

**ST. STEPHEN'S ARMENIAN ELEMENTARY SCHOOL
STEM PROJECT INITIATIVE**

UPDATED MARCH 2013

St. Stephen's Armenian Elementary School STEM Project Initiative

I. Mission Statement

St. Stephen's mission for Science, Technology, Engineering, and Math (STEM) education is to excite and inspire students, and to develop strong foundational skills in STEM disciplines. We believe that STEM can empower individuals and society for good; we want our students to understand that they can already help improve the world through STEM and that their sphere of influence will grow over time. To carry out our mission, we have embarked upon a five year strategic plan funded by the Gelfand Family Charitable Trust. Our plan addresses three core objectives: Curriculum improvement, professional development, and the creation of a STEM culture.

A. Goals:

- Providing in-house professional development for our teachers
- Seeking outside curricular consultation (Marina Bers/DevTech Research Group)
- Enriching our curricular or other teaching and learning materials with kits from various sources such as the Museum of Science or Children's Discovery Museum
- Involving parents who are specialized in sciences
- Encouraging students' participation in STEM (Science Fair)related events either in or out of school (Cambridge Science Festival)
- Trying to establish partnerships with area colleges (ex. Tufts or MIT)
- Following Massachusetts and national trends in STEM curricula
- Implementing 21st Century Skills
- Data Collection and Benchmarking

B. Strategic Objectives

- Enhance STEM content knowledge and pedagogy
- Improve the science, technology, engineering, and math education
- Integrate curriculum science/Math/Literacy and Art/Phys. Ed. /Technology
- Assessment tools to report academic achievement
- Professional Development for teachers
- Developing student critical thinking and expectations within the STEM culture
- Parent involvement and Education workshops

C. Initiatives

1. Increase student Interest in STEM
2. Science Fair
3. Science content enrichment for Preschool-Gr.5 curriculums with inquiry and hands-on learning.
4. STEM vacation camps.
5. STEM after school programs
6. Participating in Cambridge Science Fair
7. STEM workshops at professional conferences for faculty members

II. Curriculum Improvement

St. Stephen's is moving to an inquiry-based approach to STEM that encourages exploration and risk taking, and develops analytical thinking. We are integrating STEM disciplines with Reading and Language Arts, Fine Arts, and Physical Education. We are revising and improving assessment tools to report academic achievement. We continue to strengthen and improve our annual science fair to provide a spotlight on STEM.

Preschool

Our mission at the preschool level is to give our students quality science education, and to incorporate STEM disciplines in our rich bilingual curriculum. Our goal is to hook our students at a very young age into the process of STEM disciplines.

Our goal will be accomplished by;

- Encouraging our students to do what scientists do; observe, question, think, analyze and present their thinking in an age appropriate manner.
- Teachers will continue teaching our current math curriculum with a focus on the investigative method and using math manipulatives.
- Teachers in the classrooms will encourage the students to build and construct models with classroom materials and building blocks.
- Materials and equipment that is age appropriate for the preschool level will be purchased to enhance the environment for STEM teaching.
- Students will be exposed to materials that promote STEM education and will be familiarized with the use of these materials.
- Teachers will get the training opportunities needed to prepare them to what the actual STEM education process is.
- Our recent expansion project provides the space needed for our students to do hands-on STEM related projects.

Elementary; K-5

St. Stephen's will continue to build upon the foundation that was developed at the Preschool level and strengthen that knowledge base at the elementary level. The newest STEM initiative will begin with the introduction of the new KnowAtom Science curriculum this coming Fall.

The KnowAtom curriculum is engineered to connect students to the many areas that science reaches. Students relate concepts through the Scientific Method by generating data in experiments and testing prototypes built with the Engineering Design Process.

We will also ensure that our diverse population is:

- Capable of conducting STEM projects and inquiry;
- Capable of authentic and collaborative problem solving;
- Proficient in applying multidisciplinary knowledge and skills through STEM;
- Proficient in English and Armenian (Bilingual) communication oral and written form

III. Professional Development

St. Stephen's will expand and enhance professional development opportunities for our staff through STEM events and workshops. We will seek to create partnerships between staff and practicing scientists and engineers.

VI. STEM Culture

St. Stephen's seeks to create a supportive culture for our STEM initiative in all constituencies of our community: Administration, staff, students, and parents. Such broad support is necessary to sustain a strong STEM program.