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Lower School Staff Development Proposal Integration of STEM with Global Perspective

Why Was This Topic Chosen?

Justification

Over the past year, the King School has undergone changes in leadership in several areas. With the changes in leadership, came conceptual changes about the way that we deliver education to our students. Our early elementary program has shifted to a Reggio Emilia approach while our Grades 1, 2, 3, 4 and 5 are taking a cross-departmental project based approach. Because science is taught as a special, most of the classroom teachers do not teach any science in the classroom. While I try to offer resources and support to help extend the classroom curriculum to include project based STEM activities, teachers can look at these activities as extra work rather than extensions to help build deeper understanding. My goal as the STEM Specialist and Global Studies Curriculum Committee Co-Chair is to offer support and resources to the classroom teachers so that they have a better understanding of how the integration of Science, Technology, Engineering, Math and Global Studies can give our students a more meaningful global perspective and begin to prepare them to become responsible global citizens.

The Council of Chief State School Officers and the Asia Society define Global competence as, "The capacity and disposition to understand and act on issues of global significance." (Mansilla, V. B., & Jackson, A., 2011)

Focus Group

I propose a one-day professional development opportunity to take place in early April for 37 lower school classroom teachers and specialist from Grades PK-5 who teaches to 140 lower school students. The program will be delivered in order to familiarize general education teachers who do not teach science with STEM and NASA resources that they can use in planning and developing integrated project-based activities that focus on geographic regions, economic, political, legal, ecological and cultural interconnectedness. The program will be presented in two three hour sessions, one from 830-1130 and a second from 1230-330 in the King Lower School Maker Space. Teachers will have access to computers, ipads and smart boards.

NASA assets and/or content & STEM concepts

<http://www.nea.org/home/37409.htm>

<https://www.noaa.gov/>
<https://myNASAdata.larc.nasa.gov/>
<https://www.nasa.gov/audience/forstudents/index.html>
<https://www.google.com/earth/>
<https://www.ngssphenomena.com/>
<https://www.levelupvillage.com/>
<https://www.eie.org/>
<http://www.nea.org/home/37409.htm>

Survey Information and Data Collection

The pre-survey will be created using survey monkey. The questions on the survey will address the classroom teachers understanding of STEM education, ask them what manipulatives or resources they use to teach global education currently, review current project based learning taking place in the classrooms, ask about cross-departmental collaboration and technology comfort. There will be a post-survey that will asks similar questions to gauge any changes and will include questions about likelihood of using real-world phenomena and NASA resources to guide the global education program. In addition to a pre-survey and post-survey, as the STEM Coordinator and Global Education Committee Co-Chair, a part of my job in the coming years will be to push into the classrooms to help assist the development and implementation of these lessons, activities and programs which will culminate in a lower school global education STEM museum where students and teachers showcase what they have learned about a particular region of the world.

Outcomes and Expectations

The lessons and activities created will enhance or replace traditional social studies curriculums, which typically culminate in research fairs. Teachers will learn how to support student's use of the engineering design process to create integrated STEM projects that focus on a region of the world or culture specifically looking at issues of global significance.

I believe this staff development workshop will help us meet the following goals:

Short Term Goals

- Familiarize the classroom teachers and specialists with a sampling of resources and opportunities to build meaningful STEM Global Education projects.
- Fulfill King Lower School's goals by creating more experiential learning with real-world applications.

- Establish strong professional relationships between classroom teachers and specialist.

Long Term Goals

- Dispel misconceptions about STEM.
- Create a template for future Global education and STEM projects that includes the classroom teacher-specialist collaboration.
- Use developed projects as a representation of students understanding.

Examples

After the staff development workshop, teachers will:

- Walk away with an example of an integrated STEM-Global Education lesson plan that has been enhanced using real-world phenomena and resources that have been introduced through NASA's Endeavor program.
- Build a model to represent the focus of the sample lesson.
- Develop an enhanced collaborative relationship with specialist and a familiarity with available resources.