



Educate.
Innovate.
Achieve.

ABOUT

Science Coach, a program of BioSTL, engages 6th-12th grade public, private, homeschooled students in the process of scientific inquiry so they can tackle the problems of today and tomorrow. The Science Coach program trains teams of teachers to coach students to choose questions of personal interest, create procedures to test hypotheses, arrive at answers with validity, and build confidence in solving real world problems. Schools pay their teachers to coach sports teams. Science Coach teachers get compensated for coaching students to create advanced authentic research projects. Science Coach students then take their research projects to national and international competitions, and, for some, transform the innovation into a marketable product. This year, 89 percent of Science Coach students are choosing STEM careers.

Watch, learn, and prepare to be impressed! as these students from the St. Louis region present their year-long research projects. View these and additional exemplary project videos on the Science Coach website - ScienceCoach.org/library.

STUDENTS



ELI JONES

12th Grade | Jackson High School

Phase II: Towards the Total Synthesis of the Leishmanicidal Lindbergen E for the Development of an Enantioselective Phloroglucinol-Derived Polyketide Synthesis

Elijah is working on synthesizing a vital chemical used in malaria and cancer treatments which is currently only available from plants. He is on step 5 of 8 to create this chemical. If successful, drugs that use this will become cost effective.



LANITA DEVINE

12th Grade | Wentzville Holt High School

Isolation and Identification of Antibiotic Compounds from Soil Found in Suburban Public Parks

LaNita has identified two novel antibiotic compounds that have not been previously included in the national databases. This means that there is a potential that these compounds might be a source for new antibiotics which could help with illnesses that are becoming resistant to current antibiotics.



MALLORIE COFFEE

12th Grade | Jackson High School

Tolerance and Cell Viability of N-Hexanoyl - L - Homoserine Lactone Within CRL-3342 Cell Line

Year 2 study addressing the antibiotic resistance of Strep by preventing the initial release of toxins.



TATE FRIEDRICH

12th Grade | Jackson High School

Testing Aircraft Designs which Employ Electrohydrodynamics Effect to Produce Thrust

Tate was able to make a drone fly without any moving parts which has broad applications for military and unmanned craft deliveries.



TAHLOR JOHNSON

12th grade | Governor French Academy

To Dye or Not to Die: Bacterial Mutagenicity and Carcinogenesis

Tahlor has been researching the effect of hair dye to reduce the cancer causing effect on people who frequently dye their hair.



MAYA IRVINE

12th Grade | Camdenton High School

The Role of the Phytotoxic Flavone Apigenin in the Allelopathic Pathway of the Invasive Plant Species, Lonicera maackii

Found that the leaves of Bush Honeysuckle produce a natural preemergent herbicide chemical that may be a green solution for row crops.



MANEL ELMORABIT

6th Grade | Governor French Academy

The Effect of UV-C Light on Saccharomyces cerevisiae

Manel's experiment showed that using VUVC light was an effective tool to kill yeast colonies and may be a way to easily sterilize facemasks at home.



GRACE JOHNSON

11th Grade | Lebanon High School

Introduction of arbuscular mycorrhizal fungi to inhibit Nitrogen uptake of weeds within crop fields.

Ag Science research trying to use naturally occurring fungi to prevent weeds from using the available nitrogen in field crops.



LISA CRAWFORD

9th Grade | Governor French Academy

Probability Study of A Three-Sided Coin

As a 9th grader, her math project prepares her for future work doing geospatial calculations.



ETHAN DUNSWORTH

12th Grade | Wentzville Holt High School

Efficiency of an HB11 Fusion Reaction Under Varying Methods of Kilotesla Magnetic Confinement

Ethan is working to develop a nuclear fusion reactor that will produce electricity WITHOUT any radioactive waste being generated as a byproduct!



EMMA SHIELDS

11th Grade | Jackson High School

Chlorophyta Adsorption of Phosphorus

To address the ocean algae bloom problem, Emma successfully showed that Elodea plants tied into seaweed "farms" in the upstream rivers could effectively absorb the water's extra phosphorus.



MACY STEBER

12th Grade | Wentzville Holt High School

The Effects of Vitamin D₃ and Omega-3 Fatty Acids on Insulin Absorption in Drosophila Melanogaster Df[dilp 1-5]

2nd year study working to see if Vitamin D3 and Omega 3 Fatty Acids will improve insulin absorption.



MEGAN STEBER

12th grade | Wentzville Holt High School

The Anti-Inflammatory Properties of Avocado Seed Extract and the Effect on Inflammatory Bowel Disease

Megan is researching if the anti-inflammatory property of ground up Avocado seeds would help reduce symptoms in people with Inflammatory Bowel Disease.



AMELIA TRUONG

12th Grade | Wentzville Holt High School

Analyzing Genes Related to Reactive Oxygen Species in *Stylophora pistillata* corals Under Short-term Thermal Stress

Amelia conducted a bioinformatics research project which showed a pattern of genes that were responsible for coral bleaching.



ALLISON DRENNAN

11th Grade | Lebanon High School

Cinnamaldehyde was found to be effective as an antibacterial agent in a produce wash for leafy greens.

Evaluating Cinnamaldehyde as an Antibacterial Agent in a Produce Wash for Leafy Greens.



SAGE REAGAN

10th Grade | Governor French Academy

Effects of Ethanol on *Caenorhabditis Elegans*

*Sage continues her multiyear research project on *C Elegans* to help her find a cure for Multiple Sclerosis.*