

CARMEL SCIENCE RESEARCH

Recruiting Young Scientists!!

Carmel Science Research is a three-year program that affords students the opportunity to participate in the community of scientific research as part of their high school experience

Benefits of Joining

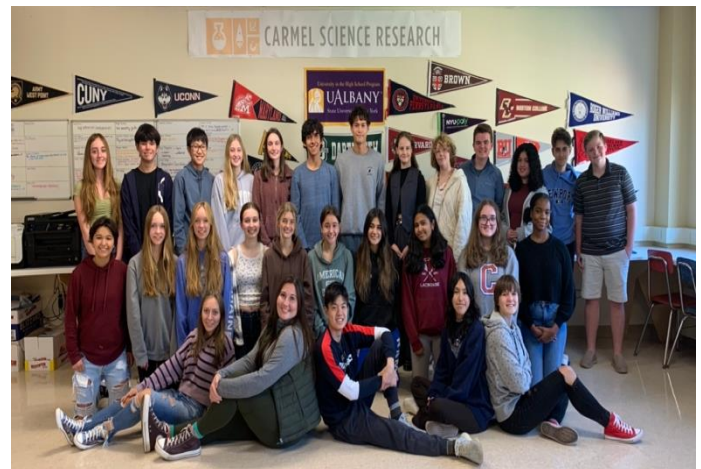
- Earn up to 12 college credits
- Build a resume
- Master skills in public speaking, writing, communication and time management
- Become a part of the supportive Science Research “Family”
- Follow your passions!

Are you a freshman and interested in a class...

- where grades are based on effort and are no test?
- where you choose what to study?
- that is challenging and demands your best?
- that requires the use of computer skills?
- is worth honors (10th) and AP weight (11th & 12th)
- that may help you win state and national science competitions and scholarships?
- that will help you get accepted to competitive colleges?
- unlike any class you have taken?

Do you...

- have an exceptional worth ethic?
- do your best when personally challenged?
- show curiosity and enthusiasm?
- aspire to do great things?
- have a passionate interest to study something school does not offer?



What is Carmel Science Research

- A three-year program that affords students the opportunity to participate in the community of scientific research as part of your high school experience.
- Carmel Science Research balances instruction in the high school with a mentorship experience over the course of the student's high school career starting in sophomore year through senior year.
- Affiliated with the State University of New York at Albany.
- Graduates have reported that their experiences have given them an edge in college in terms of acceptance rates as well as preparedness.
- For further information, visit our website at <https://bit.ly/2ekByc4>.

By participating, your student will accomplish the following:

- Choose and explore a topic of interest from the physical, natural, or social sciences using professional literature.
- Develop skills in using the internet and learn to conduct searches of a wide range of databases.
- Study professional research publications related to their topic of interest and formally presented these articles to audiences.
- Prepare a plan of novel intended research.
- Communicate with scientists to serve as a mentor and assist student is carrying out a research project.
- Design and conduct a research investigation under the supervision of a scientist mentor and the science research teacher.
- Write a formal research paper.
- Present their findings at local, state, and national competitions.

Competitions & Mentorships we participate in (and win!)

- Regeneron Science Talent Search
- Junior Science and Humanities Symposium
- Westchester Science and Engineering Fair
- Tri-County Science Fair
- Somers Science Fair
- Mianus River Gorge Wildlife Technician Program
- 1000 Girls, 1000 Futures
- STEM U

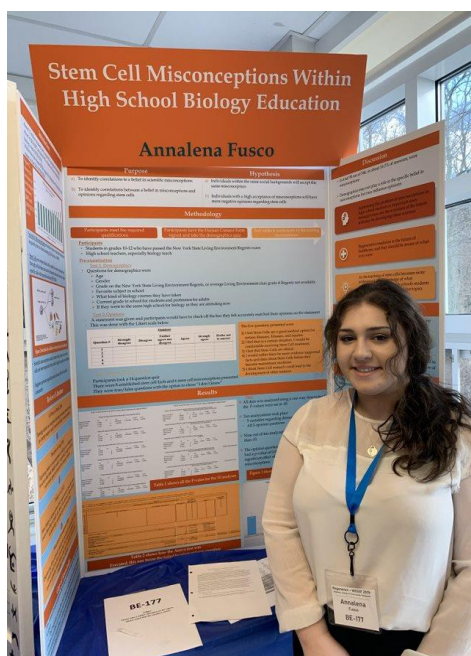


How CSR reinforces the 6C's

- **Critical Thinking**
 - Analyze & synthesize information
 - Evaluate authentic research
- **Creativity**
 - Identify & pursue passions
 - Think innovatively
- **Communication**
 - Articulate & present research project
 - Compose a research report
 - Speak with experts in field of study
- **Collaboration**
 - Develop partnerships with experts & institutions
 - Work productively with others
- **Compassion**
 - Demonstrate empathy & kindness
 - Positively impact others
- **Citizenship**
 - Engage in the science research community
 - Demonstrate scientific responsibility & pride

Research Topics

- Animal & Plant Science
- Behavioral & Social Science
- Biochemistry
- Computer Science
- Chemistry
- Engineering
- Environmental Science
- Medicine & Health Science
- Microbiology
- Physics & Astronomy
- Cellular & Molecular Biology
- Neuroscience
- Earth and Planetary Science



Alumni have attended:

- Harvard
- Columbia
- Cornell
- Brown
- Stanford
- Villanova
- Rochester Institute of Technology
- Dartmouth
- Boston College
- Boston University
- Binghamton University



Anatomy of a Research Project

- **Introduction & Review of Literature**
 - General background information that leads to area of research
 - Explanation of prior research that leads to a gap of knowledge
- **Research Question(s)**
 - Specific question(s) that will be addressed
 - Goals or purpose of research
- **Materials & Methodology**
 - Identification of required materials
 - A clear plan and identification of scientific variables
 - Explanations of procedural steps that will be utilized to address research question
 - Collection of data
- **Results & Analysis**
 - Statistical analysis of collected data
 - Display of results in tables and figures
- **Discussion & Application**
 - Explanation of the relationship between research question and results
- **Conclusion & Future Research**
 - Statement(s) made on the data/schematics presented
 - Identify a direction for further research

Sophomore Year

- Read journal publications
- Choose an area of research
- Identify a research question
- Formalize a research plan
- Apply for approval
- Create a poster presentation of intended research plan
- Compete at Somers Science Fair

Junior Year

- Implement research plan
- Gather & Analyze data
- Write research paper
- Submit research paper to Eastern Junior Science and Humanities Symposium
- Create a poster and PowerPoint presentation of research
- Compete at Westchester Science and Engineering Fair

Senior Year

- Continue implementation of research plan
- Gather & Analyze data
- Write research paper
- Submit research paper to Regeneron Science Talent Search and Eastern Junior Science and Humanities Symposium
- Compete at Westchester Science and Engineering Fair



How to Apply

- Tell your guidance counselor you are interested in science research
- Complete the Carmel Science Research Application
 - Applications can be obtained from a science teacher, guidance counselor or at <https://bit.ly/2ekByc4>
 - Applications must be submitted by **Tuesday, May 9 by 11:59 pm**
- Applications are submitted digitally through our website at <https://bit.ly/2ekByc4>
- If accepted, you will receive a letter in the mail

Parts of Application

- Two Essays
- Teacher Recommendation
- Two popular science article summaries
- Four possible research questions
- Signed parent/guardian letter

See application for full details

Course Pre-requisites

- Must be a freshman to apply
- Successful application process
- Teacher recommendation
- Minimum of 85% class averages in all Regents math and science courses

Course Sequence:

10th = Introductory Science Research
11th = Intermediate Science Research
12th = Advanced Science Research

Further Involvement Opportunities

- Consider volunteering as a judge at the Somers Science Fair to help bright, young inspiring scientists as they start their journey into the world of scientific research
- Are you an expert in a STEM field? Consider mentoring a student in Carmel Science Research
- Visit our website for more information and research participant opportunities

Carmel Science Research Symposium

- Join us for the annual Carmel Science Research Symposium on:
 - Wednesday, May 17 from 6:30 - 8:30 pm in the CHS Library
 - 2022 - 2020 Virtual Symposiums can be viewed on our website

Contact Us

- We are located in room 201, feel free to stop by!
- Dr. Nicole J. Griffin, Ed.D.
 - Science Research Coordinator
 - Carmel High School
 - ngriffin@carmelschools.org

Visit us online at <https://bit.ly/2ekbyc4>



Accomplishments

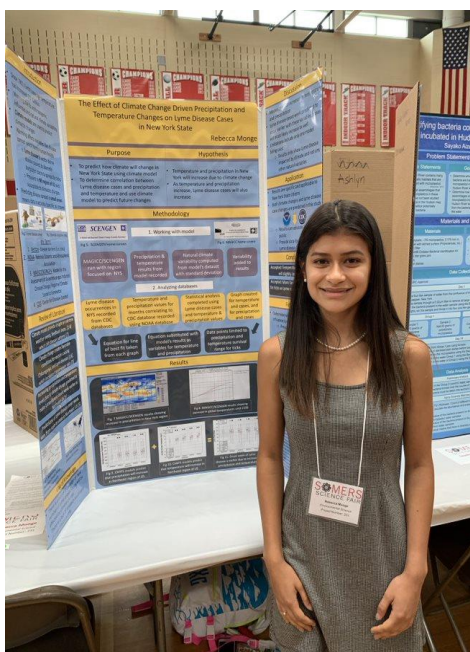
- **Grace Fischer** placed 1st in the category of environmental sciences at the Eastern Junior Science and Humanities Symposium and earned a speaker spot at Upstate Junior Science and Humanities Symposium. Grace Fischer's research was entitled: The Effect of Human-Made Noise Pollution on Songbirds in New York State.
- **Teagan Weindel** placed 3rd in the category of behavioral science 3 at the Eastern Junior Science and Humanities Symposium. Teagan Weindel's research was entitled: **Analysis of the Population Fluctuation of District 7 of Carmel, NY from 1856-1866.**
- **Olivia Schwark, Riley Ward, Teagan Weindel, Jennie Belle Aliaga, and Grace Fischer** were selected to present their research at Eastern Junior Science and Humanities Symposium.
- **Kaitlin Furu** and **Kayleigh Harney** were accepted into the Mianus River Gorge Wildlife Technician Program.
- Along with his mentors, **Ryan Doherty** has submitted the research entitled "The Effect of Race and Other Social Determinants of Health on HIV Pre-Exposure Prophylaxis Use: A County Level Analysis Using the PrEP-To-Need Ratio" for scholarly publication.
- Along with her mentors, **Riley Ward** has submitted the research entitled "Three Food Acid Lab Conclusion Analysis through Qualitative Coding, Cohen's Kappa and Inter-Rater Reliability" for scholarly publication.
- **Jaclyn Repanti** placed 3rd in the category of Behavioral Science at the Eastern Junior Science and Humanities Symposium. She presented her research entitled "Measuring Accessibility within Childcare".
- **Ryan Doherty** was accepted into the Sumer Science Program (SSP). The Sumer Science Program is one of the longest-running pre-college, research-based enrichment programs for highly gifted high school students. Sumer Science Program offers teens an exhilarating and inspiring immersion into hands-on experimental science.
- **Rebecca Monge** placed 1st in the category of Earth Science at the Westchester Science and Engineering Fair. Her research was entitled "Polar Amplification in CMIP6 Models: Projections, Mechanism, and Regional Patterns".
- **Cara Galli** won the Mianus River Gorge Ecology Award at the Westchester Science and Engineering Fair. It is awarded to outstanding projects that study the current health of ecosystems. Her research was entitled "A Study of Urban Coyote (*Canis latrans*) Habitation of Long Island and its Implications".
- **Danielle Kilcawley** had her name published in the seventh edition of the *Journal of Dance Medicine Bibliography* under the title "Assistant to the Editor" for her work indexing articles for mentors Ruth and John Solomon.





Rebecca Monge had been named a **top 40 scholar in the 80th Regeneron Science Talent Search**, the nation's oldest and most prestigious science and mathematics competition for high school seniors. A total of 1,760 students around the country entered the competition, which is owned and produced by Society for Science. To be named a top 40 scholar is an extraordinary accomplishment deserving of much celebration. She was awarded \$25,000 and moved forward to compete against the other finalist. She submitted her research entitled *"Polar Amplification in CMIP6 Models: Projections, Mechanisms, and Regional Patterns"*.

Ryan Doherty had been named a **top 300 scholar in the 81st Regeneron Science Talent Search**, the nation's oldest and most prestigious science and mathematics competition for high school seniors. A total of 1,804 students around the country entered the competition, which is owned and produced by Society for Science. To be named a top 300 scholar is an extraordinary accomplishment deserving of much celebration. He was awarded \$2,000. She submitted her research entitled *"The Effect of Race and Other Social Determinants of Health on HIV Pre-Exposure Prophylaxis Use: A County Level Analysis Using the PrEP-To-Need Ratio"*.



Rebecca Monge



Ryan Doherty

Visit us online at <https://bit.ly/2ekbyc4>



