made the Ice Disappear, Region 9, Sharpsville Area, Nanci Dickson, Sponsor
Jenna Medvetz, Germ Be Gone!, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Felix Yang, The Viability of Various Acids as Battery Electrolytes, Region 7, Jefferson MS, Edward Petsko, Sponsor
Andrew Sachse, What house hold items are best for removing stains?, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Lily Nagle, Which Whitener Works Best, Region 5, St Joseph School, Donna Brown, Sponsor
Alexandra Hargreaves, The More You Glow, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Vanessa Stauffer, Will The Type of Butter Affect a Cookie's Width?, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Tristan Monahan, Cookie Quality Based on Butter and Substitutes, Region 3, Salisbury MS, Michelle DeOliveira, Sponsor
Annabel Hathaway, False Positives and the Kastle-Meyer Test, Region 4, Harrisburg Acad, Lakshmi Shrikantia, Sponsor
Jack Novelli, Surprising Skittles, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Alyssa Kehl, What toothpaste works the best?, Region 10, St James, Catherine Kern, Sponsor

Unit 237

Chemistry 7

BOUCKE 308

Ahyaan Sayed, The Battery Battle, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Clare DiGiacomo, Does Surface Area Affect Reaction Time of Antiacids?, Region 10, Seton School, Cathleen Gorman, Sponsor
Joanna Chou, Does mint cool things down or is it just a sensation?, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Gloria Baez, How Permanent Are Permanent Markers?, Region 3, Trexler MS, Kathryn Murray, Sponsor
Keegan Kosek, The Absorbency of Diapers, Region 8, John F Kennedy CS, Rebecca Papson, Sponsor
Gianna Rachiele, Finding Amounts of Lead in Local Soil, Region 3, St Michael the Archangel, Lisa Kline, Sponsor
Mia Aley, Dissolving Candies, Region 9, Sharpsville Area, Nanci Dickson, Sponsor
Elizabeth Sheesley, Bubbleology; Which Solution Produces Longest Lasting Bubbles, Region 5, Mifflinburg AHS, Shawn Welch, Sponsor
Jake Dubow, How does color affect heating by the absorption of light?, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Megan Matsko, Graffiti Removal, Region 3, St John Neumann RS, Donna McLaughlin, Sponsor
Nayila Harris, Lip Balm Lab, Region 10, Woodrow Wilson MS, Beth Crider, Sponsor

Unit 238

Chemistry 7

BOUCKE 309

Katie Smith, Cleaning Jeans, Region 9, Butler Area, Veronica Sankey, Sponsor
Maggie Bolla, The Science of Baking, Region 10, Fairview MS, Rebecca Andrews, Sponsor
Addison Burick, As Tough As Nails, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Katriel Fretti, Cupcake Galore, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Sophia Petrocelli, Do different flours affect how high a cake rises when baked?, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Aaron Jones, Solutes and Boiling Points, Region 1B, Indian Valley MS, Amy Welsh, Sponsor
Ben Sutton, The Fastest Path to Relief, Region 9, St Gregory, Matthew Dunker, Sponsor
Kaymarie Matos, How does the color of soda effect staining of teeth?, Region 3, Trexler MS, Kathryn Murray, Sponsor
Atong Madok, Soap and Feathers, Region 3, Francis D. Raub MS, Kathy Resnick, Sponsor
Alyssa Kaliney, The Science Behind Popping Popcorn, Region 9, Sharpsville Area, Nanci Dickson, Sponsor
Parth Parikh, How to Melt Ice Most Effectively using Household Materials, Region 10, Walnut Creek MS, Jennifer Haller, Sponsor

Unit 239

Chemistry 7

BOUCKE 311

Jesse Johnson, Which flavor of yogurt lasts the longest?, Region 10, North East MS, Ian Williams, Sponsor
Jacob Ohrin, Electrolytes in Gatorade and other Drinks, Region 2, St Nicholas St. Mary, Diane Bojarcik, Sponsor
Madison Bachrach, What type of liquid cleans the dirt off the coins the best, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Logan Hartman, Which Liquid Dissolves Ibuprofen the Fastest, Region 3, St Ann Sch - Emmaus, Taylor Grapsy, Sponsor
Eimi Gonzalez, What Melts Ice Faster? Sand, Cat Litter or Salt, Region 3, Trexler MS, Kathryn Murray, Sponsor
Kaden Ayre, Material Matrix, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Samantha Greenfield, Fluoride Levels in Children's Beverages, Region 2, All Saints Acad, Sarah Hallock, Sponsor
Leah Gehris, Which brand of moisturizer is most effective on dry skin?, Region 3, St Thomas More, Tricia Maskiell, Sponsor
Olivia Bilbow, How Much Gas Can Soda Pass, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor

Xander De Selm, The case of The Disappearing Ink, Region 3, Orefield MS, Brian Holtzhafer, Sponsor

Rheva Wolf, What Takes The Cake? : Egg Substitutes Affect on Cakes, Region 1B, Cedarbrook MS, Beth Kenna, Sponsor

Unit 240

Chemistry 7

BOUCKE 312

Hillary Inga, Will Different Juices Result the Test to turn Positive?, Region 3, Harrison-Morton MS, Kelly Caflin, Sponsor

Amy Gonzalez, How Does Water Affect the Brightness of a Glowstick?, Region 3, Francis D. Raub MS, Kathy Resnick, Sponsor

Rahul Jasapara, Does the Ability to Absorb Oil Vary for Different Materials, Region 3, Springhouse MS, Troy Minarovic, Sponsor

Eshaan Patel, Compare the effectiveness of chemical and natural cleaners, Region 3, Springhouse MS, Jennifer Karetsky, Sponsor

Nicholas Bell, Dehydrating Fruit, Region 9, Sharpsville Area, Nanci Dickson, Sponsor

Sydney Korbanic, Which Stain Remover Works the Best?, Region 7, St Joseph - Verona, Mary Chirdon, Sponsor

Jocelyn Vinciguerra, Calculating Calories, Region 2, South Scranton IS, Katona Miller, Sponsor

Ainara Matute, Magic Salt, Melting Snow, Region 2, NativityMiguel Sch, Shelby Kresge, Sponsor

Minerva Coreia, Corrosion of Metals, Region 2, North Pocono MS, Larry Dombek, Sponsor

Gavin Walsh, Effect of Acid Rain on Seeds and Plants, Region 2, Our Lady of Peace, Dan Banicky, Sponsor

Chase Voytko, What makes ice melt fastest?, Region 1C, St Isidore School, Christine Oconnor, Sponsor

Unit 241

Chemistry 7 & 8

OSMOND 106

Hunter Swidzinski, Alka-Seltzer Dissolving in Water, Region 9, Butler Area, Veronica Sankey, Sponsor

Lauren Lokuta, Stain Be Gone!, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor

Kaitlyn Kulka, How to make pH paper, Region 1C, St Isidore School, Christine Oconnor, Sponsor

Benjamin Mathew, How Does Temperature Alter Solubility of Substances in Water, Region 3, Springhouse MS, Jennifer Karetsky, Sponsor

Kendall Klapsinos, Does Acidity Affect the Reaction of Solvents and Mentos?, Region 10, J S Wilson MS, Katie Giles, Sponsor

Jaydalise Cordova, How Does The Amount of Iodine Affect The Speed of Reaction?, Region 3, Harrison-Morton MS, Kelly Caflin, Sponsor

Cecilia Tran, What is the Acidity of the Water in the Lehigh Valley?, Region 3, St Joseph the Worker, Kristi Tripoli, Sponsor

Kaylee Whiteford, What Liquid Freezes The Fastest, Region 2, North Pocono MS, Larry Dombek, Sponsor

Sooraj Tharumia, Effect of Solutes on Dissociation Abilities in Liquid Water, Region 3, Springhouse MS, Noel Mahmood, Sponsor

Eleanor Rodowicz, How do different flour types affect the density of muffins?, Region 3, St Joseph the Worker, Kristi Tripoli, Sponsor

Shreya Rupareliya, Vitamin C Power, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor

Unit 242

Chemistry 8

OSMOND 109

Ashwin Thomas, Effect of Temperature on the Ripening of Bananas, Region 1B, Murray Ave Sch, Denise Meyers, Sponsor

Evan Lan, Which type of acid corrodes a piece of copper the fastest?, Region 3, Springhouse MS, Susan Stern, Sponsor

Enzo Aliberti, Which Ice Melter Melts Ice the Fastest?, Region 7, St Joseph - Verona, Mary Chirdon, Sponsor

Theodore Novak, Can Water Float on Water?, Region 2, Our Lady of Peace, Dan Banicky, Sponsor

Eman Raza, What liquid best promotes crystal growth?, Region 1C, Snyder MS, Kathryn Liese, Sponsor

Paige Onder, Ice Melt Effectiveness, Region 2, Hazleton AMS, Ryan Wilner, Sponsor

Margaret Gowin, Testing the solubility of table salt in different liquids., Region 1C, St Isidore School, Christine Oconnor, Sponsor

Jillian McGeehin, What Whitening Toothpaste Works the Best on Coffee Stains?, Region 2, MMI Preparatory MS, Sophia Cox, Sponsor

Maura Schorr, Keeping Baby Dry, Region 7, St. Gabriel Osv, Cindy Phillifent, Sponsor

Alexis Stefanowicz, Fluoride vs. Fizzies, Region 1B, Indian Crest MS, Jennifer Odenwald, Sponsor

Clare Rajapakse, Dissolution Efficiency of Pain Medications, Region 1B, Cedarbrook MS, Beth Kenna, Sponsor

Unit 243

Chemistry 8

OSMOND 112

Krishna Sharma, Which fruit has the most Vitamin C?, Region 3, Springhouse MS, Susan Stern, Sponsor

Mia Lowry, Beet the Ice!, Region 7, Providence Heights Alpha, Linda Cessar, Sponsor

Charles Hickenboth, Determination of Heat Capacity of Common Waste Products For, Region 9, St John Paul II, Robert Kish, Sponsor

Maya DePolo, The Power of Flour, Region 1B, Indian Crest MS, Jennifer Odenwald, Sponsor

Breanna Birkbichler, Baking Soda and Cookies, Region 9, Butler Area, Veronica Sankey, Sponsor

Raymond Joseph, Rock Salt V.S. Cheap Alternatives, Region 2, Crestwood SD, Mickey Harper, Sponsor

Jaden Jones, Water Purification Methods vs. Water Hardness, Region 1C, Shafer MS, Diana Kelly, Sponsor

Brooke Lapinski, pH vs Evaporation Rate, Region 2, Crestwood SD, Mickey Harper, Sponsor

Nicholas Rodgers, Effect of G Fuel on Heart Rate and Blood Pressure, Region 9, New Castle, Leah Ann Williams, Sponsor

Gia Gupta, Corrosion of Metal, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor

Nicole Reasbeck, Melting Time of Ice Cream, Region 8, John F Kennedy CS, Rebecca Papson, Sponsor

Unit 244**Chemistry 8****OSMOND 113**

Grace Coyle, Which Salt is the Best for Freezing?, Region 8, John F Kennedy CS, Rebecca Papson, Sponsor

Michael Revell, Particles Decay in a Cloud Chamber, Region 1C, Snyder MS, Kathryn Liese, Sponsor

Yan Yu, Can Household Products Degrade Plastic?, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor

Karolyn Brito, How Caloric is your Food?, Region 2, Maple Manor MS, Janet Shebelock, Sponsor

Breanna Micciche, What is the Reaction Height if You Put Mentos in Soda, Region 1C, Newtown MS, Dave Curry, Sponsor

Jeannie Rafferty, To Wash Or Not To Wash?, Region 2, South Scranton IS, Katona Miller, Sponsor

Adrija Rambhatla, The Diffusion of Discoloration through Divergent Detergents, Region 4, Good Hope MS, Heather Castle, Sponsor

Benjamin Bauman, Salt Bridge Over Electrified Waters, Region 3, Orefield MS, Brian Holtzhafer, Sponsor

Edward Barber, Water Softener vs Water Hardness (Calcium and Magnesium), Region 1C, Shafer MS, Diana Kelly, Sponsor

Nikola Cao, How does the electric power affect the rate of electrolysis?, Region 3, Springhouse MS, Daniel Christman, Sponsor

Rachel Stahley, Construction Screws vs. Acid Rain, Region 3, Orefield MS, Brian Holtzhafer, Sponsor

Unit 245**Chemistry 8****OSMOND 116**

Madeline Nguyen, Tea Time, Region 2, St Nicholas St. Mary, Diane Bojarcik, Sponsor

Isabella Ritenour, Let it Glow!, Region 9, Sharpsville Area, Erin Labbiento, Sponsor

Kathryn Hutchinson, Do different types of liquid affect ice melting?, Region 10, Our Lady of Peace, Maria Ehrman, Sponsor

Ronith Soman, Alka-Seltzer Dissolves!, Region 3, Springhouse MS, Scott Bauer, Sponsor

Katie Say, Is A Higher SPF More Effective?, Region 10, Seton School, Cathleen Gorman, Sponsor

Katelyn Bozinko, Super Shampoo, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor

Jordan Lamb, Effect of Starting Temperature On Supercooled Solutions, Region 2, Greater Nanticoke AHS, Amanda Schraeder, Sponsor

Bahjat Hanna, Effect of Different Drinks on Teeth, Region 3, Harrison-Morton MS, Jessica Donahue, Sponsor

Nicholas Kremski, Pain to the Stain, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor

Maisy Gibson, Pictures From the Past, Region 9, Butler Area, Veronica Sankey, Sponsor

Lucas Bradley, Different Liquids and Evaporation Speeds, Region 9, New Castle, Leah Ann Williams, Sponsor

Unit 246**Chemistry 8****THOMAS 101**

Eric Zhang, Effect of Evaporation Speed on the Size/Shape of Crystal, Region 3, Springhouse MS, Scott Bauer, Sponsor

Jessica Rinaldi, Acidic Content in Candy, Region 2, Pocono Mt East HS, Maureen Elswick, Sponsor

Darcy Leight, Sugar Substitutes: How Do They Affect the pH of Beverages?, Region 3, Jim Thorpe ASD, Nathan Donahue, Sponsor

Lauren Wall, Candles for Chemistry, Region 2, Mid Valley SC, Sue Piorkowski, Sponsor

Veronica Gorka, Juicy Details, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor

Kaitlin Diaz, Which Household Chemical Dissolves Styrofoam the Fastest?, Region 3, Springhouse MS, Susan Stern, Sponsor

Sara Hickman, Sweet and Salty Freezing Point, Region 9, South Side MS, Michael Stewart, Sponsor

Ben Barish, Testing Acidic Levels On Metallic Substances, Region 10, J S Wilson MS, Katie Giles, Sponsor

Vanessa Ferriolo, White to Bright: Chemical Reaction Rates in UV Beads, Region 3, Harrison-Morton MS, Jessica Donahue, Sponsor

Brady Meyer, Does the storage temperature of OJ affect it's acidity?, Region 10, St James, Catherine Kern, Sponsor

Daniella Erlanger, What is the most absorbent paper towel brand?, Region 2, Pocono Mt East HS, Maureen Elswick, Sponsor

Unit 247**Chemistry 8****OSMOND 202**

Cameron Hanratty, What Paper Towel Brand Absorbs The Most Water?, Region 9, Butler Area, Veronica Sankey, Sponsor

Sadie Reese, Vitamin C Content of Various Forms of Fruit Juice, Region 3, The Swain Sch, Debbie Lindsay, Sponsor

Annabelle Aldridge, Melting Ice in Sugar and Salt Experiment, Region 10, Woodrow Wilson MS, Beth Crider, Sponsor

Hillary Hoda, What To Do WithThat Shampoo?, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor

Samuel Brady, Which metal corrodes the fastest?, Region 10, St James, Catherine Kern, Sponsor

Alex Iannone, pH and pollution, Region 2, North Pocono MS, Larry Dombek, Sponsor

Mya Davis, Which Candle Burns Faster?, Region 3, Harrison-Morton MS, Jessica Parker, Sponsor

Kaitlyn MacMillan, Food Wrapping vs Spoilage Time, Region 1C, Shafer MS, Diana Kelly, Sponsor

Madison Smith, Fruit: How Sweet It Is, Region 4, St. Theresa School, Michelle Banks, Sponsor

Jaclynn Donovan, Shampoo Damage, Region 10, St Luke, Rachel Burbules, Sponsor

Matthew Parsi, Are Paint Primers for Metal Worth Your Money?, Region 7, Mary Queen of Apostles, Cheryl Kestner, Sponsor

Unit 248**Chemistry 8****WARTIK 106**

Braden Mitchell, How Fabric Softener Affects the Combustibility of Clothes, Region 9, Butler Area, Veronica Sankey, Sponsor

Amy Gorscak, Flammability of Baby Clothes in Different Laundry Detergents, Region 7, St Anne Catholic, Nancy Laird, Sponsor

Cecilia Grace Burchill, Counting Crochet, Region 7, Aquinas Academy, Dorina Manolache, Sponsor
Jadeyn Tesche, How acid rain affects different metals, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Chase Kusko, Comparing electrolyte levels of popular sports drinks, Region 3, Springhouse MS, Scott Bauer, Sponsor
Hunter Rock, Which Drink has the Greatest Conductance?, Region 9, Ellwood City Area, Sean McConahy, Sponsor
Jillian DelBalso, Nails- The Breakfast of Champions, Region 2, Good Shepherd Acad, Janice Ambrulavage, Sponsor
Ella Oswald, Do Brands of Orange Juice Contain the Same Amount of Vitamin, Region 2, Valley MS, Jon Weaver, Sponsor
Nahisha Pokhrel, Does the Particle Size Change the Reaction Speed?, Region 2, NativityMiguel Sch, Shelby Kresge, Sponsor
Lily Hillard, What Brand of Paper Towel Absorbs Water the Best?, Region 9, Butler Area, Veronica Sankey, Sponsor
DaJaun Young, Which Salt Makes the Best Crystals?, Region 9, Kennedy Catholic, Gretchen Witkowski, Sponsor

Unit 249

Chemistry 8

WARTIK 107

Alina Stiger, Water Contaminants, Region 7, Christ the Divine Teacher Acad, Lindsey Marci, Sponsor
Annie Wang, Pollutant + Tap Water = What pH?, Region 7, Aquinas Academy, Ellen Kaffenes, Sponsor
Julianne Hahn, Which Whitening Toothpaste is Most Effective?, Region 3, St Joseph the Worker, Kristi Tripoli, Sponsor
Elijah Chacko, How Much Energy is Stored in Different Types of Food?, Region 1B, Murray Ave Sch, Denise Meyers, Sponsor
Bethany Galla, Paraffin & Beeswax Candles, Region 10, Woodrow Wilson MS, Beth Crider, Sponsor
Anjali Shankar, Effect of Anticoagulants on Coagulation of Blood: Simulation, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor
Lucas Lee, Effect of temperature on Vitamin C content of Orange Juice, Region 3, Springhouse MS, Daniel Christman, Sponsor
Caden Sparich, Temperatures of Soda, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Katie Snyder, Testing the Chirality of Enantiomers, Region 7, Providence Heights Alpha, Linda Cessar, Sponsor
Jessie Jin, Which Electrolyte Produces the Most Oxygen?, Region 1C, Newtown MS, Dave Curry, Sponsor
Emery Carangio, How Baking Soda Affects Cake, Region 7, Riverview HS, Marion Carson, Sponsor

Unit 250

Chemistry 8

HUCK LIFE SCI 5

Gavin Danner, Durometer Drop, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Caitlin Dushanko, Which Antacid is Most Effective in Reducing Heartburn?, Region 2, Crestwood SD, Mickey Harper, Sponsor
Gemma Alberti, The Balm, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Daud Tariq, Metal Resistance to HCl, Region 3, Springhouse MS, Susan Stern, Sponsor
Bipasha Moktan, Does the Color of the Candle Affect Burning Time?, Region 1B, Arcola Int Sch, Sharon Branca, Sponsor
Hannah Krug, Medicine Dissolving Process, Region 6, Cambria Hts. MS, Christina Fetsko, Sponsor
Sydney Troup, The wait for Chilly Relief, Region 8, Ben Franklin, Gary Pillar, Sponsor
Morgyn Paul, Eggs In Different Substances, Region 9, Butler Area, Veronica Sankey, Sponsor
Lauren Dachowski, How Much Fat is in Your Snack?, Region 1B, Ancillae-Assumpta Acad, Kathy Grim, Sponsor
Helen Katyal, Cleaning Wastewater Using Food Scraps, Region 7, Providence Heights Alpha, Linda Cessar, Sponsor
Mia Pisano, Does 10.72 C or 50 C cause a more intense luminol glow?, Region 9, St Vitus, Marguerite Wills, Sponsor

Unit 251

Chemistry 8

HUCK LIFE SCI 10

Samantha Snyder, Stain Removers, Region 2, North Pocono MS, Larry Dombek, Sponsor
Ashley Bueso, Best Balm: Measuring Moisture Content in Lip Balms, Region 2, Maple Manor MS, Janet Shebelock, Sponsor
Chasie Fry, The Rise and Fall of a Cupcake, Region 9, Sharpsville Area, Erin Labbiento, Sponsor
Rebecca Kendema, Less Is More: Effect of Rock Salt on Melt Rate, Region 10, East MS, Carol Fay Nelson, Sponsor
Rhyan Deal, Different Bubble Gum Sizes, Region 9, Butler Area, Veronica Sankey, Sponsor
Sarah Kideckel, Is a More Expensive Brand of Paper Towels More Absorbent?, Region 1B, Murray Ave Sch, Denise Meyers, Sponsor
Cassandra Lee, Which material best insulates, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Molly Jameson, Lotion Commotion, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Jayden Hawkins, Which Lip Balm Is Best For Keeping Your Lips Moisturized?, Region 9, New Castle, Leah Ann Williams, Sponsor
Olivia Culp, Baking: Difference between baking soda and baking powder, Region 9, Butler Area, Veronica Sankey, Sponsor
Ashley Winnor, How Does Temperature Affect the Efficiency of a Fuel Cell?, Region 7, Gbg Central Catholic JHS, Pam Cullen, Sponsor

Unit 252

Chemistry 8

HUCK LIFE SCI 12

Addison Coburn, Can you Separate the Dyes in Grape Soda?, Region 9, Reynolds JSHS, Jane Coburn, Sponsor
Lily Dwinell, Possible Alternatives to Salt For Melting Ice, Region 3, Northeast MS, Don Detwiler, Sponsor
Madeline Galvin, Electricity vs. Water, Region 4, Harrisburg Acad, Lakshmi Shrikantia, Sponsor
Sophia Scherr, Natural vs. Chemical Cleaners, Region 4, St. Theresa School, Michelle Banks, Sponsor
Madison Rios, Flammability of Different Fabrics, Region 2, Pocono Mt East HS, Maureen Elswick, Sponsor
Gianna Corsi, What brand of ibuprofen dissolves the fastest?, Region 10, St George, Lisa Fuss, Sponsor

Briana Rodriguez, Speedy Bubbles, Region 2, Maple Manor MS, Janet Shebelock, Sponsor
Joshua Cheung, Water Purification Methods vs Amount of Fluoride, Region 1C, Shafer MS, Diana Kelly, Sponsor
Jacob Madeira, Ethanol in our Lives, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Kai Vanderlaan, Acids in Beverages, Region 8, California Area, David Lowden, Sponsor
Kasen Killen, Perfect Popcorn, Region 8, St Patrick School, Lauren Hoover, Sponsor

Unit 253

Chemistry 8

HUCK LIFE SCI 13

Marolyn Brito, Electrolyte Challenge: Orange Juice Vs. Sports Drink, Region 2, Maple Manor MS, Janet Shebelock, Sponsor
Bailee Kauffman, Which milk spoils faster, skim or whole?, Region 9, Butler Area, Veronica Sankey, Sponsor
Sydney Kozden, Sweet Sensation, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Anna Ruffley, Better Brownies, Region 9, New Castle, Leah Ann Williams, Sponsor
Haven Stetor, Cleaning Tarnished Pennies !, Region 8, John F Kennedy CS, Rebecca Papson, Sponsor
Emma Veluz, Melting Temperature of Chocolate with Varying Cocoa Content, Region 3, The Swain Sch, Debbie Lindsay, Sponsor
Bailey Cannon, What Keeps an Apple From Browning?, Region 10, Parker MS, Rachel Barczyk, Sponsor
Jessica Esch, Does fabric softener change the flammability of cotton?, Region 3, Notre Dame of Bethlehem, Karen Iobst, Sponsor
Siddhant Khandelwal, A Novel Solution to Increase the Life of Climacteric Produce, Region 3, Springhouse MS, Susan Stern, Sponsor
Maeley Cornetti, What drink stains eggshells (teeth) darker?, Region 9, Butler Area, Veronica Sankey, Sponsor
Colin Bolla, Just a Pinch of Salt, Region 10, Fairview MS, Rebecca Andrews, Sponsor

Unit 254

Chemistry 8

HUCK LIFE SCI 14

Michael Gill, POP GOES the ENAMEL, Region 7, Blessed Francis Seelos, David Blozowich, Sponsor
Meredith Schmoyer, Clarinet Chemistry, Region 3, Springhouse MS, Daniel Christman, Sponsor
Owen Maharg, How Different Temperatures affect Mold Growth on Bread, Region 9, Butler Area, Veronica Sankey, Sponsor
Gabby Mason, Which Product Best Prevents the Oxidation of Apples?, Region 7, Mary Queen of Apostles, Cheryl Kestner, Sponsor
Sneha Chaudhuri, Amount of Pure Gold in Jewelry, Region 1B, Sandy Run MS, Jeanie Kellock, Sponsor
Victoria Kimpan, Boiling Oil, Region 9, Sharpsville Area, Erin Labbiento, Sponsor
Samantha McIntyre, What is the Best Drinking Water?, Region 10, St George, Lisa Fuss, Sponsor
Noah Sacco, Which liquid corrodes steel the fastest?, Region 10, St Luke, Rachel Burbules, Sponsor
Andrew Zhang, Protein Proteolysis By Protease-Containing Fruit & Nutrition, Region 1B, Arcola Int Sch, Sharon Branca, Sponsor
Jessica Zheng, Acidity Levels of Fruit Solutions, Region 3, Jim Thorpe ASD, Nathan Donahue, Sponsor
Dominic Turiczek, Drug Solubility, Region 10, North East MS, Ian Williams, Sponsor

Unit 255

Chemistry 8

HUCK LIFE SCI 100

Katie Staib, Which Type of Livestock Bedding is the Most Absorbent?, Region 3, Springhouse MS, Daniel Christman, Sponsor
Bronwyn Heisler, Do You Really Need Name Brand Bleach?, Region 10, Woodrow Wilson MS, Beth Crider, Sponsor
Dakota Delattre, Battery Lifespan, Region 6, Cambria Hts. MS, Christina Fetsko, Sponsor
Emily Brown, What Nail Polish Brand has the Most Durability?, Region 9, New Castle, Leah Ann Williams, Sponsor
Abby Redmond, Clothing on Fire, Region 2, North Pocono MS, Larry Dombek, Sponsor
Sydney Bennett, Which Flavor of Ice Cream Melts the Fastest?, Region 3, Notre Dame of Bethlehem, Karen Iobst, Sponsor
Lissa Murphy, How does pH affect metal?, Region 10, Seton School, Cathleen Gorman, Sponsor
Andrew Yellin, Cookie Craze, Region 7, Aquinas Academy, Dorina Manolache, Sponsor
Gabrielle Leadbitter, Which Cake Recipe Causes Cake to Rise the Most, Region 8, John F Kennedy CS, Rebecca Papson, Sponsor
Bailey Kline, Which Type of Fabric is Most Sweat Absorbent?, Region 4, St. Theresa School, Michelle Banks, Sponsor
Regina Palladino, Compostable Plastics and Natural Starches, Region 7, Providence Heights Alpha, Linda Cessar, Sponsor

Unit 256

Computer Science 7

SACKETT 204

Adhitya Thirumala, Detecting Birds with OpenCV and Python, Region 7, Dorseyville MS, Ginger Wilson, Sponsor
Christopher Lovelidge, Testing video game controller input lag, Region 3, Salisbury MS, Michelle DeOliveira, Sponsor
Kaida Heintzelman, Effect of Music on Typing, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Liam Resnick, Evaluating Genetic Theories through Evolutionary Simulation, Region 1B, Murray Ave Sch, Denise Meyers, Sponsor
Varun Bhat, Can AI Train Randomly Moving Dots to Reach Their Target?, Region 7, Pittsburgh Colfax K-8, Douglas Wolfe, Sponsor
Krithi Ramnath, Identifying and Using the Best Sort Algorithm, Region 1C, Newtown MS, Mary Joy Troxel, Sponsor
Timmy Woodward, Effect of Virtual Reality on Memory Recall, Region 1B, Wyndcroft US, David Johnson, Sponsor
Ben Maigur, Keeping it Safe! Blocking RFID signals from your device., Region 1C, St Isidore School, Christine Oconnor, Sponsor
Ryan Cheng, Mobile Sensing For Road Hazards, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor

Unit 257 **Computer Science 7 & 8** **SACKETT 207**

Jace Parks, *The Little Pi that Could*, Region 9, West Shamokin JSHS, Laurel Glover, Sponsor
Ian Bialkowski, *Tba*, Region 2, Old Forge, Nanette Rinaldi, Sponsor
Sira Frost, *Comparing Distance with Electronic Devices*, Region 10, Westlake MS, Andrew Wride, Sponsor
David Winkler, *CPU Overclock*, Region 7, Aquinas Academy, Dorina Manolache, Sponsor
Sanika Kothari, *Good Job!*, Region 3, Springhouse MS, Susan Stern, Sponsor
Michael Hsieh, *Web Predictor*, Region 8, Peters Twp. Area, Lauren Hoover, Sponsor
Ruth Moreta, *Materials to Block Wi-Fi Signal*, Region 2, West Hazleton Elem MS, Becky Rutkowski, Sponsor
Mitchell Roth, *What is Effect of apps on the battery of an iPhone?*, Region 3, Springhouse MS, Daniel Christman, Sponsor

Unit 258 **Computer Science 8** **SACKETT 318**

Aaron Short, *Different Methods of Password Cracking In Python*, Region 9, Butler CS, Jayne Chobot, Sponsor
Nathanial Hale, *CatBot*, Region 7, St James, Lucinda Cole, Sponsor
Jacob Kozlek, *Digital Light Show Alarm Clock*, Region 2, Valley MS, Jon Weaver, Sponsor
Rohan Mehta, *VirtualVote: A Decentralized, Democratic, Voting Application*, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor
Alex Liu, *Using Artificial Neural Network to Determine Data Trend*, Region 10, J S Wilson MS, Katie Giles, Sponsor
Chengyun Jiang, *Hacked?How Length & Randomness Affect Password Solving Time?*, Region 1B, Cedarbrook MS, Beth Kenna, Sponsor
Simone Lin, *Materials that Affect WiFi Reception*, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Okezue Bell, *Health in IoT: Wearable Monitors*, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor

Unit 259 **Earth and Space 7** **SACKETT 320**

Kaysiana Yeager, *Solar-Powered Water Desalination*, Region 3, St John Vianney RS, Stacianne Yeager, Sponsor
Zeb Hufnagle, *Dry Ice Tornado*, Region 5, Mifflinburg Area High School, Shawn Welch, Sponsor
Josh Painter, *Sunscreen and Ultraviolet Radiation*, Region 1B, Wyndcroft US, David Johnson, Sponsor
Zeb Druga, *How Sinkholes Form*, Region 8, Lafayette MS, Rob Schiffbauer, Sponsor
Megan Foody, *What Colors Keep Me Coolest in Summer?*, Region 7, Providence Heights Alpha, Linda Cessar, Sponsor
Logan Miller, *Coastline Chaos - Effect of Wind on Coastline Erosion*, Region 3, St. Catharine of Siena School, Kellee Fries, Sponsor
Basil Bannister, *The Seiche Effect on Lake Erie*, Region 10, St. Jude School, Jeff Till, Sponsor
Yesenia Baxter, *Rooted in Trash*, Region 3, Trexler MS, Kathryn Murray, Sponsor
Shashwat Sharma, *How does the angle affect the efficiency of solar cells?*, Region 3, Springhouse MS, Troy Minarovic, Sponsor

Unit 260 **Earth and Space 7 & 8** **SACKETT 322**

Montana Geibel, *Moon Light, Stars Bright*, Region 9, Butler CS, Jayne Chobot, Sponsor
Anya Clark, *Accuweather vs The Weather Channel: Which is more accurate?*, Region 1C, St Isidore School, Christine Oconnor, Sponsor
Tristan Hodinko, *Earthquake Simulation*, Region 10, Woodrow Wilson MS, Beth Crider, Sponsor
Madison Salter, *Host StarCharacteristics*, Region 3, Northampton Area MS, Amie Marks, Sponsor
Aiden Williams, *How Large Can a Terrestrial Planet Get?*, Region 9, Freeport Area, Eleanor Savage, Sponsor
Parmesh Sivakumar, *TRASH TO TREASURE- Producing Biofuel from Cellulosic Biomass*, Region 1B, Arcola IS, Sharon Branca, Sponsor
Matthew Uppani, *Ethanol Super Fuel*, Region 1B, Arcola Int Sch, Sharon Branca, Sponsor
Mohit Dutta, *Curbing Climate Change*, Region 1B, Arcola Int Sch, Sharon Branca, Sponsor
Lilah Sahud, *Examining Energy Production Between 2 Wind Turbine Types*, Region 7, Community Day Sch, Kyle Ison, Sponsor

Unit 261 **Earth and Space 8** **SACKETT 325**

Justin Wesmiller, *Erosion at Lake Erie.*, Region 10, Westlake MS, Andrew Wride, Sponsor
Alexa Petroff, *Ocean wave Energy's Effect on Erosion*, Region 2, Pocono Mt East HS, Maureen Elswick, Sponsor
Sarah Kim, *Erosion in Motion*, Region 1B, Arcola Int Sch, Sharon Branca, Sponsor
Sophia Cuzzola, *How a Comet's Size Affects How Fast It Melts.*, Region 10, St George, Lisa Fuss, Sponsor
Brendan Maddigan, *Disturbed by the Storm*, Region 7, Blessed Francis Seelos, David Blozowich, Sponsor
Arvind Seshan, *Saving Fossil Fuels: Using OBD-II Collected Telemetry Data*, Region 7, Dorseyville MS, Ginger Wilson, Sponsor
Holly Binkowski, *Significant Tsunami Solutions*, Region 1B, Holy Cross Reg CS, Jennifer Hitchner, Sponsor
Victoria Crocker, *Testing The Waters: Which Concentration of Alum is the Best?*, Region 1B, Cedarbrook MS, Beth Kenna, Sponsor
Evelyn Montone, *The Mercallious Experiment*, Region 3, Orefield MS, Brian Holtzhafer, Sponsor

Unit 262 **Ecology 7 & 8** **WALKER 103**

Leah Zagurskie, *Making a Splash*, Region 9, Butler CS, Jayne Chobot, Sponsor
Julia Rhodes, *Decomposing Energy*, Region 1C, Holland MS, Mary Krempa, Sponsor

Hannah Knapp, Biodegradable materials and how fast they decompose, Region 1C, Newtown MS, Mary Joy Troxel, Sponsor
Ryan McFetridge, Excellent Earthworms, Region 8, St Patrick School, Lauren Hoover, Sponsor
Emily Kessler, How much bacteria is in fresh water sources?, Region 2, Howard Gardner Sch, Michael Rescigno, Sponsor
Abigail Gerchow, Will the Brine Shrimp Survive?, Region 8, John F Kennedy CS, Rebecca Papson, Sponsor
Rujula Deshmukh, Change of the PH of Water in Different Temperatures, Region 3, Springhouse MS, Troy Minarovic, Sponsor
Jonathan Jean, Purifying Water By Use of the Prickly Pear Cactus, Region 1B, Wyndcroft US, David Johnson, Sponsor
Jakob Narrow, "Green" Dish Detergents - as Eco-Friendly as Advertised?, Region 2, MMI Preparatory MS, Sophia Cox, Sponsor
Josh Van Pelt, It's Getting Hot In Here, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Devon Jewell, pH and Nitrate Content in Fresh Water Sources, Region 3, The Swain Sch, Debbie Lindsay, Sponsor

Unit 263

Ecology 8

WALKER 110

Joshua Mathew, Soil Profiles vs Erosion Rate, Region 1C, Shafer MS, Diana Kelly, Sponsor
Shrinija Dandibhotla, Effective All-Natural Cleaning Solution For Household Stains, Region 1B, Arcola Int Sch, Sharon Branca, Sponsor
Mabhell Gonzalez, Counting Air Particulate Matter, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Rithik Raghuraman, Blade Size and the Efficiency of Wind Turbines, Region 3, Springhouse MS, Susan Stern, Sponsor
Reva Gandhi, A Biodegradable Plastic: Saving the Planet, Region 3, Springhouse MS, Susan Stern, Sponsor
Hadley Hellgren, Effect of of Round-Up on Aquatic Organisms, Region 9, Freeport Area, Eleanor Savage, Sponsor
Jessica Carlini, Heavy Metal Plants, Region 1B, Holy Cross Reg CS, Jennifer Hitchner, Sponsor
Blaine Shadle, How Herbicide Runoff Affects Daphnia, Region 7, Riverview HS, Marion Carson, Sponsor
Aditya Bhandari, Do Magnetic Fields Effect Plant Growth?, Region 1B, Indian Valley MS, Amy Welsh, Sponsor
Blake Eisel, What Effect Do Microplastics Have on Wildlife?, Region 8, Madonna Catholic, Jessica Garrett-Willis, Sponsor

Unit 264

Ecology 8

E E WEST 101

Elle Crislip, Does Sunscreen Have A Chemical Effect On Bodies Of Water?, Region 8, Connellsville Area JHS, Jace McClean, Sponsor
Amber Li, Detection of Environmental Pollutants in Water, Region 1C, Newtown MS, Mary Joy Troxel, Sponsor
Yerick Tlacult, Water Conservation in the Shower, Region 2, Hazleton AMS, Ryan Wilner, Sponsor
William Goetzman, Water Quality in Pine Creek, Region 7, Hampton Middle School, Eric Goetzman, Sponsor
Matthew Peak, Effect of Acid Rain On Duckweed, Region 9, St Vitus, Marguerite Wills, Sponsor
Adele Zimmerman, Effect of an Aquifer on the Collection of Water., Region 8, John F Kennedy CS, Rebecca Papson, Sponsor
Kylie Hillebrand, What foods allow worms to produce the best compost?, Region 2, Our Lady of Peace, Dan Banicky, Sponsor
Megan Lim, Effectiveness of Fabric Natural Water Filters, Region 1B, Sandy Run MS, Jeanie Kellock, Sponsor
Jaden Cook, Acid rain's effect on black worms heart rate, Region 2, Pocono Mt East HS, Maureen Elswick, Sponsor
Brendan Kenning, Sewage Treatment Plant Impact on the Perkiomen Creek, Region 1B, Holy Cross Reg CS, Jennifer Hitchner, Sponsor

Unit 265

Engineering 7

E E WEST 103

Aly Kelawy, Does different of masses of a Parachute affect velocity, Region 3, Springhouse MS, Jennifer Karetsky, Sponsor
Christopher Mrozek, Which Launch Angle Results in the Greatest Distance Travel, Region 9, St Vitus, Marguerite Wills, Sponsor
Kenneth Kwon, Building on a Slope, Region 10, Walnut Creek MS, Jennifer Haller, Sponsor
Cameron Temple, Bridge Structures, Region 1C, Holland MS, Mary Krempa, Sponsor
Olivia Nepa, Riding On Air - Building A Real Hovercraft, Region 2, LaSalle Acad, Lisa Vladika, Sponsor
John Beeson, Outdoor Music Helper, Region 7, Mother of Sorrows Catholic EL, Kristen Morton, Sponsor
Joshua Phillips, Make the Wind Work for You!, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Brooke Bilski, Homemade Soda Machine, Region 2, LaSalle Acad, Lisa Vladika, Sponsor
Mackenzie Vasbinder, Tsunami Walls: Which Type of Wall Works Best?, Region 5, Mifflinburg Area High School, Shawn Welch, Sponsor
Grant Pinsley, What specific kind of LED is the most efficient?, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Sebastian Malaver, Gear Up for Speed, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor

Unit 266

Engineering 7

E E WEST 105

Cameron Decker, How to Make an Aircraft Invisible to Radar, Region 1A, E.T. Richardson MS, Lauren Christiansen, Sponsor
Leonardo Guzman, How does temperature affect the power output of a solar cell, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Nirva Pathak, Electromagnetism, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Vincent D'Amico, Optimizing Speed and Power of a Lego Tracked Racer, Region 3, St Michael the Archangel, Lisa Kline, Sponsor
Isaac Wheeler, Wheels and Whieghts, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Jacob Berg, Qubeing it, Region 2, Carbondale AHS, Christy Hinton, Sponsor
Alex Liebmann, What insulation and shingle color works best?, Region 7, St Elizabeth, Susan Morgan, Sponsor
Garrett Franck, What angle provides the greatest thrust on a propeller?, Region 5, Mifflinburg Area High School, Shawn Welch, Sponsor

Mirabela Paff, What Type of Axles Work Best with Lubrication?, Region 3, Conrad Weiser MS, Phleane Kissling, Sponsor
Rishab Yanala, Which Structures perform better during an Earthquake?, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Colleen Kilpatrick, Solar Oven: Which Color Surface Absorbs Heat the Best?, Region 7, Holy Cross Acad, Bryan Annis, Sponsor

Unit 267

Engineering 8

E E WEST 107

Jack Niggel, Which type of homemade engine generates the most electricity, Region 3, St Thomas More, Tricia Maskiell, Sponsor
Aditya Singhvi, Plantology, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Jenna Capriotti, Tensegrity Testing, Region 9, Butler Area, Veronica Sankey, Sponsor
Elena Wenger, Is There an App for That? Measuring Protein in Milk, Region 3, Springhouse MS, Susan Stern, Sponsor
Hunter Harrison, Sensational Sand Bag Stuffers, Region 7, Aquinas Academy, Ellen Kaffenes, Sponsor
James Benjamin Sparling, Calculating Power From a Water Wheel, Region 1A, Springton Lake MS, Jay Sparling, Sponsor
Cole Ruhf, What Design of Beam Bridge Can Support the Most Weight, Region 3, Northeast MS, John Gavronski, Sponsor
Mai Hukuoka, Earthquake Resistant Brace Designs, Region 3, Springhouse MS, Scott Bauer, Sponsor
Nathan Kaplan, Prototyping a Prosthetic Hand with 3D Printing, Region 7, Community Day Sch, Kyle Ison, Sponsor

Unit 268

Engineering 8

WILLARD 62

Zachary Baus, Effect of Bridge Design on Weight Bearing Capacity, Region 3, St Thomas More, Tricia Maskiell, Sponsor
Joey Daeschner, Which Cell Phone Battery Lasts the Longest?, Region 7, Holy Cross Acad, Bryan Annis, Sponsor
Madeline Schlichter, The color and wavelength of lights affect on solar cells, Region 7, Christ the Divine Teacher, Lindsey Marci, Sponsor
Michael Allardyce, A Bright Idea, Region 2, Our Lady of Peace, Dan Banicky, Sponsor
Benjamin Gaunt, The Bionic Hand, Region 7, East Catholic Sch, Angelo Lamanti, Sponsor
Sareena Nat, Crossflow Vs. Turgo Turbines, Region 3, Springhouse MS, Susan Stern, Sponsor
Brian Olsen, Windmill Blade Material vs Force of Impact on Simulated Bird, Region 1C, Shafer MS, Diana Kelly, Sponsor
Simon Fleszler, Soundproofing for Autism, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Jeffrey Ho, DIY Microscope iPhone Cam. vs Total Magnification Imaged, Region 1C, Shafer MS, Diana Kelly, Sponsor

Unit 269

Engineering 8

WILLARD 73

Jack Feczko, GolfbotX, Region 7, St James, Lucinda Cole, Sponsor
Gabrielle Hirschmann, Points Matter, Region 1B, Indian Crest MS, Jennifer Odenwald, Sponsor
Eric Wilkinson, An Eggcellent Test, Region 10, Woodrow Wilson MS, Beth Crider, Sponsor
Joshua Chou, Thickness of the Wire versus Power of the Magnet, Region 3, Springhouse MS, Scott Bauer, Sponsor
Tanmay Ondkar, Is it Ripe Yet?, Region 1C, Newtown MS, Dave Curry, Sponsor
Holden Rice, Re-Inventing The Wheel, Region 3, Conrad Weiser MS, Phleane Kissling, Sponsor
Jarod Bloch, Dispensing Medications, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Emma Kurtz, How Different Sail Shapes Affect The Netforce of Lift & Drag, Region 1C, Newtown MS, Mary Joy Troxel, Sponsor
Taehyuk Yang, Effect of Various Designs on a Bridge's Weight Capacity, Region 3, Springhouse MS, Scott Bauer, Sponsor

Unit 270

Mathematics 7 & 8

WILLARD 171

Aaron Ku, Heron's Method & Formula, Region 2, Berwick AMS, Todd Gunther, Sponsor
Aijalynn Washington, The Birthday Paradox, Region 3, Harrison-Morton MS, Kelly Caflin, Sponsor
Luke Myers, Fairness of a 10-sided die versus a 10 sectioned spinner., Region 3, St Joseph the Worker, Kristi Tripoli, Sponsor
Alyssa Evans, Multiplying Polynomials, Region 2, Good Shepherd Acad, Joyce Elston, Sponsor
Janki Patel, The Pythagorean Theorem, Region 2, Crestwood SD, Mickey Harper, Sponsor
Morgan Schultz, Using 3 types of bats, how far will the softball go?, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Natalie Matthews, What is Pi?, Region 2, Crestwood SD, Mickey Harper, Sponsor
Pranavi Marella, The Josephus Problem, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor
Abigail Sparich, Matrices, Region 2, MMI Preparatory MS, Sophia Cox, Sponsor
Mary Matyasovsky, Wheel of Fortune: I'd Like to Solve the Puzzle, Region 9, Wilmington Area, Sandra Earl, Sponsor
Zach Konopke, The Trajectory of a Basketball, Region 2, Wyoming Valley West, Maria Konopke, Sponsor

Unit 271

Mathematics 8

WILLARD 174

Kaylee Butler, Vectors, Region 2, South Scranton IS, Crystal DeAntona, Sponsor
Maria Darrup, Birthday Paradox: Mathematical Probability Versus Intuition, Region 5, Mifflinburg AHS, Shawn Welch, Sponsor
Manan Pancholy, Proofs and Properties of Phi, Region 2, Abington Heights MS, Rosa Sabie, Sponsor
Michael Alchaer, Pascal's Triangle in Cell Division, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor
Samuel Blick, Best Possible Opening Buys in Dominion, Region 1C, Newtown MS, Dave Curry, Sponsor

50 Afternoon Presentations

Mallory Powell, The Birthday Problem, Region 2, Wyoming Valley West, Maria Konopke, Sponsor
Manal Muhammad, Quadratic Equations, Region 2, MMI Preparatory MS, Sophia Cox, Sponsor
Chloe Tucker, The Law of Cooling, Region 2, South Scranton IS, Crystal DeAntona, Sponsor
Zain Ansari, The Unit Circle, Region 2, Crestwood SD, Mickey Harper, Sponsor
Isaac Bolan, Group Theory, Region 2, Wyoming Valley West, Maria Konopke, Sponsor
Ariana Gardner, Graph Theory, Region 2, Wyoming Valley West, Maria Konopke, Sponsor

Unit 272

Mathematics 8

WILLARD 258

John McLaughlin, Logarithmic Functions, Region 2, Wyoming Valley West, Maria Konopke, Sponsor
Kaitlyn Leicht, Combinations, Region 2, Crestwood SD, Mickey Harper, Sponsor
Jade McKenna, More on the Pythagorean Theorem, Region 2, Wyoming Valley West, Maria Konopke, Sponsor
Ivan Prodanets, Conic Sections, Region 2, Wyoming Valley West, Maria Konopke, Sponsor
Jaden Evanowski, Angles of Elevation and Depression, Region 2, Good Shepherd Acad, Joyce Elston, Sponsor
Luke Gerdeman, The Analysis of Data Using Benford's Law, Region 3, The Swain Sch, Debbie Lindsay, Sponsor
Adrian Vanegas, Parallax, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor
Dylan McKean, Pick a Card, Any Card, Region 9, Butler Area, Veronica Sankey, Sponsor
Kai Bosniak, What I "c"- How c Values Affect Julia Set Fractal Dimension, Region 1B, Cedarbrook MS, Beth Kenna, Sponsor
Anthony Wan, Sine, Cosine, Tangent, Region 2, Crestwood SD, Mickey Harper, Sponsor
Murphy Pick, Game Theory, Region 2, Wyoming Valley West, Maria Konopke, Sponsor

Unit 273

Microbiology 7

WILLARD 270

Izzy Tran, What Amount of Tea Tree Oil Solubility Prevents Mold Growth?, Region 3, St Thomas More, Tricia Maskiell, Sponsor
Stella Kwiecinski, Bacteria in the Bathroom: Swab for Science, Region 2, Our Lady of Peace, Dan Banicky, Sponsor
Rayna Malhotra, The Synergistic Effect of Natural Oils on Antibiotics, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor
Olivia Ulicny, Which Brand of Disinfectant Wipe Kills the Most Bacteria?, Region 3, St Thomas More, Tricia Maskiell, Sponsor
Liliana Koller, Hand-washing Methods vs. Bacteria Growth, Region 9, Riverside MS, Jeff Gonzales, Sponsor
Jake Anthikad, Which One Should You Use, Hand Sanitizer or Soap and Water?, Region 7, Christ the Divine Teacher, L. Marci, Sponsor
Benjamin Shimon, Make it a Clean Scene!, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Henry Koloc, How do Whole and Skim Milk Effect Non Pathogenic E. coli?, Region 7, Christ the Divine Teacher, Lindsey Marci, Sponsor
Emma Grippio, What Cleaning Product Cleans Surfaces Best?, Region 2, South Scranton IS, Katona Miller, Sponsor
Danny Khalouf, What is Effect of Mouthwash on Oral Bacteria?, Region 3, Notre Dame of Bethlehem, Karen Iobst, Sponsor
Evelyn Calcagni, Which Brand of Disinfectant Wipes is the Most Effective?, Region 1B, Wyndcroft US, David Johnson, Sponsor

Unit 274

Microbiology 7

WILLARD 273

Ryann Holladay, The amount of bacteria in probiotic yogurt., Region 1B, Wyndcroft US, David Johnson, Sponsor
Sophia Wynne, Dirty Money, Region 3, Francis D. Raub MS, Kathy Resnick, Sponsor
Diemmy Dang, Which Antibiotic is E. Coli most resistant to?, Region 1B, Wyndcroft US, David Johnson, Sponsor
Ava Combine, Effect of Aloe Vera on Molding Berries, Region 9, Sharpsville Area, Nanci Dickson, Sponsor
Anne Lindsay, Effect of Moringa Seeds and Sphagnum Moss on Bacteria, Region 9, Freeport Area, Eleanor Savage, Sponsor
Lily Karsman, Bacteria Battles, Region 7, Blessed Francis Seelos, David Blozowich, Sponsor
Alexander Smaroff, Effect of Polyphenols on SCOBY Growth, Region 7, St Louise De Marillac, Dori Lijewski, Sponsor
Bradley Evans, What do you really pick up at the grocery store?, Region 1B, Indian Valley MS, Amy Welsh, Sponsor
Victoria Brown, "Do You Really Want to Eat That?", Region 8, St John The Evangelist, Christine Rozak, Sponsor
Michaela Peratt, Kicking Bacteria to the Curb, Region 9, Butler CS, Jayne Chobot, Sponsor
Aristotle Rock, Which Disinfectant Wipes Work Best?, Region 5, St Joseph School, Donna Brown, Sponsor

Unit 275

Microbiology 8

WILLARD 360

Joseph Stalneck, Which Hand Sanitizer Is The Most Efficient?, Region 9, New Castle, Leah Ann Williams, Sponsor
Tamiyah Kimmel, Dogs Mouth Vs. Humans Mouth, Region 9, New Castle, Leah Ann Williams, Sponsor
Jacob Wincko, Does cell phone radiation affect the growth of E. Coli?, Region 7, St Elizabeth, Susan Morgan, Sponsor
Alessandra Starke, Which hand soap cleans most effectively?, Region 7, Christ the Divine Teacher Acad, Lindsey Marci, Sponsor
Briella Lucadamo, Effects of different sugars on Streptococcus mutans, Region 7, St Louise De Marillac, Dori Lijewski, Sponsor
Cassidy Rosser, Which Wound Cleaner Inhibits The Most Bacteria?, Region 9, New Castle, Leah Ann Williams, Sponsor
Jordan Howe, What Sanitation System Removes the Most Bacteria from Water?, Region 7, Christ the Divine Teacher, L. Marci, Sponsor
Sara Frankel, Are Hand Sanitizers Really Effective in Killing Bacteria?, Region 1B, Murray Ave Sch, Denise Meyers, Sponsor
Melina Stewart, Effect of various antibiotics on Intestinal Flora, Region 7, St Louise De Marillac, Dori Lijewski, Sponsor

Brenna Eckhart, Which toothpaste is best?, Region 2, MMI Preparatory MS, Sophia Coxe, Sponsor

Unit 276 **Microbiology 8** **WILLARD 362**

Erica Montgomery, Which Container of Carmex Retains the Most Bacteria?, Region 9, New Castle, Leah Ann Williams, Sponsor
Miranda Lucore, Hand-sanitizer Effectiveness Project, Region 10, North East MS, Ian Williams, Sponsor
Emily Farley, 5 Second Rule: Fact or Fiction?, Region 2, Pocono Mt East HS, Maureen Elswick, Sponsor
Hannah Gong, How Do PH Levels Affect the Efficiency of Yeast Fermentation?, Region 1B, Sandy Run MS, Jeanie Kellock, Sponsor
Viola Haggerty, How Does Temperature Affect Bacterial Growth, Region 7, The Ellis School, Erica Holtgraver, Sponsor
Catherine Samer, Effect of Antimicrobials On Foodborne Bacteria, Region 3, St Thomas More, Tricia Maskiell, Sponsor
Imaan Saeed, Effect of Silver Nanoparticles on Bacteria, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Hailey Gonzales, Let It Grow, Let It Grow!, Region 9, New Castle, Leah Ann Williams, Sponsor
Lucy Wang, Can Probiotic Bacteria Improve Protein Digestion?, Region 1B, Arcola Int Sch, Sharon Branca, Sponsor
Anthony Miller, Which Body Wash Kills Germs Best?, Region 9, New Castle, Leah Ann Williams, Sponsor

Unit 277 **Microbiology 8** **WILLARD 365**

Ceanna Belisle, Bacterial Investigation, Region 2, Crestwood SD, Mickey Harper, Sponsor
Eleanor Kenyon, Effect of Toners on Bacterial Growth, Region 3, The Swain Sch, Debbie Lindsay, Sponsor
Alana Lewis, Household Healers: Do Wound Healers Affect Bacterial Growth?, Region 1B, Cedarbrook MS, Beth Kenna, Sponsor
Liam Ellis, The Bacteria Among Us: Do Bathrooms Have More Germs, Region 7, Aquinas Academy, Ellen Kaffenes, Sponsor
Lily Schachner, Effect of Different Types of Skin Cleansers on Skin Bacteria, Region 7, St Louise De Marillac, Dori Lijewski, Sponsor
Jillian Gallo, Effects of Disinfecting Wipes on Staphylococcus epidermidis, Region 7, St Louise De Marillac, Dori Lijewski, Sponsor
Vishruth Hanumaihgari, Chelation Therapy as a Novel Method to Prevent Tumorigenesis, Region 3, Springhouse MS, Scott Bauer, Sponsor
Ashley Cwynar, At Which Temperature Does Bacteria Grow Best?, Region 9, New Castle, Leah Ann Williams, Sponsor
Ariana Davidson, Minty Fresh!, Region 9, Kennedy Catholic, Gretchen Witkowski, Sponsor
Brady Zook, A Germy Expedition, Region 9, New Castle, Leah Ann Williams, Sponsor

Unit 278 **Microbiology 8** **WILLARD 367**

Tyler Schroeder, Yeast Reproduction in Sugar Substitutes, Region 2, Mid Valley SC, Suzanne Piorkowski, Sponsor
Sarah Ali, Naturally occurring Antibacterial Agents vs. E.coli, Region 7, The Ellis School, Erica Holtgraver, Sponsor
Abigail Zeglen, Is Bottled Water Purer than Natural or Tap Water?, Region 6, Cambria Hts. MS, Christina Fetsko, Sponsor
Aidan Churlik, What Duration Of Ultraviolet exposure Kills Bacteria?, Region 9, Kennedy Catholic, Gretchen Witkowski, Sponsor
Mahi Patel, Effect of Mouthwashes on Oral Bacteria, Region 1C, Shafer MS, Diana Kelly, Sponsor
Lily Bement, What Duration of Ultraviolet Exposure Kills Bacteria?, Region 10, North East MS, Ian Williams, Sponsor
Owen Ciavarino, What Brand Of Mouthwash Works The Best?, Region 9, New Castle, Leah Ann Williams, Sponsor
Emma Martinez, Clean Water Science, Region 3, St John Neumann RS, Donna McLaughlin, Sponsor
Joshua Kelly, Antibiotics in Action, Region 9, Butler CS, Jayne Chobot, Sponsor
Jack Sabo, Cavity Causing Cuisine, Region 7, St Louise De Marillac, Dori Lijewski, Sponsor

Unit 279 **Physics 7** **WILLARD 369**

Payton Handler, How will different materials affect your WiFi signal?, Region 1B, Murray Ave Sch, Denise Meyers, Sponsor
Noah Beckish, Heated Iron Filings, Region 2, North Pocono MS, Larry Dombek, Sponsor
David Lupichuk, Comparing the Absorbency of Paper Towel Brands, Region 10, J S Wilson MS, Katie Giles, Sponsor
Benjamin Keenan, What Type of Light is most Harmful, Region 3, St Michael the Archangel, Lisa Kline, Sponsor
Angelene Gorniak, Oreo vs. Milk vs. Water vs. Sprite, Region 10, North East MS, Ian Williams, Sponsor
Nikhil Girotra, Wind Power, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Abigayle Desser, Electric Water, Region 10, St Luke, Rachel Burbules, Sponsor
Eric Jin, Can we turn deserts into Greenlands using capillary action?, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Mackenzie Bruce, Temperatures vs. Bath Bombs, Region 10, St Luke, Rachel Burbules, Sponsor
Austin Campbell, Suction Weight Experiment, Region 2, Crestwood SD, Mickey Harper, Sponsor
Connor Hawes, Lenz Magnetics, Region 10, St George, Lisa Fuss, Sponsor

Unit 280 **Physics 7** **WILLARD 370**

Elijah Underhill, Fruit and Vegetable Battery Experiment, Region 9, Clarion Cnty Homeschoolers, Xhonane Olivas, Sponsor
Alex Martin, Go-getter Golf!, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Thomas Kohler, How Does Draw Weight Affect The Distance The Arrow Travels?, Region 1B, Sandy Run MS, Jeanie Kellock, Sponsor
Seth Roebach, Magnet Levitation, Region 10, St Luke, Rachel Burbules, Sponsor

Ojas Karandikar, What common material provides the best soundproofing?, Region 3, Springhouse MS, Jennifer Karetsky, Sponsor
Adam Kaczmarzyk, Acid's Effect on Erosion, Region 2, Pocono Mt East HS, Maureen Elswick, Sponsor
Tyler Rothrock, Secrets unlocked for the Pinewood Derby, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Julia Smith, Does salinity have an effect on water density?, Region 8, Burgettstown Area, Ashley Ward, Sponsor
Sara Chase, Does room temperature effect the burn rate of a candle?, Region 10, St James, Catherine Kern, Sponsor
Jessica Minnick, Bond It! Which Adhesive Works the Best?, Region 4, St. Theresa School, Michelle Banks, Sponsor
Jimmy Lucullo, Bridge Wars - Most Weight Bearing and Cost Efficient, Region 9, West Shamokin JSHS, Laurel Glover, Sponsor

Unit 281

Physics 7

HAMMOND 209

Parris Rose, Paper Towel Absorption, Region 10, Woodrow Wilson MS, Beth Crider, Sponsor
George Pavis, How Does Temperature Effect the Bounce of a Golf Ball?, Region 3, Notre Dame of Bethlehem, Karen Iobst, Sponsor
Ella Garrity, Does Temperature Affect the Height of a Basketballs Bounce, Region 10, Fairview MS, Rebecca Andrews, Sponsor
Aaliyah Brennan, Up in Flames!, Region 2, St Nicholas St. Mary, Diane Bojarcik, Sponsor
Hayden Jenkins, What magnet materials will reconnect the magnet, Region 8, John F Kennedy CS, Rebecca Papson, Sponsor
Ashley Vrscak, Does Temperature Affect the Bounce of a Rubber Ball?, Region 7, St Joseph - Verona, Mary Chirdon, Sponsor
Danielle Thornton, Do different diameters affect the potential speed of a car?, Region 7, Our Lady of Grace, Theresa Rabogliatti, Sponsor
Krishna Ravi, Which Material Provides the Most Stability In a Building?, Region 10, Walnut Creek MS, Jennifer Haller, Sponsor
Ryan Jones, This is Hot Stuff!, Region 10, St James, Catherine Kern, Sponsor
Stacey Lipson, Convection Oven vs. Regular Oven, Region 3, Springhouse MS, Jennifer Karetsky, Sponsor
Lindsay Armanini, At Which Temperature Does a Golf Ball Travel the Farthest?, Region 10, St. Jude School, Jeff Till, Sponsor

Unit 282

Physics 7

HAMMOND 214

Alexander Brown, Metal Heat Conduction, Region 7, Blessed Francis Seelos, David Blozowich, Sponsor
Emma Johnson, Effects of Replicated Sunlight on Color Pigments, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Pavle Slepcev, Observing The Doppler Effect on Sound Frequencies, Region 7, Pittsburgh Colfax K-8, Douglas Wolfe, Sponsor
Addison Hancq, Bombs Away, Region 8, St Patrick School, Lauren Hoover, Sponsor
Tyler Green, Where Does the Heat Go in a Cold Pack?, Region 10, St. Jude School, Jeff Till, Sponsor
Rishika Bhati, It's Electric!, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Ava Rupp, Which brand of childrens' pajamas are least flammable?, Region 10, Blessed Sacrament, Maricarol Schoenfeldt, Sponsor
Sarah Dieter, What's the Fastest Way to Cool a Soda, Region 9, Wilmington Area, Sandra Earl, Sponsor
Bahaa Hanna, How Does a Weak Conductor Affect the Voltage, Region 3, Harrison-Morton MS, Kelly Caflin, Sponsor
Alexandra Berzin, The Dependence of Surface Tension in Liquids on Temperature, Region 1B, Murray Ave Sch, Denise Meyers, Sponsor
Aditya Turaga, Make the Wind Work for You!, Region 10, Fairview MS, Rebecca Andrews, Sponsor

Unit 283

Physics 7

HAMMOND 215

Cody Pizzuti, Which Paper Towel Is the Most Absorbent, Region 7, St Joseph - Verona, Mary Chirdon, Sponsor
Andy Nichols, The "Ups" and "Downs" of Pulleys, Region 9, West Shamokin JSHS, Laurel Glover, Sponsor
Brycen Seth, Far Flung Foods, Region 9, Butler Area, Veronica Sankey, Sponsor
Francesca Bartolacci, Number of Coils vs. Electromagnetic Strength, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor
Sunny Chen, How the Voltage of Batteries Affect Electromagnets, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Emma McCosby, Is It Worth The Shot?, Region 7, Blessed Francis Seelos, David Blozowich, Sponsor
Simon Wehr, Does the arrangement of 2by4's affect Deflection, Region 4, St. Theresa School, Michelle Banks, Sponsor
Ella Fedor, Can water float on water?, Region 10, St Luke, Rachel Burbules, Sponsor
Marco Perri, Baseball Stances, Region 7, Blessed Francis Seelos, David Blozowich, Sponsor
Joseph Peng, What is the best nose cone for a bottle rocket?, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Emma Kill, Linear Magnetic Accelerator, Region 10, St. Jude School, Jeff Till, Sponsor

Unit 284

Physics 7

HAMMOND 217

Kimora Brooks, How do ballerinas pirouette without getting dizzy?, Region 7, St Benedict the Moor, Patricia DeJulio, Sponsor
Ellie Lynch, The Best Material for Soundproofing a Room, Region 1B, Murray Ave Sch, Denise Meyers, Sponsor
William Wenrich-Quinones, Which Materials Can Block a Wi-Fi Signal?, Region 3, St Michael the Archangel, Lisa Kline, Sponsor
Paul Stevenson, A Colorful Climate, Region 2, Holy Rosary Sch, James Rose, Sponsor
Maximus Tierney, How Sound Affects Water., Region 2, Our Lady of Peace, Dan Banicky, Sponsor
Daniel Laufer, Analyzing the Thrust to Weight Ratio of Model Rocket Engines, Region 1C, Holland MS, Mary Krempa, Sponsor
Nate Ball, Which ball can reach the highest?, Region 7, Blessed Francis Seelos, David Blozowich, Sponsor
Samantha Abate, Does the temperature of a magnet affect its magnetic field?, Region 10, North East MS, Ian Williams, Sponsor

Wyatt Kos, Line Drive, Region 9, Butler CS, Jayne Chobot, Sponsor
Evelyn Dickinson, Effect of Pulley Sizes, Region 9, Wilmington Area, Sandra Earl, Sponsor
Annamarie Herman, Water on the Rise, Region 10, St Luke, Rachel Burbules, Sponsor

Unit 285 **Physics 7** **HAMMOND 219**

Melissa Fan, Temperature v.s. Bounce, Region 3, Springhouse MS, Troy Minarovic, Sponsor
Krish Gupta, How Heat Affects the Movement of Water, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor
Ella Isasky, Which Stainless Steel Cup Sustains Coffee Temperature Best?, Region 7, St Joseph - Verona, Mary Chirdon, Sponsor
Hunter Maher, Effect of Motor Oil on Evaporation of Tap Water, Region 7, St Louise De Marillac, Dori Lijewski, Sponsor
Ella Washburn, Testing Magnetic Field Strengths of Combined Magnets, Region 7, Pittsburgh Colfax K-8, Douglas Wolfe, Sponsor
Caileigh Duffy, Exploring a Solar Powered Motor with a Supercapacitor, Region 7, Holy Cross Acad, Bryan Annis, Sponsor
Mason Kindle, Pop and Mentos Reaction, Region 10, Woodrow Wilson MS, Beth Crider, Sponsor
Caitlin Dugan, The Bounce of a Golf Ball, Region 10, St Luke, Rachel Burbules, Sponsor
Daniel Gao, Bright Bulb, Region 1B, Arcola Int Sch, Sharon Branca, Sponsor
Gavin Callahan, What Paper Air Plane Design Flies Best, Region 9, Sharpsville Area, Nanci Dickson, Sponsor
Naomi Segel, What Effects the Period of a Pendulum?, Region 7, Pittsburgh Colfax K-8, Douglas Wolfe, Sponsor

Unit 286 **Physics 7** **HAMMOND 221**

Jake Marx, Effect of Temperature on Battery Performance, Region 2, St Clare/St Paul, Lisa Owens, Sponsor
Erika Hollis, Squishy Circuits, Region 2, Fell CS, Jamie Seymour, Sponsor
Kalyda O'Connor, Which Thermos Cup Keeps Liquid Hot the Longest?, Region 7, St Joseph - Verona, Mary Chirdon, Sponsor
Jean Paul Portuguese, Measuring Effect of Distance on Light Intensity, Region 7, Pittsburgh Colfax K-8, Douglas Wolfe, Sponsor
Gwendolyn Powell, How Temperature Influences the Performance of Golf Balls, Region 2, North Pocono MS, Larry Dombek, Sponsor
Thomas Gilchrist, Influence of Gravity's Direction on the Coffee Ring Effect, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Cody Tahhan, How Does the Number of Coils Affect the Current Generated, Region 3, Harrison-Morton MS, Kelly Caflin, Sponsor
Keyliana Maga Gonzalez, Sound, Region 3, Francis D. Raub MS, Kathy Resnick, Sponsor
Ben Wealand, Does Distance Affect How Glasses Bend Light?, Region 1B, Sandy Run MS, Jeanie Kellock, Sponsor
Ashish Jeyapratap, Which Wrapper is the Best Temperature Keeper?, Region 1B, Arcola Int Sch, Sharon Branca, Sponsor

Unit 287 **Physics 7** **HAMMOND 206**

Sal Luongo, Citrus Power, Region 2, St Clare/St Paul, Lisa Owens, Sponsor
Landen Cantwell, How does the Height of Blood effect the Blood Splatter?, Region 3, Notre Dame of Bethlehem, Karen Iobst, Sponsor
Nidhi Ram, How Does Color Affect Heating by Absorption of Light?, Region 1B, Murray Ave Sch, Denise Meyers, Sponsor
James Brewer, Magnus Force Effect on Soccer, Region 7, Gbg Central Catholic JHS, Pam Cullen, Sponsor
Russell Clark, How free-fall velocity affects the outcome of trebuchets., Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Mia Maurizio, What phone case is the most protective?, Region 7, Divine Mercy Academy, Lisa Stough, Sponsor
Brian Collins, How does gear effect the distance on a bike?, Region 3, St Thomas More, Tricia Maskiell, Sponsor
Maria Goldstein, Which Material Cups Hold the Heat the Longest, Region 7, St John the Baptist, Kathryn Drombosky, Sponsor
Derek Aponte Rosado, Sound Absorption : Acoustic Foam Pattern, Region 3, Francis D. Raub MS, Kathy Resnick, Sponsor
Olivia Kallner, What Amount of Pressure Does a Basketball Bounce Highest?, Region 10, St. Jude School, Jeff Till, Sponsor

Unit 288 **Physics 8** **HAMMOND 207**

Peyton Haroldson, Cooling The Wind, Region 9, Sharpsville Area, Erin Labbiento, Sponsor
Lida Wos, Which Materials Are Best For Putting Out A Fire?, Region 7, St John the Baptist, Kathryn Drombosky, Sponsor
Ava Smith, The Explanation of Purification, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Nicholas Wallace, Do Different Colored Candles Burn Faster?, Region 9, New Castle, Leah Ann Williams, Sponsor
Casey Ramirez, Sky Lantern's Journey, Region 8, St Patrick School, Lauren Hoover, Sponsor
Nathaniel Devlin, How Materials Affect Bluetooth Signal, Region 10, Woodrow Wilson MS, Beth Crider, Sponsor
Varun Pandian, Contact less Detection of Vibrations Using Doppler Radar, Region 3, Springhouse MS, Susan Stern, Sponsor
Chloe Kiser, Designing the Most Beneficial Alcohol Stove, Region 10, Parker MS, Rachel Barczyk, Sponsor
Ben Edelman, How Does Air Pressure Affect the Speed of a Soccer Ball?, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor
Marienne Clippinger, Creation of Darkness, Region 10, St Luke, Rachel Burbules, Sponsor
Liam Friedlander, Loop the Loop, Region 7, Pittsburgh Colfax K-8, Leonard Kisslinger, Sponsor

Unit 289 **Physics 8** **THOMAS 111**

Vishnu Venugopal, Which Insulator Works Best?, Region 7, Jefferson MS, Edward Petsko, Sponsor

Emily Bennett, Sound Waves, Region 9, St. Bernard CS, Katelyn Waterhouse, Sponsor
Abigail Marino, Effectiveness of Various Sound Insulators, Region 3, The Swain Sch, Debbie Lindsay, Sponsor
Katelyn Ingrassia, Different Air Pressures Effect on a Volleyball, Region 2, Pocono Mt East HS, Maureen Elswick, Sponsor
Luke Kennedy, Levitating with the Lorentz Force, Region 1A, E.T. Richardson MS, Lauren Christiansen, Sponsor
Brandon McCombie, Mass vs. Velocity, Region 6, Northern Cambria MS, Amber Miller, Sponsor
Makenna Hamilton, Does KT Tape Help Improve Muscle Strength?, Region 9, Ellwood City Area, Sean McConahy, Sponsor
Elad Shoham, Science of Sound: Using Frequencies to Create a Water Wave, Region 1B, Cedarbrook MS, Beth Kenna, Sponsor
Dillon Maddigan, The Soda Cooling Dilemma, Region 7, Blessed Francis Seelos, David Blozowich, Sponsor
James Kauffman, How Does Voltage Affect the RPMs of a Brushless DC Motor, Region 3, Conrad Weiser MS, Phleane Kissling, Sponsor
Cecelia Campbell, Does the temperature of a magnet affect its strength?, Region 10, St James, Catherine Kern, Sponsor

Unit 290 **Physics 8** **SACKETT 107**

Madilyn Lennert, Which Paper Towel Brand Absorbs the Most Water?, Region 3, Notre Dame of Bethlehem, Karen Iobst, Sponsor
Sahil Jain, What Materials Can Block a Wi-Fi Signal, Region 10, Walnut Creek MS, Jennifer Haller, Sponsor
Alayna Kelly, How Does the Acidity of Shampoo Affect Hair Strength?, Region 4, Susquenita MS, Beth Johnson, Sponsor
Chris Zhou, Effects of Flow Speed and Surface Roughness on Aerodynamics, Region 10, Walnut Creek MS, Jennifer Haller, Sponsor
Bryanna Clark, Bloodstain Pattern Analysis, Region 10, North East MS, Ian Williams, Sponsor
Amelia Svetz, Does the friction of a surface affect fuel efficiency?, Region 10, North East MS, Ian Williams, Sponsor
Ryan Stubblefield, Effect of a Corked Bat on a Baseball's Distance, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor
Olivia Wilton, How Temperature Affects Viscosity, Region 7, Riverview HS, Brian Ludwig, Sponsor
Nirjhala Kadariya, Electromagnetic Induction Experiment, Region 2, NativityMiguel Sch, Shelby Kresge, Sponsor
Mahx Baptiste, Does Material Affect a Parachute's Drop Speed?, Region 3, Francis D. Raub MS, Jeff Lucas, Sponsor
Declan Hawk, How Temperature Affects a Magnet's Magnetic Field, Region 7, Riverview HS, Brian Ludwig, Sponsor

Unit 291 **Physics 8** **SACKETT 108**

Jeno Grasso, Which Bridge Design can Hold the most weight?, Region 9, Kennedy Catholic, Gretchen Witkowski, Sponsor
Michael Schaefer, Measuring Viscosity of Different Liquids, Region 7, Pittsburgh Colfax K-8, Leonard Kisslinger, Sponsor
Breanna Hanley, Gravity's Effect on a Trajectory of a Bullet, Region 9, Sharpsville Area, Erin Labbiento, Sponsor
Morgan Oljeski, Do shock absorbers on a tennis racket actually absorb shock?, Region 10, St Luke, Rachel Burbules, Sponsor
Evan Cotelesse, Say No To Concussions, Region 9, New Castle, Leah Ann Williams, Sponsor
Leah Markiewicz, Freezing Point of Ice Cream, Region 10, St Luke, Rachel Burbules, Sponsor
Ella Butterfield, To Swim Like a Bird, Region 9, St Gregory, Matthew Dunker, Sponsor
Sofia Mancing, How Much EM Radiation Do Screened Devices Emit?, Region 7, Providence Heights Alpha, Linda Cessar, Sponsor
Pratik Rai, Showers vs. Baths, Region 10, Woodrow Wilson MS, Beth Crider, Sponsor
Nicholas Torsello, Does Temperature Affect The Accuracy Of A Baseball?, Region 9, New Castle, Leah Ann Williams, Sponsor
Madison Tewksbury, How does drag affect a swimmer's time?, Region 3, Springhouse MS, Daniel Christman, Sponsor

Unit 292 **Physics 8** **SACKETT 111**

Jacob Strnisa, Does The Size of A Parachute Matter, Region 9, South Side MS, Michael Stewart, Sponsor
Roshan Shetye, Light's Effect on a Solar Panel, Region 1C, Newtown MS, Mary Joy Troxel, Sponsor
William Scott, How Much Weight Can A Raw Eggshell Support?, Region 7, St Benedict the Moor, Patricia DeJulio, Sponsor
James Young, Testing the Tensile Strength of Different Fishing Line, Region 2, St Jude Mountain Top, Marilyn Baran, Sponsor
Avanti Athavale, What Brand of Battery Lasts the Longest?, Region 4, Good Hope MS, Heather Castle, Sponsor
Aidan Aldredge, High Flying Soccer Balls, Region 1B, Indian Crest MS, Jennifer Odenwald, Sponsor
Elizabeth Kinney, Softball Bats V.S Distance, Region 6, Cambria Hts. MS, Christina Fetsko, Sponsor
Adam Pavlovich, Drop That Weight, Region 9, South Side MS, Michael Stewart, Sponsor
Noah Carter, Guitar String Theory, Region 7, St John the Baptist, Kathryn Drombosky, Sponsor
Noah Knott, Which Bridge Design Holds the Most Weight?, Region 10, Seton School, Cathleen Gorman, Sponsor
Phillip Duarte, Effect of Pressure on Tire Efficiency, Region 1B, Murray Ave Sch, Denise Meyers, Sponsor

Unit 293 **Physics 8** **SACKETT 113**

Karthik Ramanathan, Frictional Study of Surfaces in Relation to Toy Car Movement, Region 3, Springhouse MS, Daniel Christman, Sponsor
Sami Zain, Mapping standing waves in a microwave cavity, Region 5, Selinsgrove MS, Amanda Witmer, Sponsor
Hayden Keith, What Brand of Bubble Gum Blows the Biggest Bubbles, Region 9, Kennedy Catholic, Gretchen Witkowski, Sponsor
James Hower, Effect of a Waterproofing Agent on Guitar Strings, Region 9, Freeport Area, Eleanor Savage, Sponsor
Tucker Wise, Hot Stuff: Testing the Efficiency of Quenching Liquids, Region 4, Lamberton MS, Mark Smeltz, Sponsor

Jonathan Anderson, Which Phone Service Provider has the Fastest Data Connection, Region 9, New Castle, Leah Ann Williams, Sponsor
Koen Gaydos, Does Temperature Affect Magnetism?, Region 2, Valley MS, Jon Weaver, Sponsor
Sam Buchanan, Measuring Vibrational Frequency with Light, Region 9, St Gregory, Matthew Dunker, Sponsor
Paige Messett, The Energy of a Basketball, Region 9, Sharpsville Area, Erin Labbiento, Sponsor
David Corfield, Wooden Vs. Aluminium Baseball Bats, Region 9, South Side MS, Michael Stewart, Sponsor
Zoe Obenza-Bridges, Ambient Air Temperature Effects on Hydrogen Emission, Region 7, Pittsburgh Colfax K-8, Leonard Kisslinger, Sponsor

Unit 294

Physics 8

SACKETT 117

Josh Lytle, Relieving Tension for Power, Region 9, South Side MS, Michael Stewart, Sponsor
Regina Zimmerman, Which Toilet Paper Has the Greatest Strength?, Region 10, St. Jude School, Jeff Till, Sponsor
Oliver Przepiora, Does temperature affect a magnet's strength, Region 10, Seton School, Cathleen Gorman, Sponsor
Megan Grob, Current Science, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Ben Hower, Baseball Bat Material Comparison, Region 7, Riverview HS, Brian Ludwig, Sponsor
Parimala Rajesh, Cell Phone Radiation Barriers: Do They Really Work?, Region 4, Good Hope MS, Heather Castle, Sponsor
Cassandra Dancak, Disappearing Air Pressure, Region 9, Sharpsville Area, Erin Labbiento, Sponsor
Jayson Bonville, Could Cola be the Next Rocket Fuel?, Region 1C, Snyder MS, Kathryn Liese, Sponsor
Parth Patel, Which type of oven conducts thermal energy the best?, Region 1C, Snyder MS, Kathryn Liese, Sponsor
Trinity Fox, Dead After 6?, Region 10, Fairview MS, Rebecca Andrews, Sponsor
Isabel Valderrama, Car Driving Down a Ramp, Region 7, Our Lady of Grace, Theresa Rabogliatti, Sponsor

Unit 295

Physics 8

SACKETT 120

Jesse Hilko, Affect of Regenerative Radio Coil Gap Distance on Reception, Region 9, Freeport Area, Eleanor Savage, Sponsor
Ian Kutzler, Hard Knocks: Impact Forces and the Human Adolescent Brain, Region 1B, Indian Crest MS, Jennifer Odenwald, Sponsor
Anand Bhat, Does Air Pressure in Soccer Balls Affect the Bounce Height?, Region 9, Freeport Area, Eleanor Savage, Sponsor
Mwendwa Daisley, How Different Strings Affect Frequency and Amplitude, Region 3, The Swain Sch, Debbie Lindsay, Sponsor
Amorae Lyles, What Battery Brand Lasts The Longest?, Region 9, New Castle, Leah Ann Williams, Sponsor
Chase Whittaker, What Materials of Drumsticks Produce Higher Decibels?, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Grace Bovey, How Golf Ball Compression Affects Distance, Region 2, Crestwood SD, Mickey Harper, Sponsor
Miranda Shafer, Does temperature affect luminol?, Region 10, North East MS, Ian Williams, Sponsor
Amanda Klotz, Static Electricity, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Sreekara Dandibhotla, Amazing DC Motors and How to Improve Their Performance, Region 1B, Arcola Int Sch, Sharon Branca, Sponsor

Unit 296

Physics 8

THOMAS 102

Kaylee Thomas, How Height Affects Basketball, Region 6, Cambria Hts. MS, Christina Fetsko, Sponsor
Kanay Let, Does viscosity of a liquid affect the refraction of light?, Region 3, Francis D. Raub MS, Jeff Lucas, Sponsor
Christopher Maciejczyk, The strength of hot and cold magnets, Region 2, St Nicholas St. Mary, Diane Bojarcik, Sponsor
Naomi Girson, An Analysis Of Sound Wave Intensity, Region 7, Riverview HS, Brian Ludwig, Sponsor
Aiden Casey, How Strong Are Your Teeth?, Region 2, South Scranton IS, Katona Miller, Sponsor
Macey Mezzelo, Softball vs Baseball, Region 6, Cambria Hts. MS, Christina Fetsko, Sponsor
Payton Slagle, Temperature of tennis ball vs. Bounce height, Region 9, Butler Area, Veronica Sankey, Sponsor
Ashleigh Rogers, Protection from the Sun, Region 4, Susquenita MS, Beth Johnson, Sponsor
Ziad Jaafar, A Study of Pendulum Behavior, Region 7, Riverview HS, Brian Ludwig, Sponsor
Wisdom Ufodu, Turning Heat Into Electricity Using the Seebeck Effect, Region 3, Moravian Acad MS, JoAnne Daniels, Sponsor

Unit 297

Physics 8

THOMAS 118

Annabelle Greissinger, Mimicking Radar Cross Section, Region 10, St Luke, Rachel Burbules, Sponsor
Anthony Ratkiewicz, Which Metal Gets the Hottest?, Region 8, John F Kennedy CS, Rebecca Papson, Sponsor
Wyatt Walczak, Projectile Launch, Region 2, Our Lady of Peace, Dan Banicky, Sponsor
Autumn Liccardi, Comparison of Metal Effectiveness in Electromagnets, Region 10, Fairview MS, Rebecca Andrews, Sponsor
Kyan Snider-Mills, What water bottle will keep water the coldest-Yeti or Thermo, Region 10, St George, Lisa Fuss, Sponsor
Eva Borkowski, Do You Hear What I Hear?, Region 1C, St. Ephrem School, Ashley Snyder, Sponsor
Matt Muthard, How Does Gearing a Bike Increase or Decrease the Top Speed?, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Sara McConnell, Chill Out, Region 9, St Gregory, Matthew Dunker, Sponsor
Kathryn Hucaluk, How Far Will the Marble Travel?, Region 3, Springhouse MS, Daniel Christman, Sponsor
Brett Dobson, The Tensile Strength of Wood, Region 9, Wilmington Area, Sandra Earl, Sponsor

Unit 298**Physics 8****THOMAS 120**

Sarika Mongar, *The Affect of Height on Blood Spatter*, Region 2, NativityMiguel Sch, Shelby Kresge, Sponsor
Varsha Borkar, *Efficiency of LED Lightbulbs vs. Incandescent Lightbulbs*, Region 3, Springhouse MS, Susan Stern, Sponsor
Haruka Doi, *Stealth Shapes*, Region 7, Pittsburgh Colfax K-8, Leonard Kisslinger, Sponsor
Seth Miller, *Which Tape is the Stickiest*, Region 2, Our Lady of Peace, Dan Banicky, Sponsor
Madison Metrick, *Weights Effect on Speed and Duration of Oscillating Motion*, Region 2, McAdoo-Kelayres MS, Kaitlyn Herling, Sponsor
Rachel Ciotti, *What is the optimal shape of wind turbine blades?*, Region 10, Blessed Sacrament, Maricarol Schoenfeldt, Sponsor
Neha Shukla, *Exploring Hearing Damage Through High Decibel Range Sounds*, Region 4, Good Hope MS, Heather Castle, Sponsor
Lilly Masri, *Which Fabric Is Most Absorbent?*, Region 10, Walnut Creek MS, Jennifer Haller, Sponsor
Julianne Rizzo, *Density Project*, Region 10, North East MS, Ian Williams, Sponsor
Ramaniah Karamcheti, *What is the Speed of Light in a Microwave Oven?*, Region 8, John F Kennedy CS, Rebecca Papson, Sponsor

Unit 299**Physics 8****THOMAS 210**

Emily Bachl, *Changes in Chargers*, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Rowen Keister, *The Gauss Rifle*, Region 3, Orefield MS, Brian Holtzhafer, Sponsor
Eric Cui, *A Study in Magnetization*, Region 10, Walnut Creek MS, Jennifer Haller, Sponsor
Matthew Maciejczyk, *Now you hear it, now you don't*, Region 2, St Nicholas St. Mary, Diane Bojarcik, Sponsor
Homare Yamashita, *Aerodynamics in the Wheels*, Region 3, Springhouse MS, Daniel Christman, Sponsor
Abigail Feinstein, *Electrical Resistance*, Region 7, Pittsburgh Colfax K-8, Leonard Kisslinger, Sponsor
Abby Nadik, *Changing the Pitch with Water*, Region 9, South Side MS, Michael Stewart, Sponsor
Zara McClymonds, *How does Color Affect Heat Absorption?*, Region 10, Seton School, Cathleen Gorman, Sponsor
Regan Welch, *Effect of Color on Heating by Absorption of Light*, Region 2, Berwick AMS, Todd Gunther, Sponsor
Hannah Vrablik, *Under Pressure*, Region 3, Orefield MS, Brian Holtzhafer, Sponsor

Unit 300**Zoology 7 & 8****THOMAS 216**

Nora Lake, *How does the pH affect the Hatchability of Brine Shrimp Eggs*, Region 1B, Wyndcroft US, David Johnson, Sponsor
Maura Randal, *Light and Butterfly Metamorphosis*, Region 7, Our Lady of Grace, Theresa Rabogliatti, Sponsor
Aarav Kakade, *Effect of Electromagnetic Field on Daphnia Magna*, Region 3, Springhouse MS, Troy Minarovic, Sponsor
Sarah Pangare, *Effect of Caffeine on the Regeneration of Planaria*, Region 3, Springhouse MS, Noel Mahmood, Sponsor
Grace Barrett, *Effect of Music on Domesticated Rabbits*, Region 10, Seton School, Cathleen Gorman, Sponsor
Anastasia Davis, *Bugs of Steel*, Region 7, Blessed Francis Seelos, David Blozowich, Sponsor
Laura Kutschke, *Effect of Homemade Repellent on Ants*, Region 7, St Anne Catholic, Nancy Laird, Sponsor
Lauren McKean, *Light and Dark Ant Farm Experiment*, Region 9, Butler Area, Veronica Sankey, Sponsor
Maxwell Drosjack, *How does the food a guinea pig eat affect water consumption?*, Region 9, Butler Area, Veronica Sankey, Sponsor
Luca Assandri, *The Hungry Games*, Region 7, Providence Heights Alpha, Linda Cessar, Sponsor
Natalie Golgan, *What is the most Effective Natural Ant Repellant?*, Region 9, Freeport Area, Eleanor Savage, Sponsor

Unit 301**Zoology 8****THOMAS 220**

Fiona McMahon, *Coral and Sunscreen: How Does Sunscreen Affect Coral Health?*, Region 1B, Cedarbrook MS, Beth Kenna, Sponsor
Laura Hurlock, *Effects of Giving Hay on Input and Growth of Holstein Calves*, Region 3, Northampton Area MS, Amie Marks, Sponsor
Michael Mendoza, *Determining Actual Performance Values Versus EPDs For Cattle*, Region 9, Reynolds JSHS, Jane Coburn, Sponsor
Lucia Rider, *Do Dogs Have a Color Preference?*, Region 9, New Castle, Leah Ann Williams, Sponsor
Isaac Boring, *Dog color preferences*, Region 9, Butler Area, Veronica Sankey, Sponsor
Eve Rectenwald, *Pummeling Puppy Plaque*, Region 7, St Maria Goretti, Richard Carlberg, Sponsor
Mark Farrell, *To Kill a Lanternfly*, Region 1B, Indian Crest MS, Jennifer Odenwald, Sponsor
Julia Bryson, *The Whole Kitten Caboodle.*, Region 9, New Castle, Leah Ann Williams, Sponsor
Alana Utlak, *What Does Grooming Do to a Horse's Heartrate?*, Region 9, Kennedy Catholic, Gretchen Witkowski, Sponsor
Alyssa King, *Salt Levels Effect a Brine Shrimps Heart Rate*, Region 2, Pocono Mt East HS, Maureen Elswick, Sponsor

Pennsylvania Junior Academy of Science Student Behavior Code

Students, Parents, Sponsors, and School Districts are reminded that the behavior code of the student's home school district is in effect during the student's participation in both the Regional and State PJAS activities. It is expected that the sponsors and school districts will discipline the student according to that district's policy if the student violates the behavior code while at the PJAS activity.

Students will be sent home immediately from the PJAS state meeting at Penn State University for the following behaviors.

- Refusing to follow PJAS State Meeting Rules
- Vandalizing
- Fighting
- Stealing
- Possessing weapons, drugs, explosives, tobacco, or alcohol
- Entering into opposite gender dorms.
- Participating in intimate activity
- Behaving in a manner which poses a threat to self or others.
- Behaving in a manner requiring police intervention
- Violating the home school's behavior code
- Operating a motor vehicle to, during, or home from the PJAS state meet
- Using tobacco products including electronic tobacco devices
- Bullying including verbal, physical, and cyber bullying
- Using cameras, imaging, and digital devices in showers, restrooms, or other areas where privacy is expected by participants
- Posting of inappropriate material on social media sites

A student sent home automatically forfeits any award or scholarship for which he/she may have been eligible.

The student's future participation in PJAS Region and State meetings will be affected by their behavior. Continued participation will be determined by the student's regional director, sponsor, and school and may include the following.

- Requiring the student to bring a parent as a chaperone while staying on campus or requiring the student to stay off campus with a parent as chaperone.
- Prohibiting participation in the PJAS State Meeting and/or Regional Meeting for one or more years.
- Prohibiting participation in any PJAS activity for the remainder of the student's middle and high school careers.