SAR’s 2nd Grade STEAM Enrichment Program Winter 2017

Hands-On Exploration In Science, Technology, Engineering, Art-As-Design, and Math
Dear Parents,

Welcome to the winter semester of our Enrichment program of STEAM Enrichment Clusters for Grade 2 to begin on Wednesday, January 25th. Our nine-week program affords every child an opportunity to participate in a STEAM-based Enrichment slot. This broad enrichment initiative reflects our deep commitment to enabling each student to discover and take pride in the gifts and talents with which she or he is endowed as well as our commitment to championing a broader conception of giftedness.

Your children will have the opportunity to explore an area of interest, talent, or passion in depth in science, technology, engineering, art-as-design, or math, while in a small group with other students and a facilitator who also share this interest. The challenging learning pursued is grounded in the production of a product, performance, or service for an authentic audience.

In this model, STEAM Enrichment Clusters disseminate enrichment pedagogy to every student and is founded on the belief that everyone has the potential to demonstrate gifted behavior. Our STEAM Enrichment Cluster Program and many varied enrichment learning
offerings address the diverse abilities and strengths
children possess. Our ultimate goal is to help children
develop their interests and talents and understand how
they can share their gifts with the world.

REGISTRATION

Please fill out the online Student Selection Form by Sunday, December 18th,
after which date some STEAM Enrichment Clusters will become filled. We ask that each
child select 3 enrichment learning opportunities in
which he or she is interested.

Every student is guaranteed a place in
one of his or her three selections. If only
one selection is made, we cannot guarantee
placement in that Enrichment Cluster.

Feel free to be in touch with Sharon Mar-
son at: marsos@saracademy.org or at 718-548-1717
x1212 or Dr. Chaya Fine at: finec@saracademy.org if
you would like to be involved in this program or if you
have any questions.

Rabbi Binyamin Krauss, Principal
Sharon Marson, Director of the Arts & Enrichment
Dr. Chaya Fine, Director of Science Curriculum &
STEM Initiative
1. MAKERSPACE

Are you a creator? Do you work well in partnership and come up with your best creative idea as a collaborator? In this Cluster you will be creating a variety of things with a partner such as: a video that you programmed, physical structures, programs for robots, and even 3D printers of objects you design. We will be designing plans, revising our plans as we begin the design process and creating our visions (or our closest approximations!).

Facilitator: Rivka Heisler, mother of 4 Lego crazy kids, has built countless constructions. As one of SAR Lower School's technology coordinators, she enjoys teaching coding to the kindergarten through 4th grades. She knows several computing languages and participated in an educational cohort to learn more about teaching Scratch to elementary school students. Fascinated by the "internet of things" she has wifi controlled most of the light in her house and programmed her dog's bowl to email her when he eats. She wishes she could play video games as well as she can program them.
2. ELECTRICITY CITY: LIGHT IT UP!

What is electricity? How does it work? How does electricity travel? Did you know that electricity is even involved when you turn on a faucet? Let's use STEAM principles: science, technology, engineering, art-as-design and math to figure it out. We will blink and buzz our way to electricity and circuitry! Create your own circuit and investigate which materials conduct electricity. Discover which ones insulate to stop electrons in their tracks. Explore and practice electricity safety. Make discoveries about batteries and create batteries out of common household items including a lemon, potatoes, and water. Then demonstrate your knowledge and mastery in designing a light-up card that uses conductive properties you came to understand in this charged Enrichment Cluster.

Facilitator: Renata Cohen

Morah Renata is an artist, a curious math thinker, a scientist, and an innovator. She is now spearheading a Fairytale Engineering course for 1st & 2nd graders, teaching 3rd grade science, and an art teacher exposing students to art through a math lens.
3. BLOOD & GUTS: WHAT’S INSIDE? 
MEDICAL DISCOVERY LAB

Do you ever wonder why our heart beats faster when we exercise? Are you curious about what happens to the air that we breathe into our bodies? Or where the food that we eat goes and how it helps our bodies? Or why we need boogers?

Join us to get the inside scoop on how our insides work. Find out how doctors figure things out, use tools of the trade, conduct some experiments, and explore the world of medicine.

Facilitator: Dr. Jennifer Fenster

Middle School Science teacher and pediatrician, Jennifer Fenster, enjoys empowering kids with knowledge of how their bodies work.
Enrichment Cluster Offerings . . .

4. COLOR SCIENCE LAB

Students will study works of famous artists such as Vincent Van Gogh and investigate how math and science concepts are used to create tints and shades used in these masterpieces. They will create their own colors comprised of tints and shades by using different ratios of primary and secondary colors. They will refer back to the data they collect when deciding which tints and shades to use in creating a masterpiece of their own. Students will also explore the science behind light and color as they engage in hands-on activities that foster a deeper understanding of how we see the beautiful colors surrounding us.

Facilitator: Chani Jaskoll

Chani, a professional artist and has been SAR’s art teacher for many years. She is a watercolorist and painter who has exhibited and won numerous art awards.
5. HERE COMES THE SUN . . .

The students will act like engineers designing a house that captures as much solar energy as possible. They will identify and learn about a problem, plan ways to solve it, make and test a model and then finally revise their design and model. All while having fun, they will learn about the sun and the solar energy it provides, temperature, reflection, absorption, and more!

Facilitator: Anastasia Kelly

Anastasia has been teaching Science & Engineering at SAR for 3 years. Prior to joining SAR, she was a MS teacher and Head of Science Department for 10 years at Moriah. She also organized & taught E2K Science classes, a STEM based enrichment program for interested and talented science & math students. Summertime, she is affiliated with the Children's' School of Science in Woods Hole Ma. an inquiry based science program for students ages 8-15 with a concentration in Marine Sciences. For 15 summers, Anastasia served as curriculum director, board member, and president of the school. In addition, each June she runs a workshop in Engineering for teachers at the annual meeting of CIJE (the Center for Initiatives in Jewish Education). She holds a Masters Degree in Science Education and is a mother to three daughters.
6. INSTITUTE FOR SPORTS SCIENCE: EXPLORING HUMAN MOVEMENT

Who is your favorite athlete? What makes the top athlete so much better than others in their sport? Are you interested in the human body, its muscles and bones? Have you ever wondered about the physiology of muscles and how they work and which muscle groups to concentrate on for specific sports? If you answered yes to any of the above questions, then join us for “Sports Science: Exploring Human Movement.” Analyze outstanding plays by your favorite athletes, and show your friends the science behind how those best in the game make a difference.

Facilitator: Ken Gleason

Mr. Gleason has been around sports and athletes his entire life. He is a former Division I baseball player at Manhattan College and current basketball and baseball coach on the high school level. He looks forward to sharing his love of athletics with our students.

With iPads we will use art-as-design to paint, sketch, and print our artwork while delving into and exploring art apps including ArtRage. Did you know that with art apps you can use a virtual brush and enhance digital images? Imagine what van Gogh’s *Starry Night* might have looked like if he used apps to paint this masterpiece? Let’s explore the work of various artists and their techniques to imagine what the design and composition of their art might be if they were living in the 21st Century and had technology. Come create computer generated masterpieces of your very own. Perhaps you will choose to put them on gallery-display!

**Facilitator: Debby Schloss**

Debby Schloss, a veteran SAR faculty member will be combining her love of art and computers in “What If Picasso Had An iPad?” When Debby isn’t at SAR Academy, she loves spending family time trekking around Manhattan or *tiyuling* around Israel.
8. **SILVERSMITH SCIENCE STUDIO**

Did you know that pure silver is the best conductor of heat and electricity and the best reflector of light of any metal? Throughout history, silver has been used in jewelry, utensils, decorations, coins, mirrors and even cameras. Silversmiths who work with silver and other metals have the opportunity to learn about the science of silver first-hand! In this Cluster, we will become silversmiths and will experiment with metal as we bend, etch, and hammer. We will explore this precious metal through research and observation and will make something beautiful in the process.

**Facilitator: Eva Broder**

Morah Eva, 2nd grade General Studies & Support teacher has always been interested in art, especially the magical way it expands meaning beyond language. She brings her years of art training at S.V.A and The New School to the classroom to guide budding artists on their artistic journey.
9. PATTERNS IN NATURE
PHOTOGRAPHY STUDIO

Are you inspired by nature? Do you notice patterns in the world around you? Do you like taking photographs? Are you interested in learning about the art of photography? Through the lens of the camera, you will learn to see and capture many math-based patterns in our environment. You will learn how to use the iPad camera and edit photos like a professional photographer. In this STEAM Enrichment Cluster you will explore various famous math patterns: Fibonacci, tessellations and fractals. You will be inspired by artists: M.C Escher, Piet Mondrian, Zellige, and the photography art form to explore concept of patterns in nature.

Facilitator: Adiella Shem Tov

Adiella, has a BFA from Concordia U. majoring in sculpture, minoring in psychology. She’s an art educator joyfully wearing many hats at SAR. In the art room she develops innovative, meaningful curriculum for grades N-6 to explore and create. On the Theme of the Year team, she excites and inspires students with large scale and sometimes interactive artwork. Adiella is also a singer/song-writer recently joining SAR’s Choir as Co-Director. She is a multi-media artist who loves fusing Torah & spiritually into all her creations and loves combining so many interests at SAR.
10. MUSICAL SCIENCE THEATER

Come join this fun musical theater group of animals as they search for their own proper biome! Sure, these animal heroes are cute, but looks aren’t everything in a world of distinct and tough environments. To survive (and be able to sing all their catchy songs) you will learn about desert, forest, grassland, freshwater, tundra, and marine areas for which they are especially adapted. Discover things about these biomes and animals and plants in their habitats and the food chain through song and drama that will culminate in a Musical Theater performance at the end of the STEAM Enrichment Cluster semester.

Facilitator: Sigal Chen

Sigal Chen graduated the Jerusalem Academy of Music & Dance (B.MUS) and received a Master’s in Music Education at Lehman College. She is a professional singer and voice teacher and has performed complete operas at Lincoln Center and Carnegie Hall. Sigal is looking forward to sharing her musical skills and passion with the young students at SAR.
11. **MECHANICAL ANIMATIONS**

Students will explore the difference between a structure (an object that can move only as a whole) and a mechanism (a device that has independently moving parts). Most mechanisms are designs to make work easier, but students will learn to create a mechanism whose purpose is to tell a story. While building their own simple mechanisms out of cardboard and pegboard, students will explore forces, levers, linkages, pivots, fulcrum, effort, load and mechanical advantage. Based on the knowledge developed, students will design and create a mechAnimation (an animated mechanism) and write the story it’s telling.

**Facilitator: Chaya Fine**

Chaya Fine has taught 7th grade science at SAR for the past 14 years and is currently serving as the Director of Science Curriculum and STEM initiative. Having participated in STEM conferences and workshops at the elementary school level, she is thrilled to be able to work with younger students in STEAM Enrichment Clusters this year.
12. YOUNG ENGINEERS, INC.

Engineering is the application of scientific knowledge to solving problems in the real world. Engineers try to solve problems by inventing, designing, and building things. Working with a real engineer, students will learn how to plan and build models of several mechanical structures. After learning about various and necessary components, they will use their creations to explore topics such as force, motion, and energy. Students will also be challenged to find engineering solutions to common problems and to plan and build their own designs, machines, or inventions, given some tools and materials.

Facilitator: Ayelet Feinberg

Ayelet joined SAR after moving from Israel 3 years ago. She supports students in Hebrew, math, and coding and also is faculty advisor for MS STEM projects and competitions. Ayelet has a BS in Mechanical Engineering and worked in the field of engineering product design and development when in Israel. Ayelet’s passion about the physical world is fueled by her deep understanding of mechanical structures, energy, math, and science.
13. *i-BOOK PUBLISHING COMPANY: Photographs And Memories*

Tell your personal story in a creative way! Do you have photographs of a time or place or people that you cherish? Would you like to create a photo book of that favorite part of your life? Then you will enjoy using the technology of an on-line publishing program to turn your favorite memories into a custom-made book! Use art-as-design in various ways to arrange your photographs in a unique layout, embellish your backgrounds, and add some text. Come preserve and publish in the *Photographs & Memories* Enrichment Cluster!

**Facilitators: Beth Pepper & Alana Gelnick & Barbara Sopher**

Morah Beth, GS Principal, has a passion for stories and books that chronicle people’s lives and record personal as well as collective history. Morah Alana, ELC Principal looks to capture special moments in life by designing photo books. Barbara Sopher currently works for Sopher Management, and is a Social Worker with an MBA from Columbia U. Her true love is being with her family and at SAR!

*25-35 personal photographs related to a theme are required. Photos need to be brought in digitally on a USB flash drive.*
14. **DESIGN CHALLENGE:**
**CONSTRUCT-A-ROOM**

What does it take? What materials work in building? How do you create strong support? How do you make a room fun, relaxing, exciting for a child, a dog, an athlete, a shoe shopper? What about a particular place makes you want to go back again and again? Let’s explore design, color theory, and marketing to understand what makes a space or structure work for different people and different needs. Meet a designer and engineer to consider how decisions are made, from materials used to placement of items in a space. Visit some interesting spaces in our community to experience the impact of those choices in action. Build a room of your own to reflect your understanding of planning for a particular person or particular purpose. Let’s have fun and “Construct-A-Room!”

**Facilitator:** **Rena Karol** Rena Karol has been an SAR parent for 19 consecutive years and a Learning To Look volunteer for 7 years. In addition to spending time in the ELC as a substitute teacher, she also runs the ELC Afterschool Program. Rena is looking forward to sharing her interest in design, and exploring and experiencing it with the children in this Enrichment Cluster.
Student Selection Form For
Enrichment Clusters

We are asking children to think about three STEAM Enrichment Clusters they are most interested in attending. In reading through our selections with your child, please guide him or her in recognizing how he/she might be interested in several different clusters.

Please make 3 selections on the online form by Sunday, December 18th, after which date some STEAM Enrichment Clusters will become filled.

Every student is guaranteed a place in one of his or her three selections. If only one selection is made, we cannot guarantee placement in that Enrichment Cluster. Students will receive their Cluster registration prior to the first session.

If you have any questions please contact Sharon Marson, Director of the Arts and Enrichment at marsos@saracademy.org or 718-548-1717 x 1212 or Dr. Chaya Fine at finec@saracademy.org
“Every child should have the chance to be exceptional without exception.”

~Dr. Joseph Renzulli
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