Virginia Association of Counties
ACHIEVEMENT AWARDS

APPLICATION FORM

All applications must include the following information. Separate applications must be submitted for each eligible program. **Deadline: June 1, 2016.** Please include this application form with electronic entry.

PROGRAM INFORMATION

County: Henrico County

Program Title: Superhero Science Stations

Program Category: Parks & Recreation

CONTACT INFORMATION

Name: Cristol Klevinsky

Title: Management Specialist

Department: County Manager's Office

Complete Mailing Address: 4301 E. Parham Rd., Henrico, VA 23228

Telephone: 804-501-4370 **Website:** henrico.us

Email: kle@henrico.us

SIGNATURE OF COUNTY ADMINISTRATOR OR CHIEF ADMINISTRATIVE OFFICER

Name: John A. Vithoulkas

Title: County Manager

Signature:

1. Short Overview of the Program

During the summer of 2015, Children's Librarians Rachel Sharpe and Kathleen Harris offered several interactive, Science, Technology, Engineering and Math (STEM)-based activities for children to explore while visiting the library. Superhero Science was created whereby each activity focused on a certain superhero trait, such as sight, speed, or balance, and incorporated scientific concepts, such as friction, measurement and magnetism. A small table near the children's desk was designated as the Superhero Science station where the eight activities were displayed on a rotating basis. The activity station was on display for a total of eleven weeks during the summer and quickly became a favorite spot in the children's section of the library. Each activity station included easy-to-follow directions and a scientific fact sheet. Some of the activity stations allowed children to use new technology such as a digital microscope, while others used everyday materials such as cut-up cardboard squares. All activities encouraged children to use their scientific reasoning skills and promoted informal learning opportunities in the library. By the end of the summer, parents reported feeling more comfortable talking about science with their children and children discovered that learning about STEM concepts could be fun.

2. Problem/Challenge/Situation

The children's area in the Tuckahoe Area Library has a well-used play area with toys for preschool age children, yet there are not many areas for early elementary age students to play and learn. For many early elementary age children, the library is seen as a place to check out books and movies, use a computer, or attend an occasional program. The Superhero Science station helped to change this perception by offering age-appropriate, interactive activities for early elementary students.

Additionally, the World Economic Forum ranks the U.S. as 48th in the world for its quality of science and math education. Unsurprisingly, less than one-third of American eighth graders show proficiency in science and math, as determined by the National Assessment of Educational Progress. Superhero Science introduced scientific and mathematical concepts to younger children in an entertaining yet informative way. By allowing children to explore scientific and mathematical concepts at their own pace, young children could organically discover that science and math can be fun and, hopefully, spark their interest for learning later in life.

3. How the Program Was Carried Out

Rachel Sharpe and Kathleen Harris began developing Superhero Science in spring 2015 as a summer program. They developed eight interactive stations in the weeks, leading up to June 1, 2015. The first station debuted on June 15, 2015 on a small table next to the children's reference desk. Every week or two, stations would change, until all eight stations had been used and children had returned to school. Each activity was designed to encourage informal learning opportunities within the library and provide elementary children with a chance to engage with math and science during the summer months.

A brief description of each station follows:

Super Smarts: Children used small cardboard squares to build sculptures.

Super Balance: A small balance was set-up with a set of small weights and different objects for children to measure.

Super Touch: Objects were hidden in covered tissue boxes and children had to use their sense of touch to determine the mystery objects.

Super Strength: Objects were placed in plastic bottles and children used magnet wands to discover which objects were magnetic.

Super Sight: Children used a hand-held digital microscope to look at a variety of objects up close on a computer screen.

Super Speed: A small ramp with different textures was put out for children to explore the concept of friction and speed.

Super Spotter: A scavenger hunt was set up in the children's area.

Super Sniffer: Small bottles were filled with different scents that children had to identify.

Each station was designed with early elementary students in mind but were enjoyed by children, teens, and adults. The stations were self-explanatory and did not require much guidance from library staff. Rachel Sharpe created eye-catching promotional materials such as a large banner, bookmarks and flyers and easy-to-read fact sheets that explained the science behind each activity. The fact sheets also included the call number where children could find more information about the topic in hopes of increasing circulation of non-fiction books.

As the summer progressed, children became accustomed to the station and started to look forward to seeing what the activity was each week. Some activities were more popular than others; the activities that kids (and adults) seemed to enjoy the most were: the weights and balances, the digital microscope, and the scent bottles.

The Friends of the Tuckahoe Library provided the funds necessary to purchase equipment and other materials that were needed for the different activity stations. Also, the Information Technology department of the library set up a computer that could be used with the hand-held digital microscope.

4. Financing and Staffing

To minimize the cost of the program, everyday materials were used for many of the activities, but a few of the stations required special purchases to be made. All of the items purchased can be used to reproduce the program or other STEM-based programming in the future. The Friends of the Tuckahoe Library paid for the following materials for this program.

Learning Resources® primary bucket balance scale - $14.00

Hexagram weights (set of 54): $10.00

*Magnet wands (set of 4): $15.00

*Magnetic marbles (set of 20): $8.00

*Magnetic counting chips (2 sets of 100): $8.00

Learning Resources® digital microscope: $38.00 (sale price)

Cat incline scratcher Toy: $8.00

4 oz. plastic spice bottles (6): $12.00

Candle fragrance scents (5): $10.00

TOTAL: $123.00

5. Program Results

From observational data, the Superhero Science station was used almost continuously throughout the day. Often, the station had multiple people using it at a time. Siblings, friends, grown-ups and children, and newly made library friends all used the station. Many times, older siblings would help their younger siblings use the stations and help them understand the scientific concepts. Parents, too, used the station as a chance to interact with their children, prompting their children to answer questions about the station and then reviewing the

information they learned before they left the library. In fact, the results of a survey completed at the end of the program indicated that adults felt more comfortable talking about science with their children after engaging with the activity stations over the summer.

Many families began looking forward to seeing the different stations each week, making the library a destination for learning. Children's staff at the library received numerous compliments about how wonderful the stations were. On more than one occasion, a parent or guardian of a child was seen using the station alone as the child looked for books or played on the computer.

As a way to monitor the use of the Superhero Science program, some of activities asked kids to record data related to the activity. Each of these stations received at least 50 responses a week, but the number of children who completed the activities was much higher. The activities encouraged parents and children to interact with one another and talk about scientific concepts. Asking children to record their data also allowed children to work on their writing skills as well, which is one of the early literacy skills children's librarians encourage parents to help their children develop. By providing a library-sponsored activity that promoted writing, librarians modeled how parents could implement similar programs at home.

6. Brief Summary

During the summer of 2015, Children's Librarians Rachel Sharpe and Kathleen Harris offered several interactive, Science, Technology, Engineering and Math (STEM)-based activities for children to explore while visiting the library. Superhero Science was created whereby each activity focused on a certain superhero trait, such as sight, speed, or balance, and incorporated scientific concepts, such as friction, measurement and magnetism. A small table near the children's desk was designated as the Superhero Science station where the eight activities were

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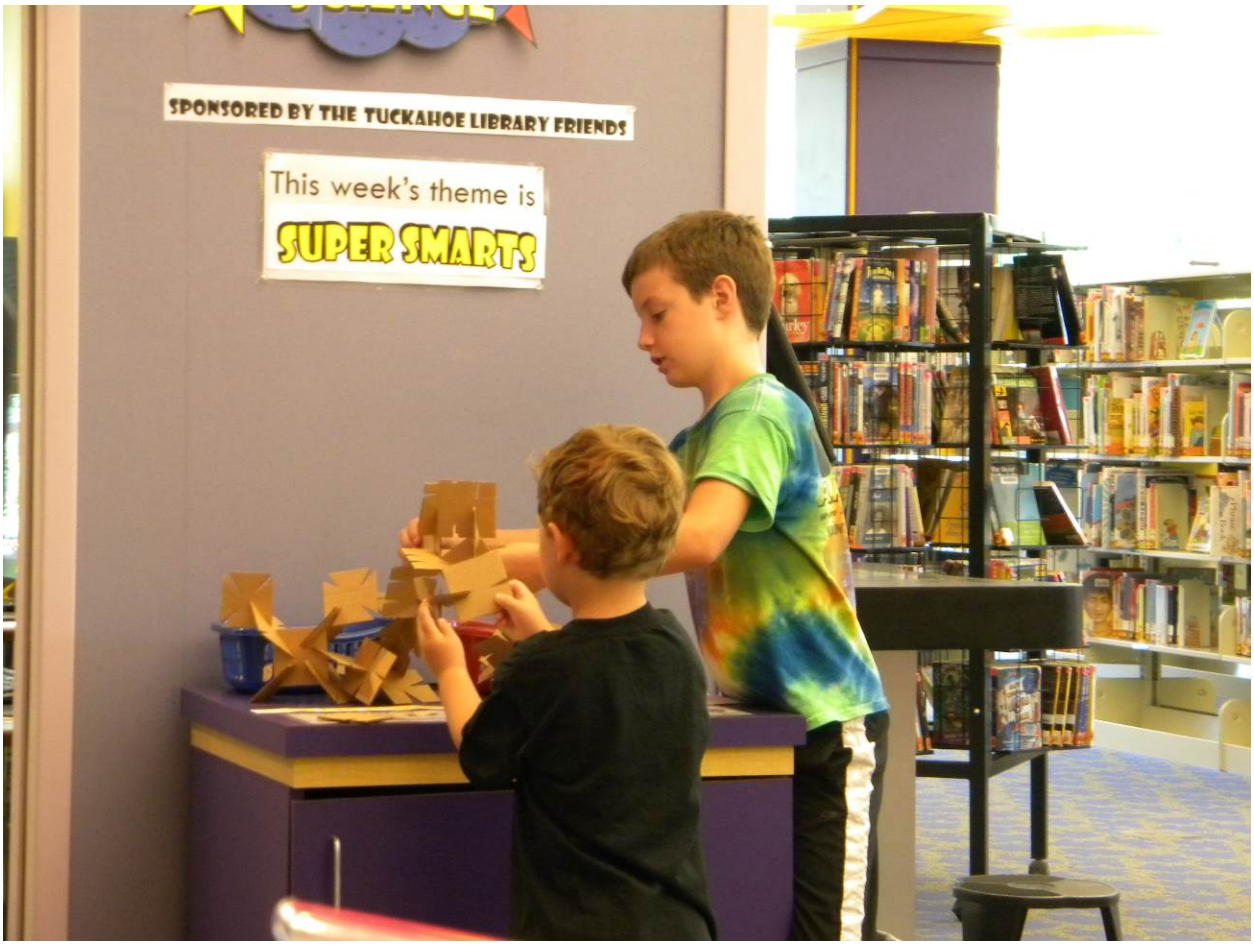
Superhero Science is a great example of how something as small as a hands-on activity table can help to change the perception of libraries. Public libraries are transforming into welcoming, open spaces where patrons can engage in informal learning with others as opposed to traditional book warehouses.

Superhero Science also capitalizes on the larger movement within education to increase STEM offerings to children. Because of children's documented lack of interest in STEM studies, educational experts are looking for ways to increase children's exposure to STEM topics when they are younger. Superhero Science helps Henrico County Public Libraries play a pivotal role in advancing STEM education by offering free educational resources to children, regardless of ability to pay.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SUPER SMARTS


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SUPER SPEED
FRICTION
1
2
3
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