



CARMEL SCIENCE RESEARCH

Recruiting Young Scientists!!

Carmel Science Research is a three year program 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!

Is your student a freshman and interest in a class...

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

Does your student...

- have an exceptional worth ethic?
- does their 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 is able to balance instruction in the high school with a mentorship experience over the course of the student's high school career starting in the 10th grade 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 <http://bit.ly/2ekByc4>**

By participating, your student will accomplish the following:

- **Choose and explore a topic of interest**
- **Develop skills in using the internet, and learn to conduct searches of a wide range of databases**
- **Find and study professional research publications related to their topic of interest and formally presented these articles to audiences**
- **Prepare a statement of original intended research**
- **Ask a scientist or researcher 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 research course teacher**
- **Present their findings to their class, school district and at regional and statewide 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**
- **Engineering**
- **Environmental Science**
- **Medicine & Health Science**
- **Microbiology**
- **Physics & Astronomy**
- **Cellular & Molecular Biology**

Alumni have attended:

- **Columbia**
- **Cornell**
- **Villanova**
- **Rochester Institute of Technology**
- **Dartmouth**
- **Boston College**
- **Boston University**

Expert Voices

- **Constructivism is guided by recommendations that encourage learning in context and that learns pursue their own learning goals (Driscoll, 2005)**
- **It rest on the assumption that knowledge is constructed by learners as they attempt to make sense of their experiences (Driscoll, 2005)**
- **Students learn within context**
- **Learners identify and pursue their own learning goals (Driscoll, 2005)**
- **Importance is placed on retaining focus on higher-order goals and necessary scaffolding (Driscoll, 2005)**
- **Problem solving, reasoning, critical thinking and active and reflective use of knowledge are goals of constructivist instruction (Driscoll, 2005)**



Anatomy of 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 <http://bit.ly/2ekByc4>
 - Applications must be submitted by Wednesday, April 24
- Submit the completed application to Ms. Monaco
- 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 = Introduction to Science Research
- 11th = 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:
 - Thursday, May 16, 2019
 - 6:30 – 8:30 pm
 - CHS Library

Contact Us

- We are located in room 201, feel free to stop by!
- Ms. Nicole Monaco
 - Science Research Coordinator
 - Carmel High School
 - nmonaco@carmelschools.org

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

