

savy

SUMMER
ACADEMY
AT VANDERBILT
FOR THE YOUNG



2017 Catalog



Rising 1st–7th Grades

SESSION 1: JUNE 12–16

SESSION 2: JUNE 19–23

SESSION 3: JUNE 26–30

SESSION 4: JULY 10–14

SESSION 5: JULY 17–21

SESSION 6: JULY 24–28

VANDERBILT
PROGRAMS FOR
TALENTED YOUTH

Developing talent in
gifted students and those
who work with them



savy **Summer Academy at Vanderbilt for the Young**

Founder

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Patricia and Rodes Hart Dean of
Education and Human Development

Executive Director

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Sarah DeLisle, Ed.D.

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“I welcome your young scholar to campus, and I trust that the opportunities for interaction with like academic peers and work with leading content experts will be an unforgettable and life-changing event for your gifted student.”

— TAMRA STAMBAUGH , PH.D.

Executive Director, Vanderbilt Programs for Talented Youth
Assistant Research Professor, Peabody College

Dear Parents,

At Vanderbilt Programs for Talented Youth we strive to offer academically advanced students experiences that will ignite their passion for knowledge, cultivate new interests, and spur creativity. If you are looking for an unforgettable summer experience for your child, where he/she will be encouraged to delve deeply into a discipline of interest alongside other academically advanced peers, then we hope you consider Summer Academy at Vanderbilt for the Young (SAVY).

SAVY courses are specifically designed for motivated gifted students. We know from research and experience that SAVY students receive social, emotional, and intellectual benefits from being in a classroom with other academically advanced peers. Our small classes engage students by stimulating critical thinking, problem solving, and reasoning skills while providing a supportive, dynamic environment that encourages students to take intellectual risks as they experience challenging material. Vanderbilt scholars, content experts, and esteemed teachers who have experience in leading gifted learners teach SAVY's hands-on, accelerated courses. Our instructors provide opportunities for students to take an in-depth look at a discipline and encourage students to practice scholarly habits. SAVY students are also quick to say our courses are fun. New friendships form during Vanderbilt lab visits, group projects, class debates, scientific research, writing workshops, literary analysis, and mathematical challenges.

Our mission at PTY is to develop talent in gifted students and those who work with them. All PTY programs, including SAVY, are grounded in a large body of research documenting the need for accelerated academic learning programs for young students and the need for professional and family supports for those working with gifted learners. In addition to our Summer SAVY program, PTY offers opportunities for advanced high school students and for parents and educators of gifted students during the summer and throughout the school year. We are here to support you as you work to support your advanced learner. Stay connected to PTY by visiting the PTY website, signing up for our newsletter, and following us on Facebook, Twitter, and Instagram.

We hope that your child will choose to join us on Vanderbilt campus this summer. There is never a dull moment when academically advanced students and passionate educators come together on the campus of an esteemed university.

Sincerely,



Sarah DeLisle, Ed.D.

*Assistant Director, Day Programs
and Professional Development
Vanderbilt Programs for Talented Youth*



Emilie Hall, M.Ed.

*SAVY Coordinator
Vanderbilt Programs for Talented Youth*



What we Do

We develop talent in gifted students and those who work with them by:

01.

Offering Saturday and summer pre-collegiate and accelerated programs for gifted students in grades K–12

02.

Supporting families and educators in learning more about gifted students through specially designed workshops, conferences, and coursework

03.

Conducting research and publishing evidence-supported articles, books, and curriculum for educators and parents

04.

Creating community partnerships and seeking outside funding to support the talent development of low-income and under-represented gifted students

PTY History

In 2000, Dean Camilla Benbow founded Vanderbilt Programs for Talented Youth. At that time, our staff led an academic, accelerated program in the summer for gifted middle and high school students. The program underwent significant changes and restructuring in 2006. Since that time, our student enrollment has tripled, and we now provide year-round accelerated academic course work for gifted students in kindergarten through high school, generally led by Vanderbilt faculty and graduate students. From 2008 to the present, we have consistently increased our scope of work to include professional development opportunities for educators, course work in gifted education, academic research related to giftedness and effective services, curriculum development, and work specifically focused on gifted students of poverty. PTY is led by Professor/Director Tamra Stambaugh, Ph.D., and Assistant Directors Sarah DeLisle, Ed.D. and Rosie Forrest, M.F.A.

PTY Student Programs

We host students from across the globe. During a typical residential program year, at least 30 different states and at least two countries other than the U.S. are represented. Day programs for our younger students enjoy representation from multiple states including Tennessee, Alabama, and Kentucky, and as far away as Texas, Michigan, California, Pennsylvania, and Florida. Approximately 20 percent of our students receive some type of need-based tuition reduction. Through student programs, Vanderbilt faculty and content experts teach accelerated courses that focus on:

- **Exposure** to a variety of accelerated content areas in which students have documented potential and interest,
- **Efficacy** in one's ability to perform rigorous tasks in a content area and development of social-emotional habits of scholars,
- **Expertise** and in-depth learning in an area of interest and talent.

Why Should We Consider Out-of-School Programs for the Gifted?

When gifted students participate in extracurricular, accelerated academic programs, such as those offered by Vanderbilt Programs for Talented Youth, they:

- Are more likely to take advanced high school courses
- Are more likely to seek admittance into a highly selective college after high school
- Are more likely to pursue professional careers in advanced academic areas
- Enjoy a high level of challenge and pacing, not otherwise provided by many schools
- Gain access to university faculty and content experts earlier in their academic career, which can fuel a lifelong pursuit of a key content area
- Are more likely to take academic risks
- Develop a sense of independence

Specifically our students say that when comparing one of our programs to their school, they:

- Find our courses more enjoyable and interesting
- Have more opportunities to engage in critical thinking
- Feel more supported and understood by their instructors
- Feel more supported by their peers
- Feel normal and accepted for who they really are
- Are more challenged and not bored

Programs like ours may also curb underachievement tendencies in students who may no longer engage in school because of a lack of interest, slow pacing, or little challenge.

Why Choose PTY Programs?

- Vanderbilt University is known as a preeminent center for collegiate education and is a tier one research institution.
- Led by Professor/Director Tamra Stambaugh, PTY was founded by Camilla Benbow, Patricia and Rodes Hart Dean of Education and Human Development and co-director of the Study of Mathematically Precocious Youth. Dean Benbow was the protégé of the original founder of talent searches, Dr. Julian Stanley.
- Vanderbilt Peabody College of Education and Human Development has been named one of the top five graduate schools of education by *U.S. News & World Report* for 14 consecutive years.
- PTY has highly qualified, experienced, and compassionate staff who are experts in their field and understand the academic and social-emotional needs of academically gifted learners.
- Many PTY instructors and consultants are nationally and internationally known and widely published in their respective fields.



A Day in the Life of a SAVY Student

SAMPLE SCHEDULE:

8:45–9:00
Arrival

9:00–11:45
SAVY Accelerated Courses
(all SAVY students)

11:45–12:45
Organized Recreational Activities
Lunch (students bring from home)

12:45–3:45
Rising 4th- to 7th-grade students
continue SAVY Accelerated Course

12:45–2:15
Rising 1st- to 3rd-grade students:
Enrichment Class 1

2:15–3:45
Rising 1st- to 3rd-grade students:
Enrichment Class 2

3:45–4:00
Dismissal

SAVY at a Glance

WHO

Gifted students entering grades 1–7 in the fall of 2017, specifically students who typically test around the 95th percentile and above on a standardized achievement or ability test. See “eligibility” (pg. 6) for more detailed information on testing requirements.

WHAT

Classes are designed for the academically talented and motivated learner. SAVY offers accelerated courses led by Vanderbilt professors, master teachers, content experts, and graduate students. Class size is limited to approximately 14 students for grades 1–3 and 16 students for grades 4–7. Summer SAVY 2017 offers six sessions. Course offerings differ by session.

WHEN

Session 1: **June 12–16** 9:00 a.m. to 3:45 p.m.

Session 2: **June 19–23** 9:00 a.m. to 3:45 p.m.

Session 3: **June 26–30** 9:00 a.m. to 3:45 p.m.

Session 4: **July 10–14** 9:00 a.m. to 3:45 p.m.

Session 5: **July 17–21** 9:00 a.m. to 3:45 p.m.

Session 6: **July 24–28** 9:00 a.m. to 3:45 p.m.

Students may apply for multiple sessions.

Session Structure

Rising 1st–3rd grade students:

Students participate in one course from the two offerings for their grade level. This course takes place in the morning. In the afternoon, students participate in two stimulating enrichment classes led by educators. Students will receive more information about their enrichment classes before the start of Summer SAVY.

Rising 4th–7th grade students:

Students gain experience in a pre-college learning environment by participating in an academic course taught by Vanderbilt scholars and content experts. These full-day courses provide an in-depth look into a discipline and expose students to the habits of scholars. Students participate in their one admitted course the entire week.

Organizational Recreational Activities (ORA)

All SAVY students have a 25–30 minute period of structured recess that is built into each SAVY day. Led by trained PE teachers from local schools, ORA gives SAVY students a chance to engage socially with their grade-level peers in a fun, non-academic setting. ORA typically takes place outdoors on Peabody campus, weather permitting.

WHERE

All classes will be held on Vanderbilt University's Peabody campus.

About Savy Courses

SAVY classes are designed to provide in-depth study on interesting topics, to teach students higher-order thinking skills, and to encourage development of conceptual frameworks for understanding new knowledge. Vanderbilt faculty and graduate students, Programs for Talented Youth, the Center for Gifted Education at the College of William and Mary, and the University of Connecticut have designed much of SAVY's curriculum. Many of these units have won the Outstanding Curriculum Award from the National Association for Gifted Children, have been well researched, and have been shown to be effective with this unique population of learners.



How To Apply



There are two application options:

- 01.** Complete the SAVY application online at pty.vanderbilt.edu/students/savy/. With this option, you may upload test scores and select a payment method for the \$35 nonrefundable application fee.
- 02.** Complete the enclosed application form. Include a check, made payable to Vanderbilt University-PTY, for the \$35 nonrefundable application fee. If PTY does not have your child's test scores on file, please include a copy with the application. Faxed or emailed applications are not accepted.

Eligibility

Students who test near the 95th percentile and above on a standardized achievement or ability test are eligible to participate in SAVY courses in their areas of strength. We accept any standardized achievement or ability test including, but not limited to, the following: RIAS, CogAT, TCAP, ERB, Stanford Achievement Test, OLSAT, Woodcock Johnson, WISC IV/V. Out-of-level standardized assessments are also accepted. While scores around the 95th percentile are typically a strong indication that SAVY is an appropriate curriculum match for a student, feel free to contact the SAVY office for questions about scores that do not meet these criteria as alternate measures may be accepted. Returning SAVY students do not need to resubmit test scores unless their scores are more than three years old. Students without test scores should work with their schools to obtain documentation of their advanced learning potential.

Admission Process

On Tuesday, January 10, 2017 at noon CT, the application for Summer SAVY 2017 sessions will be posted on the PTY website. There will be a 24-hour application priority window, which will end Wednesday, January 11, 2017 at noon CT.

All applications received during the 24-hour priority window will be considered part of the primary applicant pool regardless of the specific time submitted. All complete and qualifying applications submitted during the application priority window have the same chance for placement. Upon the close of the window, all applications received will be randomly assigned a number determining their order in the review queue. Applications of siblings will be reviewed and placed simultaneously, space permitting.

Applying during the 24-hour priority window does not guarantee admission, but it increases your child's chances. We strongly recommend applying during this window. If space in a course remains after the 24-hour priority window, courses will be filled on a first-come, first-served system, based on availability and eligibility. A waitlist will be maintained for full courses.

Course Placement

SAVY courses are accelerated and specifically designed for academically gifted students. The best way to help your child select appropriate courses is to consider your student's areas of strength and interest. If your child is interested in taking more than one course in a session, please rank the courses in order of his or her preference, with 1 indicating your first choice. Ranking multiple courses and sessions increases your child's chance of admission to the SAVY program, but keep in mind that your child could be placed in any class or session that you rank. Classes fill very quickly, and we sometimes have to place students in a lower ranked class. Thus, only rank a class if your child is willing to take it.

Application Priority Window:

Jan. 10 at noon–

Jan. 11 at noon*

*After window ends, rolling admission is based on availability.

Application fee:

\$35

You may apply for multiple summer sessions with the \$35 application fee.

Tuition:

\$550 per session

Cost per SAVY session includes all class materials. Lunch is not provided.

Tuition Deadline:

April 5, 2017

Eligible for full refund before April 5.

Summer Refund Deadline:

April 21, 2017

Eligible for 50% between April 6 and April 21.

No refunds are available after April 21.



Admission Notification

SAVY families will be notified of admissions decisions via email within three weeks of PTY receiving the application. If everything is complete, you will receive communication about placement. If materials are missing, PTY will notify you as soon as possible with a request for more information and with accompanying deadlines. For families who have applied for financial aid, financial aid information may be included in the admission notice if financial aid materials have already been submitted. The admission notice will include the tuition statement. Summer tuition is due April 5, 2017.

Welcome Paperwork

Before the start date of the program you will receive a packet of required welcome paperwork. Required paperwork includes emergency contact information, participant permission, medical information, and a media release. All students who participate in programs through Programs for Talented Youth must have current health insurance documentation on file with PTY.

Waitlist

SAVY courses fill very quickly and waitlists are maintained for all full courses. If no openings remain in your first-choice course at the time your application is reviewed, PTY's admissions coordinator will look to see if a seat is available in your second-choice course, and so on. Even if you are placed in a lower-ranked course (due to availability), you will remain on the waiting list for your higher-ranked courses. If a seat becomes available in a higher-ranked course, we move the first person on the waiting list into that seat. Waiting lists are held until close to the start of the program session.

Cancellation Policy

Cancellations made before the tuition due date (April 5) will be eligible for a 100% tuition refund. Cancellations made after the tuition due date and before the refund deadline (April 21) will be eligible for a 50% refund. After the refund deadline, no tuition refunds will be awarded.

Financial Assistance

PTY is committed to making programs available to academically gifted students regardless of a family's ability to pay the full tuition. Therefore, need-based financial aid is available based on income. The PTY application review process is need-blind and does not consider financial status. If you plan to apply for financial aid, please indicate this on your application. After indicating your intent, you will receive an email with a link to the financial aid application. You may also access the financial aid application on the PTY website, or complete the application included in this catalog. You may apply for financial aid at any point in the application process. The financial aid application, along with a copy of your household's most recent tax return, may be submitted via fax, mail, or email. Your student may be offered admission before receiving a financial aid quote. You are not obligated to officially enroll your student until you receive a financial aid quote. When your financial aid quote is received, you may accept or decline the amount and placement in a course. Partial tuition scholarships and payment plans are available.

Questions

Contact Admissions Coordinator, Briana Christian, at (615) 322-8261 or briana.christian@vanderbilt.edu, if you have questions about the admissions process, financial aid, setting up a payment plan, or assessment.



SESSION 1: June 12–16 Course Descriptions

RISING FIRST GRADE

BUDDING BOTANIST

You've just discovered a professor's old journal and his notes are very intriguing. They suggest that plants can possibly be used as an alternative fuel source. Could he be right? If he is correct, what does this mean for you and for me? Get your lab coat ready as we investigate this curious case! In this course, you will take on the role of a botanist to investigate this professor's ideas about the important role that plants currently play in our lives and how they may impact our future. Before we are able to determine if plants can be used as a fuel source, we will need to learn as much as we can about the life cycle and structure of plants by conducting experiments and field investigations. Come ready to get dirty as you unearth knowledge about plants. Your discoveries may impact how we all think about those weeds in your backyard!

DIVE INTO DESIGN

On a hot summer day there is no place better to be than a swimming pool! Have you ever wondered what thinking and planning was involved in creating your favorite swimming pool? Did you know that architects and engineers used principles of mathematics and measurement to ensure that your favorite swimming spot is a fun and safe place? In this course, you will learn about engineering design processes, including measurement and modeling for structures such as swimming pools. Why do we measure? What goes into taking accurate measurements? Why is accuracy so important? What should we consider when choosing a measurement tool? You will answer these questions and more as you create a model for a community pool! Get ready to dive into a problem-based task that requires critical thinking, problem solving, creativity, and lots of fun with measurement.

"SAVY courses are geared perfectly towards the age group. It really hits on what kids are into, so that they are learning almost without realizing it."



RISING SECOND AND THIRD GRADES

BIOENGINEERING

Think engineering is all about machines? Not true! Come and learn how the world of biology and engineering combine to answer some of our most complex biological questions! In this class you will become a biological engineer as you study how the body works and design new technologies for it through hands-on experiments and activities. We will start by exploring the role of DNA and genetics in the body and learn how engineers and scientists use this knowledge to understand and treat different diseases. By using both the scientific method and the engineering design process, you will employ problem-solving skills and creativity to make observations, formulate hypotheses, and investigate real life problems that doctors, scientists, and biomedical engineers encounter everyday.



THE MIRROR OF MYTHOLOGY

Καλώς ορίσατε στον Όλυμπος*! Here you will begin your journey into the fascinating world of mythology! Together we will travel back in time as we delve into the legends and beliefs of ancient Greece. We will read the original stories of heroes such as Hercules and Achilles, study fearsome mythological creatures such as the Minotaur and the Hydra, and discuss the significance of famous gods and goddesses. We will also learn how mythological stories shaped the culture of the ancient world and examine how classic myths are reflected through some of our favorite modern-day books, movies, and buildings. After this course, you may never look at the Parthenon or the Tennessee Titans the same way again!

**Welcome to Mount Olympus!*

“He doesn’t usually talk to me about school, but now he can’t stop talking about **what he’s learning in SAVY!**”

“I loved everything about SAVY! It has been the **most fun learning experience** in my life.”

RISING FOURTH AND FIFTH GRADES

INDUSTRIAL MICROBIOLOGY

Bacteria are often believed to be something negative for people, but not all bacteria are harmful. From the new energy production methods to the food we consume everyday, bacteria are actually a vital part of life! In this course, we will investigate how researchers utilize the prokaryotic world to help solve some of Earth’s biggest issues, like pollution and hunger. Through an exploration of basic microbiology, bio-ethanol production, genetically modified organisms (GMOs), and the use of bacteria in technical applications, you will start to discover the benefits of bacteria. Taking on the role of microbiologists, we will conduct hands on investigations—collecting environmental samples, performing genetic manipulations, and observing the power bacteria has to transform food into fuel—to tackle questions that scientists explore daily. The field of industrial microbiology is a hot topic and is only getting bigger, blazing the path of new opportunities for a budding microbiologist like you!

PUZZLES AND PROBLEM SOLVING

How does a group of logical pirates agree to distribute their loot? If a car changes its speed according to its distance from its final destination, how long does it take the car to reach its goal? How many ways can people sit in a full airplane when the first passenger to board ignores his or her assigned seat and instead takes a seat at random? You will learn to answer these questions and many more in this course as you learn the principles of probability, logic, and game theory. In this hands-on math class, you will explore mathematical problem-solving methods by wrapping your mind around counterintuitive solutions and teasing your brain with apparent contradictions. As the class develops, you may even begin to pose your own questions for the class to solve. Get ready to get stumped and stump others in a class that is sure to make you think critically and strategize with precision.



RISING SIXTH AND SEVENTH GRADES

INTRODUCTION TO LAW

Have you ever wondered what knowledge and skills are necessary to become a successful attorney? Do you know why a jury doesn't decide all cases? Do you ever wonder what it means when lawyers on TV shows make objections? If you find these questions interesting, then this course is for you! In this class we will explore landmark legal cases and analyze important legal issues within them as you begin to learn how to think like a lawyer. Moot court and mock trial activities will allow you the opportunity to debate important legal issues like a real attorney while learning the techniques of proper legal research and legal analysis. Our exploration in the legal world does not end there though! We will also learn about lawsuits and all of the steps of the civil lawsuit process by exploring the world of torts. By the time you have completed this course, you will have a good idea of what is involved in the legal profession and of the importance of laws in our society. No one can object to the value of this knowledge!



REBELS AND REVOLUTIONARIES

History is full of people who defied rules and traditions in order to make a statement or follow a belief. Such rebels have come from all classes, ethnicities, and walks of life. But what inspired these people to revolt? How did groups organize movements without advanced technology? In this course, we will take on the role of historians to explore upheavals during the American Revolution and early republic. The American Revolution was not as simple as some books make it out to be, and this course will reveal the chaos and complexity of history. Through the study of written and visual sources, including documents actually penned by revolutionaries, we will put ourselves in the shoes of different rebel groups and bring their fascinating interactions to life. By studying the rebellion of an intercultural group in urban New York, the rebellions among Native American populations, and slave uprisings, this course is sure to make you reconsider the American Revolution

**description continued on next page*



you thought you knew. We may not be able to rewrite history, but we can make sure that more complete versions are told. Maybe that just makes you a rebel or revolutionary too.

BIOLOGY OF THE BRAIN

Your brain is the most powerful organ in your body. It helps control your breathing, your feelings, and even your body temperature. Have you ever wondered how this giant bundle of nerves works? How are we able to remember some things but not remember others? What microscopic events happen in your brain when you see something familiar or hear your favorite song? In this course we will take an in-depth look at the biology of your brain and discuss how your brain influences other systems in your body. We will learn about the important neurotransmitters in your brain and how they contribute to your emotions, learning, and overall health. We will also investigate the role that genetics and biochemical compounds play in your well-being and how neurodegenerative diseases, such as Alzheimer's disease, begin and develop in the brain. If you've ever wondered about how and why you are able to wonder at all, then you are ready to join us as we explore the biology of the brain!

“At SAVY I learned that thinking and problem solving can be **interesting as well as challenging** in a great way.”

SESSION 2: June 19–23

Course Descriptions

RISING FIRST GRADE

PLAYING WITH WORDS

Are you a teller of stories and jokes? Do you coin new phrases? Are you a fan of riddles and rhymes? If so, then you, my friend, like to play with words! In this class we'll explore how authors use words and phrases to capture their readers through laughter and complex thought. Great authors can recognize literary strategies of others, so we will learn to identify special literary devices such as similes, metaphors, symbols, and personification as we read many well-known works. We will also investigate how literary tools, used for centuries, help writers better communicate their ideas. We will not keep our new knowledge hidden—come ready to experiment with figurative language and wordplay. A picture may be worth a thousand words, but a thousand words can paint a pretty awesome picture.

SURVIVE AND THRIVE

In this course, we will investigate the ways that animals survive and thrive on our planet. Have you ever wondered how animals can sense when danger is near? Are you curious about why groups of birds sometimes fly in formation? Do you ponder how some animals can survive in the blistering heat of the desert or in the coldest months of winter? If so, you are already thinking like an animal scientist! Together we will learn about the characteristics that make animal species different and examine the unique habitats that different animals call home. You will also study characteristics of living things by studying life requirements and life cycles through observations of your very own mealworm! You will then take on the role of scientist and animal advocate as we try to tackle serious questions related to environmental preservation and animal protection. If you love animals and enjoy science, then you will certainly thrive in this class!

“Our son comes home from SAVY wanting to **learn more, know more, and experience more.** Who could ask for more than that?”



RISING SECOND AND THIRD GRADES

ROBOTIC PROGRAMMING

Computer programming! Robot mazes! Controlling robots remotely! Problem solving! This course has everything you need to challenge your mind and test your creativity. Using Sphero interactive robots, you will brainstorm hands-on solutions to real-world problems through computer programming. As you take on the role of an engineer, programmer, and scientist, you will learn how to test your robot knowledge, manipulate variables, and refine your coding to improve on your design. Your instructions control the robot and can transform it into a dancer or fortune teller, make it maneuver obstacle courses, or instruct it to perform specific tasks. In this course you will go on an exciting journey into the world of robotic programming where you will experience first hand how robots can help us perform mundane tasks that we may not want to do and difficult tasks that are extremely challenging to do. Come ready to explore how robotic programming works as you imagine how you can use coding to better our lives in the future!

DATA DISCOVERERS

Do you like to ask questions and then seek out possible answers? Have you ever wanted to develop your own survey for people to complete? Are you an aspiring researcher with a desire to understand why and how data can be used to answer your most intriguing questions? If so, this course is for you! In this course you will learn how to conduct experimental research by collecting, analyzing, and interpreting data using a variety of graphs, charts, and plots. You will experience firsthand the steps of the research process, including how to formulate great research questions, design investigations, create quality surveys, collect data through questionnaires, analyze results, and present findings to a real audience. Come along for a hands-on, practical mathematical journey where you will be encouraged to ask great questions and use data to discover possible explanations. You will leave this course discovering opportunities for data collection everywhere!



“SAVY is awesome!
I loved **finding out**
about my DNA and
where my ancestors
were from.”

RISING FOURTH AND FIFTH GRADES

DIGGING FOR THE PAST: TENNESSEE ARCHAEOLOGY

How do we know about the past? Sure, written documents and oral histories are important, but artifacts are too! Artifacts are especially important in telling us about people who lived a very long time ago. Did you know that people have lived in Tennessee for close to 15,000 years? We can imagine what life was like for these people through archaeology. Tennessee's archaeologists are tasked with unearthing mysteries through the excavation of sites, where they often uncover tools, architecture, and clothing that belonged to people long ago. In this course, you will learn about how to develop hypotheses, use the tools and technology of professional archaeologists, excavate your own mock archaeological site, analyze artifacts, and draw conclusions about ancient Tennesseans. Gain a new understanding of Tennessee's history and where information about the past might be hiding. Dig for answers as you unearth clues to the past—who knows what knowledge you might uncover!

FOOD CHEMISTRY

Why do apple slices turn brown when we leave them on our plate too long? What compounds make our food taste sour or salty? How are certain foods used in the body and why are particular foods good to eat before exercise? In this course, we will learn how science contributes to something we do everyday—eat! We will investigate the chemical structures of food components such as carbohydrates, lipids, and vitamins, and learn how these structures make foods look and taste different. We will then analyze the content of these components in a variety of foods, and uncover why some snacks are better for our body than others. Using scientific modeling kits, we will examine how important chemical structures in food change under certain conditions (making cooked food taste different), as well as the role enzymes and microorganisms play in some everyday food processes. Come learn how science and eating intertwine in the world of food chemistry.

Note to Parents: Heating mechanisms, such as hot plates, may be used in this course.

“We love that SAVY fosters our child’s love of learning and desire **to dig deeper in search of answers** to his questions and interests.”



RISING SIXTH AND SEVENTH GRADES

POLICIES AND POLITICS: HOW MONEY MATTERS IN GOVERNMENT

The federal budget for 2016 was \$3,340,000,000,000. If this budget was divided equally among the 324 million Americans each individual would receive just over \$10,000. But, where does this money come from and who decides how this money is spent? What happens when the budget isn't balanced? How do federal policies developed in Washington D.C. impact us on a daily basis? After we study how the government works and how the different branches interact to make change, we will study in depth how money and policy influence one another and examine the short and long term implications and consequences that federal funding can have on us. We will explore how government funds are raised and allocated, identify the difficulties that come with balancing a budget, and investigate the roles and responsibilities of the people who decide how this money is spent, including politicians, policy experts, and informed citizens. With our new knowledge we will then examine mock political candidate proposals for how to spend government funds and debate the fairness and impact of each proposal. After this course you will not only know the important questions to ask about candidate spending plans in the next election but may even be inspired to create your own plan and run for office yourself someday!

“AT SAVY, I got to be with people who think like me.”



ME, MYSELF, AND THE MONOMYTH: DEFINING A HERO'S JOURNEY

Who would you define as a hero from your favorite book or story?—Is Luke Skywalker a hero? What about Alice of Wonderland? Harry Potter? Dorothy from Kansas or the Cowardly Lion of Oz?—Can you prove it? What makes a hero different from the other characters in the same story? Do they have to be the main character? Do they have to save lives? Are they consistently brave and free from error? In this course we will study how critical theorists like Joseph Campbell

have answered these questions by identifying common themes that link together many of our favorite heroic characters. Labeling these ideas *The Hero's Journey* or the monomyth, Campbell and others have helped us define what it means to be a hero. In this course we will closely examine selections of famous fantasy texts, from authors like Ursula K. Le Guin, J.K. Rowling, Neil Gaiman, China Mieville, and others, as you learn to identify the universal patterns among seemingly very different heroes. After a thorough exploration of the themes that chart heroes' journeys in literature, you will have a chance to craft your own tale as you weave together your personal life experiences and your new understandings into a unique work of fantasy. In exploring themes surrounding heroes, you may realize that you can cast yourself as the hero of your story!



GENETIC EPIDEMIOLOGY AND BEYOND

A genome is defined as an organism's complete set of DNA and contains the information needed for an organism to live and successfully function. One key question that scientists are currently asking is—how does an individual's genome influence his/her risk for developing disease? This is such an important question that the president got involved! In 2015 President Obama announced the Precision Medicine Initiative (PMI). This initiative involved obtaining genetic data from over one million people in order to study the biological and environmental factors that influence disease. Through the data collected by the PMI, scientists hope to use their understanding of factors to develop better treatments and cures for health concerns. In this course, you will take on the role of a human geneticist to tackle some of the same questions that researchers confront daily using data from PMI. As a budding geneticist, you will learn the basic molecular techniques common across all genetics labs, begin analyzing large genetic datasets using statistical methods, and investigate ethical decisions that continually impact scientists' research decisions. This course will provide you with an understanding of the role of genetics in disease, teach you how to design and analyze your own genetic study, and will allow you to use molecular lab techniques to expand your results.

“My son loves the diversity in programs and the **hands-on aspect of working through more complex topics** than what are covered in school.”

SESSION 3: June 26–30 Course Descriptions

RISING FIRST GRADE

BUDDING BOTANIST

You've just discovered a professor's old journal and his notes are very intriguing. They suggest that plants can possibly be used as an alternative fuel source. Could he be right? If he is correct, what does this mean for you and for me? Get your lab coat ready as we investigate this curious case! In this course, you will take on the role of a botanist to investigate this professor's ideas about the important role that plants currently play in our lives and how they may impact our future. Before we are able to determine if plants can be used as a fuel source, we will need to learn as much as we can about the life cycle and structure of plants by conducting experiments and field investigations. Come ready to get dirty as you unearth knowledge about plants. Your discoveries may impact how we all think about those weeds in your backyard!

PLAYING WITH WORDS

Are you a teller of stories and jokes? Do you coin new phrases? Are you a fan of riddles and rhymes? If so, then you, my friend, like to play with words! In this class we'll explore how authors use words and phrases to capture their readers through laughter and complex thought. Great authors can recognize literary strategies of others, so we will learn to identify special literary devices such as similes, metaphors, symbols, and personification as we read many well-known works. We will also investigate how literary tools, used for centuries, help writers better communicate their ideas. We will not keep our new knowledge hidden—come ready to experiment with figurative language and wordplay. A picture may be worth a thousand words, but a thousand words can paint a pretty awesome picture.

“The best parts of SAVY were making friends and **challenging my brain.**”



RISING SECOND AND THIRD GRADES

THE MIRROR OF MYTHOLOGY

Καλώς ορίσατε στον Όλυμπος*! Here you will begin your journey into the fascinating world of mythology! Together we will travel back in time as we delve into the legends and beliefs of ancient Greece. We will read the original stories of heroes such as Hercules and Achilles, study fearsome mythological creatures such as the Minotaur and the Hydra, and discuss the significance of famous gods and goddesses. We will also learn how mythological stories shaped the culture of the ancient world and examine how classic myths are reflected through some of our favorite modern-day books, movies, and buildings. After this course, you may never look at the Parthenon or the Tennessee Titans the same way again!

**Welcome to Mount Olympus!*

SCIENCE OF THE SEA

In this course we will take a deep dive into marine biology as we investigate everything from tiny invisible plankton all the way up to the giant whales that live in the oceans! Are you curious about how fish live and interact with each other in the ocean and in lakes? Have you wondered how humans impact the lives of creatures in the sea? Have you ever pondered how bodies of water can influence life on land? In this course we will explore these questions and many more! We will learn how to identify common organisms in all types of aquatic communities, examine food sources, and discuss things that can impact the health of oceanic organisms. Come ready to take on the role of a real marine biologist as we explore aquatic-related topics using the scientific method. If you are a fan of Nemo and Dory and you want learn all about their home environment, then this is the course for you!



“There is nothing better than being in an environment that **makes you feel smart** while challenging you.”

RISING FOURTH AND FIFTH GRADES

BIG MONEY, BIG DECISIONS: THE GOVERNMENT AND YOU

Do you know someone in the military? Do you or your friends attend a public school? Do you like the park? Have you ever wondered who provides funds for these luxuries? The government does! But, how does the government afford to provide these resources? Why does it get involved in providing services and supports, and how does the government make spending decisions? Why do local and state governments fund certain programs while the federal government funds others? We will address these questions and more as we investigate the U.S. governmental structure and a topic that is important to everyone—MONEY! After an introduction to the levels of government and spending, we will take on the role of policy consultants to investigate our federal budget, examine and create proposals for how to spend government funds, and then debate the fairness and impact of each proposal. Get ready to grapple with issues government leaders face as we tackle the topic of money!

CHEMICAL SPILL!

A truck carrying an unidentified liquid has crashed on a busy highway and has started to leak its liquid into a nearby creek. The city is counting on you to make sure there are no negative repercussions from this spill! In this class you will take on the role of an environmental scientist. How are you going to isolate the spill? What experiments will you need to conduct to determine if the liquid is dangerous? How will you keep people and animals in the surrounding environment safe? Through a series of role-play examples, scientific experimentation, and the study of complex systems, you will learn about acid and base chemistry as you solve key problems related to the spill. We will examine the damaging effects that such an event can have on the ecosystem, economy, and human transportation. Are you ready for the challenge of coming up with an appropriate solution? The city needs your help!



“It’s incredible to see the sparkle in my daughter’s eyes after SAVY and the **joy with which she reflects** on all the new vocabulary and concepts she has learned.”

RISING SIXTH AND SEVENTH GRADES

ANTHROPOLOGICAL APPROACHES: EXPLORATION THROUGH ETHNOGRAPHY

In this course you will take an in-depth look at how the diversity of humankind is studied as you learn to think like an anthropologist. You may ask—What exactly do anthropologists do? How do anthropologists conduct research? What role does anthropology play in our everyday lives and why is it important? These are all questions that will be addressed in this hands-on, exploratory course. In this class you will be introduced to the discipline as we practice the approaches that anthropologists use to answer intriguing questions in the field. We will use ethnography, which is the scientific study of people and their culture, and learn techniques for conducting ethnographic research. Did you know that many anthropologists practice “participant observation” in which they learn about new cultures through active participation? We will practice this form of research first-hand, explore how anthropologists conduct and analyze interviews, and investigate anthropological models that explain societal structures and govern the world around us. Through our exploration of how anthropologists determine differences and commonalities in cultures around the world, your eyes may be opened to recognizing, exploring, and appreciating the many unique cultures around you!

TRUTH VS. PERCEPTION

What is reality? Just because we perceive something to be real, does it actually exist? How do we know if something is real or just a figment of our own beliefs and imagination? Join us in this philosophical exploration of the relationship between truth and perception. In this course, you will discover how reality is presented and interpreted in fiction, nonfiction, art, and media by studying famous works by Plato, Shirley Jackson, M.C. Escher, and Vincent van Gogh. By engaging in reflective activities such as Socratic seminars, literary analysis techniques, skits, art, and creative writing, we

“At SAVY I get to **express my creativity** and not be judged for my ideas.”



“There were numerous hands-on activities and experiences that were included in the course that **helped me learn even more.**”



will begin to apply our understanding of the difference between truth and our perception of it. We will conclude with a critical evaluation of how modern media presents reality to us and how we can train ourselves to be smart consumers of media. Test yourself—in reading or media do you see truth or one’s perception of it?

COMPUTATIONAL ASTROPHYSICS: CODING THE UNIVERSE

Astronomers spend their days studying stars and galaxies in space, but these celestial bodies sometimes exist for billions of years, much longer than the average lifespan of a scientist. How, then, is it possible to study these objects? What techniques can astronomers use to make scientific predictions and conduct experiments? Over the last several centuries, scientists have been carefully unraveling the laws of physics and quantum mechanics—laws that can be applied to almost all objects. In this course we will uncover how astronomers combine computer simulations and real-life observations to make scientific discoveries and predictions about the future of our universe! We will begin our studies with hands-on learning of some computer programming basics and exploring important laws in astronomy. We will demystify computer code, translating it into physical models and representations that will help us better understand objects in space. We will even work together to develop our own simulations of astrophysical objects and compare them to real observed objects in the sky. Get ready for an academic experience that is out of this world as you learn how coding, physics, and astronomy can be used together to investigate the universe!

SESSION 4: July 10–14

Course Descriptions

RISING FIRST GRADE

DIVE INTO DESIGN

On a hot summer day there is no place better to be than a swimming pool! Have you ever wondered what thinking and planning was involved in creating your favorite swimming pool? Did you know that architects and engineers used principles of mathematics and measurement to ensure that your favorite swimming spot is a fun and safe place? In this course, you will learn about engineering design processes, including measurement and modeling for structures such as swimming pools. Why do we measure? What goes into taking accurate measurements? Why is accuracy so important? What should we consider when choosing a measurement tool? You will answer these questions and more as you create a model for a community pool! Get ready to dive into a problem-based task that requires critical thinking, problem solving, creativity, and lots of fun with measurement.



BEYOND THE PYRAMIDS: EGYPTIAN EXPLORATIONS

When we think of Ancient Egypt we often think about pyramids, mummies, and hieroglyphics, but Ancient Egypt has even more to offer. Did you know that the Ancient Egyptian civilization lasted over 3,000 years? In this course you will take on the role of an anthropologist to investigate how the Egyptians' systems of language, leadership, economics, architecture, and geography created a strong civilization that lasted for thousands of years. What did we learn from the Egyptians and how has it impacted our current way of life? Are there other ideas that we can borrow from the Egyptians to better our society? We will investigate these questions and more as we critically analyze the systems within this society. Don't worry—we will talk about mummies and pyramids too and the role they played in Egyptian's lives. Plus, you'll even get to try your hand at writing Egyptian hieroglyphics!

“SAVY opened her eyes to new worlds. It has rejuvenated my daughter's love of learning and stimulated her interest.”

RISING SECOND AND THIRD GRADES

TELLING TALES: TRAVELING WITH THE CANTERBURY TALES



“There were so many
people I could
relate to at SAVY.”

What do old tales tell us about the time period in which they were written—the struggles faced by society at the time, the ways of life of the people in the period, and the common themes that have existed across centuries? While many times we read tales for enjoyment, tales are informative too! They contribute to our understanding of people and history. In this course we explore the ways that tales can reveal truths by studying *The Canterbury Tales*, originally written in the late 1300s by Geoffrey Chaucer. This collection of 24 short stories follows 29 humorous travelers who meet on a pilgrimage. On their journey they compete to tell the best tale. To understand the significance of their tales, we will explore major events of this day, read and enact adaptations from children’s versions of *The Canterbury Tales*, and learn about the concept of pilgrimage. To bring this concept to life, we will even make our own pilgrimage on campus while telling tales of our own creation. Telling tales may be fun, but tales can be telling too!

MEASURING MATTERS

Who is the tallest person in your class? How much floor space do you have in your room to play? What is the distance around your neighborhood? You may not realize it, but you think about measurement everyday! In this course, you will investigate the many ways that we measure through hands-on, engaging mathematical challenges. We will explore a variety of standard units of measure, investigate the importance of selecting appropriate measurement units based on the situation, determine different ways that we measure, and combine our understanding of mathematical skills, including geometry, to solve mathematical mysteries! Get ready to measure up, down, and all around as you learn how to quantify space through measuring length, perimeter, area, and volume. After this course you will not only realize that measurement matters, you will know how to measure whatever you encounter!

RISING FOURTH AND FIFTH GRADES

LOOKING INTO LANGUAGE

English, German, Spanish, Chinese—we may speak different languages, but we all use some form of expression to communicate complex ideas and share our stories. We often try to learn different languages, but we rarely learn about language itself. For example, where do words come from? How do we make the sounds we use in speech? Why do people talk differently today than in the past? What is the difference between accent and dialect? In this class, we will study Linguistics, the science of language, to help us answer these questions and more. We will even learn how to transcribe speech like a linguist—using the International Phonetic Alphabet (IPA). We will then investigate the intersections of language, culture, and social relationships to help us understand how relatively small variations in how people speak are connected to larger issues in society. After this class you will never think about language, and how you talk, in the same way again!

BUSINESS BASICS: WELCOME TO WALL STREET!

You have probably heard someone mention Wall Street on the news. Perhaps your parents have talked to you about it or you have seen Wall Street on a trip to New York City. But, do you know what happens there? In this course, you will learn the type of thinking and work that happens on Wall Street as you take on the role of a financial advisor. A financial advisor helps people and companies decide what to do with their money. Before you can serve as a financial advisor you will need to learn about economics, investments, the stock market, and how these things relate. After an exploration of important money-related concepts, you and your business colleagues (aka your classmates) will use your new understanding of economics and the stock market to propose an investment plan for your company. Will the president of the company (aka your instructor) think your plan is a good one? Get ready to justify your decisions as you show off your business skills and prove that you might be the next business star on Wall Street!

“SAVY provides my student a positive context for learning about new things—questions encouraged.”



RISING SIXTH AND SEVENTH GRADES

INTRODUCTION TO PROGRAMMING AND COMPUTER SCIENCE

“My child came home exclaiming **how wonderful it was** and how he was treated like an adult.”

What do cognitive psychologists, video game designers, biologists, and robotic engineers have in common? They all use programming to do their work! Computer programming is considered an art, a craft, and a discipline of engineering. Computer programming can be used both as a way to creatively express ideas and as a tool for solving problems. Computer scientists work on problems in education, engineering, health care, science, design, digital media, and so many other fields! In this class, you will be introduced to two of the major roles of computer scientists: identifying what is needed to solve a problem and designing a solution through programming. You will learn to think like a computer scientist by learning about variables, control structures, and algorithms as you tackle daily challenges and design programming solutions. Throughout the week, you will put together an overarching project that highlights your new programming techniques and that allows you to show off your skills to your family and friends.





THEORY, CRITICISM, AND THE FORCE: PHILOSOPHY AND THE STAR WARS SAGA

Artists often use their work to represent viewpoints about the everyday world around us, embedding their cultural, social, and political ideas into their stories, films, paintings, or songs. How do we decipher the themes hidden in their work? Why do we even want to identify these themes? How can uncovering the creator's viewpoint help us understand both the work itself and the world around us better? In this class, we will use the 1977 film *Star Wars: Episode IV—A New Hope* as a base to learn how to unpack a work through multiple lenses of critical theory and thought. Formalism, structuralism, political criticism, and mythology are some of the lenses we will learn to look through as we explore one of the most popular series of our time. Through our analysis of the *Star Wars* movie that started it all, we will learn how to apply critical theory to other portions of the *Star Wars* saga. Because critical thought can and should be used when interpreting all artistic works, we will also practice our newly developed skills on our favorite short stories, classical artwork, and contemporary music. A new powerful force will be with you after this course—the ability to see your favorite works in different ways!

“Each day at SAVY
my brain was
challenged.”

SESSION 5: July 17–21 Course Descriptions

RISING FIRST GRADE

WHAT'S THE MATTER?

Curious things are happening: a strange, unidentified substance has been found, the principal's water is disappearing, and even more mysteries abound. Never fear, you are on the case! In this course, you will become a detective and practice using science to solve problems. After learning about the investigative processes of a scientist, you will gather your own information about solids, liquids, and gases by making scientific predictions, designing and conducting experiments, carefully recording your observations, and collecting data. You will then use the information and discoveries you uncover to solve some very puzzling matter mysteries.

THE MATH IN MUSIC: PATTERNS, PATTERNS, IN MY EAR!

Can you hear it? Can you play it? Can you see it? Patterns are everywhere in the world around us, even in music! In this class, we will use patterns to discover the relationship between math and music. We will learn to recognize and create algorithmic patterns as mathematical and musical representations. As we develop our computational skills, we will use what we have learned to solve musical math problems that uncover patterns we can read and hear. By the end of the class, we will be able to create mathematical compositions that can be performed and shared with others! Our mathematical understanding of beat division and pitch intervals will drive these compositions and showcase your awareness of how patterns work in math and music. Grab some instruments and get ready to hear the math!



“My child walks away with a **huge sense of confidence** to continue trying new things.”

RISING SECOND AND THIRD GRADES

ARCHAEOLOGICAL ADVENTURES: UNCOVERING TENNESSEE'S PAST

We have all heard of the pyramids of Egypt and historical structures built by the Romans and Greeks, but did you know that there are tons of archaeological sites right here in Tennessee? People have been living in Tennessee for close to 15,000 years, and it is the job of archaeologists to uncover their stories to help piece together history! In this course, you will be transported back in time as we immerse ourselves in Tennessee's archaic past. Come ready to learn from a real-life archaeologist how archaeologists test hypotheses and develop conclusions about events and people long ago! As you take on the role of an aspiring archaeologist, you will learn about the tools and techniques that professionals use to excavate artifacts and draw meaningful conclusions about Tennessee's past. If you love puzzles and history, and don't mind getting a little dirty, then this class is for you! Are you ready for an adventure in archaeology?

NEUROSCIENCE NAVIGATORS

Come join a neuroscience team on a journey to understand the human body's most complex organ, the brain! In this course you will explore what scientists know about this organ and investigate how scientists unlock mysteries of how the brain works. Have you ever wondered how your foot communicates with your head? Did you know that light is involved in how we see color? Do you know why? In this class we will apply our own personal experiences as we explore brain related questions that puzzle us. You will also learn about the role neurons play in how the brain functions as you investigate how these cells talk to each other using electricity and chemistry. Through inquiry-based, hands-on activities in Vanderbilt science labs, you will use problem-solving skills and creativity to answer big brain questions as you hypothesize, observe, and investigate. Get ready to collaborate and learn about one of the fastest-growing scientific fields—neuroscience!

"My SAVY instructor was phenomenal! I could tell that **he had true joy in teaching this topic**, and that made all the difference."



RISING FOURTH AND FIFTH GRADES

PROGRAMMING AND ROBOTICS

Robotic engineers are learners, dreamers, strategists, and creative thinkers. Robots are cool to play with, but how are robots used in the real world? Can robots really help make our lives easier? How do robots turn lines of computer coding into action? What are the thinking processes needed to successfully code a robot to complete a task? Come learn the answers to these questions and more as you challenge your mind and test your creativity by programming Sphero interactive robots! In this course, you will take on the role of a robotics engineer as you brainstorm hands-on solutions to real-world problems through computer programming. You will program how your robot moves, looks, and interacts with apps, including augmented reality games, as you try to solve robotic challenges. After taking this course you will have new ideas about how to use coding and robotics to solve big problems in our world today!

POETRY IN PRACTICE

Emily Dickinson, Robert Frost, Langston Hughes, and E. E. Cummings. Influential poets such as these have the ability to create written pieces that transcend time. Powerful poems can impact your emotions and thoughts, and remain etched in your mind for days, months, and even years. But what characteristics make a poem memorable? How do we tell a meaningful story using so few words? In this course, we will closely examine how famous poets create compelling poetry, and we will discover how to apply similar skills and ideas in our own work. By using examples from both historical and current-day collections, we will examine the different forms that poetry can take and discuss the elements of craft employed in preparing poetic creations. After exploring the work of famous poets, we will write our own unique pieces to share. Develop your own powerful poetic voice in this in-depth look into the complex world of poetry in practice.



“Academics at SAVY are enhanced beyond grade level, taught in a small environment **by teachers who truly love to work** with gifted children.”

RISING SIXTH AND SEVENTH GRADES

COMMODORE INVESTMENT FUND: ECONOMICS AND THE STOCK MARKET

Business school may be several years away, but that doesn't mean you can't understand important business concepts now! In this course you will take on the role of a financial analyst as you learn how math intersects with economics, how the stock market functions, and how to discern between a multitude of investment options. After gaining an understanding of the basics of investing, including investigating market efficiency and historical stock market trends, you will experience firsthand the power of the stock market. You will work with a small group of your classmates, now your business colleagues, to propose investment decisions for the Commodore Investment Fund, a fund set up by the SAVY Company. Your instructor will serve as president of the board for the company and will listen to your investment proposals in a real boardroom. Don't let the fancy boardroom intimidate you. You and your business colleagues will be ready to show the president that you understand economics, the stock market, and have a plan for quality investments for the Commodore Fund. Get ready to debate money decisions, develop economic strategies, and provide justification in a class that will engage you whether the market is bull or bear!

“At SAVY I get to meet new people who are as excited as me to learn something new about a subject.”





COMPUTATIONAL ASTROPHYSICS: CODING THE UNIVERSE

“SAVY brings out the best in my children. When they discuss their classes, **they are smiling and enthusiastic.** They love it!”

Astronomers spend their days studying stars and galaxies in space, but these celestial bodies sometimes exist for billions of years, much longer than the average lifespan of a scientist. How, then, is it possible to study these objects? What techniques can astronomers use to make scientific predictions and conduct experiments? Over the last several centuries, scientists have been carefully unraveling the laws of physics and quantum mechanics—laws that can be applied to almost all objects. In this course we will uncover how astronomers combine computer simulations and real-life observations to make scientific discoveries and predictions about the future of our universe! We will begin our studies with hands-on learning of some computer programming basics and exploring important laws in astronomy. We will demystify computer code, translating it into physical models and representations that will help us better understand objects in space. We will even work together to develop our own simulations of astrophysical objects and compare them to real observed objects in the sky. Get ready for an academic experience that is out of this world as you learn how coding, physics, and astronomy can be used together to investigate the universe!

SESSION 6: July 24–28

Course Descriptions

RISING FIRST GRADE

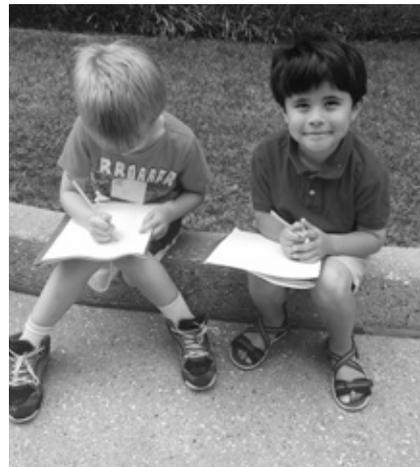
SURVIVE AND THRIVE

In this course, we will investigate the ways that animals survive and thrive on our planet. Have you ever wondered how animals can sense when danger is near? Are you curious about why groups of birds sometimes fly in formation? Do you ponder how some animals can survive in the blistering heat of the desert or in the coldest months of winter? If so, you are already thinking like an animal scientist! Together we will learn about the characteristics that make animal species different and examine the unique habitats that different animals call home. You will also study characteristics of living things by studying life requirements and life cycles through observations of your very own mealworm! You will then take on the role of scientist and animal advocate as we try to tackle serious questions related to environmental preservation and animal protection. If you love animals and enjoy science, then you will certainly thrive in this class!

“After her experience in SAVY, my daughter is becoming **more independent and confident**. She has become a more well-rounded student.”

BEYOND THE PYRAMIDS: EGYPTIAN EXPLORATIONS

When we think of Ancient Egypt we often think about pyramids, mummies, and hieroglyphics, but Ancient Egypt has even more to offer. Did you know that the Ancient Egyptian civilization lasted over 3,000 years? In this course you will take on the role of an anthropologist to investigate how the Egyptians’ systems of language, leadership, economics, architecture, and geography created a strong civilization that lasted for thousands of years. What did we learn from the Egyptians and how has it impacted our current way of life? Are there other ideas that we can borrow from the Egyptians to better our society? We will investigate these questions and more as we critically analyze the systems within this society. Don’t worry—we will talk about mummies and pyramids too and the role they played in Egyptian’s lives. Plus, you’ll even get to try your hand at writing Egyptian hieroglyphics!



RISING SECOND AND THIRD GRADES

SECRETS OF THE MOLI STONE

A stone tablet has just been unearthed. What an exciting discovery! The only problem is that the information on it is in a secret code. The tablet is covered with unusual symbols and interesting mathematical markings! What do these symbols and markings mean? In this class you will take on the role of a mathematician to unravel the secrets of the Moli Stone. To solve the mystery, we will begin with an exploration of our number system as we explore the concepts of place value and base 10. We will then compare and contrast the use of place value and bases in number systems that are different from our own, and also investigate how cultures and groups of people use particular number systems. No stone will be left unturned in this mysterious mathematical adventure!

“The best part of SAVY was my teacher being interested in me and helping me to learn. And the creative opportunities, too!”

ENVIRONMENTAL HYDROLOGY: WORKING WITH WATER

We use it every day—to drink, to cook, to brush our teeth. Water is everywhere! Did you know that approximately 71% of the Earth is covered in water? But where does fresh water come from? How do we make sure that we don't run out of this precious resource? How do we provide water that is safe for people to use? The study of hydrology involves investigating water-related questions like these. In this course, we will take on the role of a hydrologist to explore many topics including the hydrologic cycle, water conservation, and rising sea levels, as well as engineer solutions to hydrologic problems. Using field and laboratory techniques, we will identify characteristics of streams, explore the physical processes controlling water and landscape interactions, and learn from a real hydrologist how to analyze water quality. We will also learn about challenges in water management. You may even have a chance to use your knowledge of the world of water to model healthy watersheds and design your very own water treatment plant!



RISING FOURTH AND FIFTH GRADES

MYSTERY AND HISTORY: THE AGE OF EXPLORATION

The study of history is more than memorizing names and dates—it is a series of many mysteries that must be unraveled! Bring your best investigation skills as we take a trip back in time to the exciting world of early America. With primary sources as our guide, including diaries, letters, and journals of historical figures, we will uncover facts about the earliest cross-cultural encounters between Native Americans, Africans, and Europeans in what is now known as North America. We will focus on several mysteries that date as far back as the fifteenth century, including the loss of Henry Hudson’s ship, the fabled Seven Cities of Gold, and the lost colony of Roanoke. Using different types of evidence, you will make your way through each historical mystery and then present arguments about what you think may have really occurred. Get ready to take on the role of a historian as we work to decipher the unknown secrets of the Age of Exploration!



INDUSTRIAL MICROBIOLOGY

Bacteria are often believed to be something negative for people, but not all bacteria are harmful. From the new energy production methods to the food we consume everyday, bacteria are actually a vital part of life! In this course, we will investigate how researchers utilize the prokaryotic world to help solve some of Earth’s biggest issues, like pollution and hunger. Through an exploration of basic microbiology, bio-ethanol production, genetically modified organisms (GMOs), the use of bacteria in technical applications, you will start to discover the benefits of bacteria. Taking on the role of microbiologists, we will conduct hands on investigations—collecting environmental samples, performing genetic manipulations, and observing the power bacteria has to transform food into fuel—to tackle questions that scientists explore daily. The field of industrial microbiology is a hot topic and is only getting bigger, blazing the path of new opportunities for a budding microbiologist like you!

RISING SIXTH AND SEVENTH GRADES

WILDLIFE ECOLOGY: OH DEER!

“SAVY encourages children to develop a **lifelong love of learning** and to experience that learning is fun.”

Congratulations! You have been asked to serve as the assistant to the mayor in a small town in Tennessee, and the mayor has just informed you of your first assignment. Your task is to work with a variety of stakeholders to determine how best to control a deer population that is growing exponentially and is negatively impacting the city. The deer are eating citizens' landscaping and increasing citizens' exposure to the dangerous bacteria that cause Lyme disease. In this course you will combine math and science to develop a solution to solve the growing deer problem. You will be challenged with developing your understanding of biology and linear modeling in order to develop this solution. To complicate matters as you work towards an acceptable result, you will have to consider the problem and solution through multiple lenses, including environmentalists and animal activists. Can you develop a solution that appeases everyone and is justifiable based on research? Oh deer, you have quite a challenge!





PLANETARY ASTRONOMY

The history of the universe is written in the sky! In this course you will take on the role of an astronomer to investigate our wide universe. Did you know that NASA has identified over 2,300 planets outside our solar system and has determined that as many as 21 may be habitable? In this course you will use astrophysics, publicly available data, and the power of statistics to better understand our planet-filled universe. You will learn how to identify and characterize different types of celestial objects and how the study of light is essential to astronomy. We will also take what we know about our own solar system to generate models for studying extrasolar planets. In this way, you will gain firsthand experience in how scientists pose research questions, design studies, and present their findings to their peers. Get ready to contribute your own voice to our global, astronomical dialogue! This course will help you ask and answer questions as wide and diverse as the universe itself.

“I loved the challenge SAVY provided me with and that **I had the chance to share my opinions** with other gifted students.”

Vanderbilt University's Programs for Talented Youth

develops talent in gifted students and those who work with them

SAVY—Saturday Academy at Vanderbilt for the Young

Day Program—Held each fall and spring, students in grades K-6 engage with like-ability peers in accelerated courses over six consecutive Saturdays.

SAVY—Summer Academy at Vanderbilt for the Young

Day Program—Each summer rising 1st-7th grade students take part in a variety of advanced courses taught by content experts. Weekly sessions are available for all grades in the months of June and July.

WAVU—Weekend Academy at Vanderbilt University

Day Program—An intensive Saturday of career-focused courses in a hands-on laboratory environment. Fall and spring options for advanced learners in grades 7-10.

VSA—Vanderbilt Summer Academy

Residential Program—For students entering grades 8-12, VSA offers accelerated courses in 1-3 week summer sessions. Students live on campus and take advanced level courses taught by VU faculty and graduate students in a challenging yet supportive environment.

FOR EDUCATORS AND PARENTS

GEI—Gifted Education Institute

GEI offers professional development opportunities to educators and parents of high-ability learners. Access summer conferences, academic-year workshops, and courses on our website: pty.vanderbilt.edu/educators/gifted-education-institute

If you are interested in learning more about new and growing programs, please contact us through our website at pty.vanderbilt.edu or email pty.peabody@vanderbilt.edu.





“In my experience, universities can play a role in encouraging and supporting the most talented young learners. And, it is important that we do so—for their well-being and for our common future.”

— CAMILLA BENBOW

Patricia and Rodes Hart Dean of Education and Human Development, Peabody College

Vanderbilt University Programs for Talented Youth

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