



Science Coach®

CURRICULUM

Save **precious**
planning time
by using our
proven curriculum!

Detailed Lessons Supporting Advanced Original Research/Innovation Instruction

Science Coach Curriculum provides detailed lessons and associated content for teaching advanced original research and innovation. The embedded student instruction is primarily designed for secondary students, but has also been used for lower grade levels. Its features include:

- ✓ Step-by-step **downloadable/modifiable** lesson plans, rubrics, classroom activities, and associated instructional materials.
- ✓ Content built around the **5E** Model of Instruction and mapped to **NGSS**, Science and Engineering Practices (SEP), and Cross Cutting Concepts (CCC).
- ✓ Clear objectives and **timelines** to guide student innovators to successful science research projects.
- ✓ Deployed via **Canvas** at your school, or through our Canvas installation.

Research Teacher & Student Curriculum Ideal for:

- Dedicated research classes, gifted programs, after school clubs, or for existing classes that feature independent research projects
- Invention education instruction

Science Coach Curriculum Includes Student-Focused Instruction

- ✓ Aligned lesson objectives
- ✓ Independent learning
- ✓ Auto-graded assessments
- ✓ Submission of each project component is built into the curriculum, you just set the due date.

LEARN MORE

Science Coach Curriculum

\$1,250/License Year 1
\$500 Renewal/Year

Per Student Cost

\$75/Student/Year
(1 to 75 students)

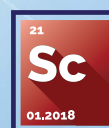


EMAIL

Info@ScienceCoach.org

CALL

314-501-1940



Science Coach Curriculum Modules

Delivered via Canvas by Instructure

Module 0: Introduction to Innovation

- Creativity and Innovation
- Working within a Team
- Characteristics of Innovators
- Design Thinking

Module 1: Introduction To Research

- Why Conduct a Research Project
- Exploring Science Competitions
- Scientific Research Changes the World
- Sharing Research Findings
- Where Can Research Be Conducted?

Module 2: Developing A Research Question

- Creating a Logbook
- What Makes a Good Research Question
- Research Questions Around School, in Nature, and Everywhere
- Create Your Research Question
- Finding a Mentor

Module 3: Conducting A Literature Review

- What is Scientific Literature
- What is a Literature Review
- Literature Review Databases
- Potential Problems with Literature Reviews
- Conducting Your Literature Review
- Writing Your Hypothesis

Module 4: Research Ethics & Integrity

- Intro To Ethics and Integrity In Research
- Ethical Issues With Living Beings
- Ethical Issues With Handling Information
- Governing Bodies of Ethics
- Ethical Scenarios

Module 5: Study Design I

- Types of Variables
- Writing a Procedure
- Quantitative and Qualitative Studies
- Mixed Methods Study Designs
- Designing Quantitative and Qualitative Studies
- Study Design Implementation
- Student Presentations

Module 6: Study Design II

- Types of Qualitative and Quantitative Studies
- Observational and Survey Study Designs
- Surveys and Focus Groups
- Applying Observational, Survey and Focus Group Study Designs
- Correlation and Causation
- Correlation Study Design
- Quasi-Experimental – Experimental Study Designs
- Applying Experimental Study Designs
- Designing Your Experiment

Module 7: Conducting Your Experiment

- Bias and Sample Sizes
- Designing Your Data Collection
- Materials Lists and Laboratory Safety
- Aseptic Technique and Sterile Workspaces
- Refining Your Procedure
- Carrying Out Your Procedure

Module 8: Data Analysis Using Descriptive Statistics

- Descriptive Statistics
- Applying Real World Data
- Analyzing Data Using Google Sheets
- Analyzing Real World Data Using Google Sheets

Module 9: Data Analysis Using Statistical Analysis

- Introduction to Statistical Analysis
- p Values
- Significance Testing, T-Tests
- Chi Square
- Linear Regression
- Analysis of Variance Test (Anova)
- Applying the Appropriate Tests
- What Bad Statistics Can Do

Module 10: Results & Conclusions

- Constructing Graphs
- Applying Data Organizational Skills
- Interpreting Graphs
- Developing A Conclusion And Discussion
- Developing Your Conclusion And Discussion

Module 11: Writing a Scientific Paper

- Parts of a Scientific Paper
- Writing a Scientific Paper
- Literature Review, Procedures, and Materials
- Results, Discussion, and Conclusion
- References and Apa Format
- Abstracts

Module 12: Presenting Results

- Creating Your Presentation or Demonstration
- Creating Your Speech
- Using Props and Visual Aids
- Speaking Techniques
- Practicing Your Speech
- Presenting Your Project Virtually

Module 13: Reflection

- Successes and Failures
- Future Goals
- Making a Plan to Continue this Project for Next Year's Research

Science Coach Curriculum development was graciously supported by the Tracy Family Foundation, The Saigh Foundation & Science Coach Benefactors.

Since 2007, the Science Coach non-profit has been engaging 6th-12th grade students to experience completing a scientifically accurate research project that solves a problem important to them. We work through schools to intentionally upgrade the skills of research teachers, providing extensive professional development and a comprehensive support ecosystem that results in 89% of students choosing STEM careers. Complete our no-obligation application today and see if you qualify: <https://bit.ly/applysciencecoach>