

Program: Answering the Call: STEM Quick Wins

Speaker: Vera Vander Kooy, Executive Director, The STEM Connection

Introduced by: Gonz Chua

Attendance: 64

Scribes: The Mutter Marines

Editor: Carl Warner

The Zoom recording of today's presentation can be found on the Sciencetech Club's website at:

<http://www.sciencetechclub.org/zoom/484.mp4>

Ms. Vander Kooy did her graduate work in Michigan and is involved with STEM at Marian University.

Connecting to STEM in the Natural World

The STEM Connection (TSC) is a non-profit and its focus is all about education. STEM is a part of every career, even art and the environment. TSC works on removing barriers to reach all children, encouraging curiosity, discovery, grit, and is trying to reach those who may not have access. Note: they use the STEM acronym to simplify what some have expanded to ESTREAM, including the environment, art, and religion.

Located on Moore Road Farm, purchased in 2009 on northwest side of Indianapolis, the outdoors is the setting for education that definitely includes the environment. They try to keep the children outside as much as possible and keep them moving; outside is important since many children don't spend enough time outside. Their program is integrated with the scientific process, engineering design process, design thinking process, and employability and skills standards defined by the Indiana Department of Education (e.g., connection, problem solving, etc.). TSC doesn't specifically address religion but has ethical and social values that they adhere to and demonstrate daily.

TSC works with all school age students plus families. It's not "one and done"; there are multiple ways to connect such as day camps, field trips, professional development, quick wins, future leaders, families, etc.

Children will be something someday! How do we set them up with the STEM practices that will lead them to their successful future? Let them know your journey was not a clear path; you may have had problems along the way. These students, too, must understand they can overcome failures on their journey to success. Children have different passions and wonderings. We can help by encouraging them with STEM practices and encouraging them to move forward. For example using the Engineering Design Process, we can help them learn to ask questions, which may include helping them to fail fast and move forward. It's important to be honest, open, and transparent with them. TSC uses STEM practices to explore what is happening (e.g. asking, comparing, observing, using tools, etc.). An example is using action verbs that students will be developing and using. The focus is on experiential learning which encourages curiosity, discovery, grit, as well as innovation.

STEM jobs are growing faster than any other sector in the US, but women and minorities do not become scientists at the same rate as others. (She had 2 slides which shows STEM by the numbers.) TSC starts, and encourage others to start, with children as young as kindergarten in developing a STEM identity by demonstrating opportunities and encouraging them to help develop self-confidence. TSC also works to remove barriers and encourage collaboration and innovation. They show that adults don't have all the answers. Rather than providing answers, they ask follow-up questions to encourage thinking, analysis, and those other verbs mentioned above.

STEM Quick Wins (free) were launched on the 19th of March 2020 and targeted K-5 students. They decided to use social media (YouTube, Facebook, etc.), available on smart phones, so that

computers are not required. Teachers and parents loved them; all are on the TSC web site. Ms. Vander Kooy showed a video clip of a sample Quick Win on the subject of shadows.

TSC has ten staff members plus three interns every summer who bring new ideas. TSC touched over 5,000 participants per year by 2019. Their year round program has a summer that's normally busier. The staff is always focused on putting funding into programming. Vera is a member of the National Science Teachers Association and the Hoosier Association of Science Teachers. TSC is also part of the Hoosier Environmental Council of Indiana.

There have been many changes due to COVID. All participants are screened when they arrive; so far they have been safe at Moore Road Farm with no cases of COVID.

TSC works with lots of schools but not via field trips initially. Educators are not able to do all they want to now given COVID restrictions. TSC's great plans for 2020 mostly involved face-to-face activities and had to be re-thought. They now have some field trips with caps on the number of participants. They have made experiential learning virtual. (See the Quick Wins above.) TSC also provides STEM family kits; the first ones were for 3rd graders and their families. They also do programs for older students such as "STEM for Future Leaders" where students are taught how to encourage curiosity, etc., and then become volunteers for younger children's programs.

TSC normally has 30-35 students per week in the summer and beyond, but this year COVID limited it to 20. They have a waiting list. Outcomes are measured through internal evaluations, surveys, and use of Dimensions of Success (for STEM). They are touching more students through the virtual formats and collecting data on those as well. Of note, Moore Road Farm has an eagle's nest which is active right now with the eagles preparing their nest for spring. They will give tours of the farm when able.

Fifty percent of students in Indianapolis qualify for subsidized food (i.e. are food insecure). TSC charges just \$5 for a one day camp for these students (normally charge \$40) and have reduced rates for other programs as well.

Most of TSC's funding comes from foundations because "they do good work, are transparent, open, accountable, and successful". People notice. They have awards from several, including Lily Endowment which has also provided them with a grant recently, and TSC will be applying for a Sciencetech Foundation grant! TSC also gets donations from companies and individuals. Legislative support would be helpful. Several members said they appreciated Vera's enthusiasm and ability to pivot because of COVID. Please see the video for her slide data.

Vera Vander Kooy

