

***Science Fair Camp***

Summer, 2022

**Eligible Students:**

**Grades 4-8**

Prerequisite Science courses are not required. This course will only focus on mastering the steps of the Scientific Method, and will not require specific knowledge of particular scientific topics. This will enable students of different grade levels to benefit from this course.

Students must be able to follow directions and stay on task during class activities and experiments. Parent assistance may be necessary.

**Class Dates:** Monday, June 20th, 2022 – Friday, June 24th, 2022

**Class Times:** MTWRF: **1:00pm — 3:00pm** (EST)

**Instructor:** Danielle Bartko

**E-mail:** dbartko.scholeacademy@gmail.com

**Schedule for Science Fair Camp:**

**Class Sessions Dates:**

**Classes will take place on:**

Monday, Tuesday, Wednesday, Thursday, and Friday: **1:00pm — 3:00pm** (EST)

**for 1 week and 5 classes on the following dates\***

**June: 20, 21, 22, 23, 24**

*\*Please note the above dates and times are the anticipated class sessions for this course. However, all dates are subject to change as the instructor’s circumstances might dictate (e.g. illness, family emergency). Any classes canceled by the instructor will be made up at an alternate time designated by the instructor.*

 **\*Please note: a final syllabus will be provided three weeks before the course begins, with a list of common household, kitchen, and grocery items needed for hands-on class activities.**

**Science Fair Camp Course Description:**

This course can serve either as an alternative to, or as preparation for a traditional Science Fair.

Upper elementary and middle school students will be introduced to the steps of the Scientific Method. Students will have the opportunity to learn and practice the steps, and apply the Scientific Method to scientific discovery, consumer product testing, and everyday problem solving.

During each two-hour class session, students will collaborate on posing a question, developing a hypothesis, testing that hypothesis with hands-on experimentation, collecting data, and drawing conclusions based on collected evidence. Students will learn how to establish controls and variables, and how to design an experiment that produces honest results.

This will be accomplished with simple and fun experiments, answering questions such as:

* Which brand of bubble gum makes the biggest bubbles?
* Which model of paper airplane can travel the furthest?
* Does font color affect reading speed? ([Stroop effect](https://itservices.cas.unt.edu/~tam/SelfTests/StroopEffects.html))
* Does music affect heart rate?
* Does cheering affect athletic performance?
* Which brand of paper towel absorbs the most water?

(This is a sample list. Final list of experiments and materials TBA)

Class sessions will involve group work, where students will be divided into small groups to discuss and plan each step. Students will collect data from their own work, the teacher's work, and their classmates' work. Students will graph data using a variety of graphing styles. All work will be done during class time - no homework required, except for collecting materials before class begins.

**Science Fair Camp Course Map:**

Each class session will include an experiment that follows the steps of the Scientific Method:

* Problem: State in the form of a question
* Hypothesis: Form as an “if-then” statement:
	+ “if \_\_\_(I do this)\_\_\_, then \_\_\_(this should happen)\_\_\_.”
* Variables:
	+ One single independent variable to change and test
	+ One or more dependent variables to generate data
	+ Maintain constants (controlled variables)
* Experiment: Design a simple experiment with multiple trials
* Data: Collect data in a table and turn it into an appropriate graph
* Conclusion: Discuss results. What did we learn? Was the hypothesis supported?

**Required Course Materials:**

This course will require a small collection of common household/kitchen/grocery items, such as measuring cups, bubble gum, ruler, tape measure, food coloring, paper towels, etc. Before the course begins, I will provide a shopping list of suggested course materials, and keep it inexpensive.

All class materials are recommended, but not necessary. Students without materials will still be able to participate in all discussions and group work, and they can observe the teacher and fellow students executing the experiments. I may give those students alternative tasks, such as recording measurements.

**Workspace Setup:**

An ounce of prevention is worth a pound of cure! Please keep in mind that some hands-on activities will involve messy materials. Please consider this when you set your child’s workspace for class. Keyboards could be protected with a loose sheet of plastic wrap. Laptops could be elevated or pushed back on a table, in case of liquid spills.

Other activities may require a particular webcam view to observe hands-on activities. For example, on a day where we are testing and flying paper airplanes, choose a location that allows a long distance view behind the student. I do not want students running around their house or backyard with an expensive laptop in hand – WiFi signals may cut out, or laptops may be dropped.

**Student Expectations In Action**

In this class, students will be expected to listen attentively, and participate actively in class discussions and practices. Students are expected to arrive to class on time and with all materials collected and ready before class begins. The instructor will facilitate learning for the student, but the responsibility for staying up-to-date with classwork and assignments ultimately falls to the student.

**The Virtual Classroom:**

We will be using the free online “virtual classroom” software provided by Zoom, one of the leading companies that provides such software.  The virtual classroom will provide students with interactive audio, text chat and an interactive whiteboard in which texts, diagrams, video and other media can be displayed and analyzed. We will provide students with a link (via email) that will enable students to join the virtual classroom.

Specific information regarding the technology used by Scholé Academy (including required technology) can be found by visiting the [Technology in the Classroom](http://www.scholeacademy.com/student-parent-handbook/) section of the Student Parent Handbook.

Students will submit documents by scanning and uploading them to their personal computer, then attaching those files as .pdfs to an email. They will submit their work to the Science Fair Camp Schoology assignment page (access granted after enrollment is secured).

**About the Instructor:**

**Danielle Bartko** is an experienced Math and Science teacher, and Orthodox Church Cantor and Choir Director. She taught in public schools and a Montessori based Orthodox private school. She has served the American Carpatho-Russian Orthodox Diocese as a Cantor and Choir Director, and the Orthodox Church in America as a Choir Director. She spent countless summers at Camp Nazareth, first as a camper, and later as a counselor and chant teacher.

She holds degrees in Biology and Music from Lafayette College, and Secondary Teacher Certification from DeSales University. She has taught grades 5-12, and currently homeschools her children. She has experience in a variety of teaching methods, and has taught students with diverse academic needs. She is a lifelong learner, and has enjoyed growing and changing as an educator over the years. Her goal is to inspire her students to become lifelong learners as well.

Her Liturgical music education comes from a variety of coursework in Orthodox Music and Choral Directing. She has taken classes through Christ the Saviour Seminary and the OCA Liturgical Music Department, and independent study with Very Rev. Protopresbyter Michael Rosco and Professors Paul Hilko, George Hanas, Andrew Talarovich, and Jerry Jumba. Whenever she travels and visits a church, she will sneak into the choir loft, wait for an invitation to sing with the choir, and then ask for copies of good music to keep as a souvenir.

She grew up in New Jersey, but now lives in Pittsburgh PA with her husband and two young daughters. When she is not homeschooling her children or teaching classes, she enjoys gardening, jigsaw puzzles, SRS Iconography classes, visiting with friends and family, and going to the beach.