HML
HUNTINGTON MEMORIAL
LIBRARY

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Children's STEAM Program Project Plan

The *What* and *Why* of STEAM Education at the Huntington Library

STEAM is an acronym for Science, Technology, Engineering, Art, and Mathematics.

There is an increasing importance in using STEAM activities in the education of our children outside of school.

-Standardized testing has given rise to instructors who do not have enough time to incorporate hands-on learning in the classroom. STEAM activities include experimentation, imagination, and group participation, all crucial in the successful education of growing minds. We will be able to offer these activities without the constraints seen in school.

-STEAM education prepares our children for the future by teaching them different ways of thinking, approaching, and examining a subject. Its purpose is to create a curious mind and encourage a love of learning in the child. As a result, children will learn the skills they need to gain success and ultimately employment in the growing fields of science, engineering, technology and mathematics.

Stakeholders

Internal: As the Children's Coordinator, I will be in charge of implementing the STEAM programs at the Huntington Library. I will be assisted by Sarah Livingston and Alex Benjamin, who bring to the table the key technical experience I need to acquire the correct materials, design effective programs and run them.

External: Patrons 16 years old and under will be our target participators. My intent is to use STEAM themes in my birth through 7 yr. old story times on a simpler level (basic science, art

and math) and to use our new science/technology gadgets, including littleBits, Sphero, Moss Robot, Minecraft, Lego Robotics, and our newly acquired microscopes, in special programing with children 8-16 years old.

Goals and Outcomes

Goal: To create an inspiring and fun environment of learning where children acquire hands-on experience utilizing all aspects of STEAM.

Outcome:

> Because they are doing the creating, experimenting, and problem solving themselves, they will see that they make a difference and are effective members of a group and thus society. This will give them confidence and an interest in the future of this planet.

> Our free programs are open to the public and support equality in education. We are not restricted by any test related curriculums and participants need not worry about costs.

> STEAM activities keep children up to date with innovations which are constantly changing.

> STEAM activities show how science, tech, engineering, art and math are related to each other and to everyday life.

> The knowledge that our library offers these programs for children will increase patron enrollment and aid us in redefining what the modern library is all about.

Action Steps

SCIENCE: We will plan activities that investigate our *Natural World* or help to solve an actual world problem. (Ex. Using a Microscope to examine the unseen world then creating a comic strip with microorganisms as characters, testing the content of rainwater, growing a garden on the library grounds).

TECHNOLOGY: We will plan activities centered around the Minecraft Summer Program, Lego Robotics Club, Sphero, littleBits, and Moss Robot. We can also have children examine other man-made products that meet a want or need on a simpler basis. How can you make a better airplane seat? An improved way to brush your teeth?

ENGINEERING: Children will use creativity and problem solving to design and construct during a design challenge. They will develop a plan, make a prototype, test and evaluate. This can be done in both a technological setting as in Minecraft and Lego Robotics or with everyday objects like tower building, mazes, paper airplanes, marble runs , etc. Materials can range from high tech to Legos to paper and straws.

Art: This is the glue keeping STEAM a success*.* Art is about creativity, design and expression and plays an integral part in the success of STEAM activities. It allows for the right side of the brain

to get in on the game. It doesn't necessarily mean the children will be painting and sculpting their way through STEAM, it has more to do with appearance and design. Plus, incorporating art activities will inspire children who are not so tech minded.

Math: We will encourage the children to see the relevance of numbers, shapes, quantities and equations in everyday life and the role they play in each of the STEAM elements. Math challenges can be created for Minecraft and Lego Robotics on a technological level, or with pencil in hand creating *Pi* inspired graphs that can be converted to a skyscraper horizon, designing the blueprints for a fantasy house, etc..

Timeline

Although we have already started incorporating aspects of STEAM into our children's programs, we will be kicking off our Minecraft Program during Summer 2016. Lego Robotics will follow soon after, date to be determined. We are in possession of the two microscopes and will start utilizing them as soon as possible.