

STEM Leadership Seminar

Project Outline

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Title of Project: Developing Themes in the Content Areas

Curriculum Topic- Social Studies; Trade, communication, shelter, technology,

Presentation- Elementary School and STEAM community

Number of Educators- Approximately 15 per session

Grade levels- Elementary grades, K-5

NGSS Standards Addressed

- Analyze data obtained from testing different materials.
- Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over distances.
- Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.
- Ask a question, make observations, and gather information about a situation people want to change.

New York State Social Studies Framework

3.10b World communities have needs, wants, and limited resources. To meet their needs and wants, communities trade with others. Technological developments in transportation and communication have influenced trade.

4.6c Improved technology such, as the steam engine and the telegraph made transportation and communication faster and more comfortable. Later developments in transportation and communication technology affected communities, the State, and the world.

1.9 People have many economic wants and needs, but limited resources with which to obtain them.

Communities face different challenges in meeting their needs and wants.

3.10 Each community develops an economic system that addresses three questions: what will be produced, how will it be produced, and who will get what is produced?

Summary of Project

The purpose of this project is to identify connecting themes within curriculum areas where STEM projects could be integrated. Throughout the year, educators are continuously trying to keep up with the demands of the Common Core Curriculum. Whenever curriculum changes are occur, more content is added to each subject area. Between required curriculum and testing, there is very little time to integrate STEM activities. Therefore, the goal of this project is to identify themes that connect curriculum and build in STEM projects that would enhance learning. Identifying curriculum connections and embedding STEM activities would provide the students with an opportunity for collaboration and problem solving within the unit. Students will be engaged as active learners with the ability to connect concepts to real-world experiences.

Pre-questions Survey List

1. Which 21st-century skills do believe students should practice as a student in your

- classroom? Circle all that apply.
- Creativity and Innovation
- Problem Solving and Critical Thinking
- Communication and Collaboration
- Information Literacy
- Core Content Knowledge
- Life and Job Skills
- Ethical and Emotional Awareness

2. Please choose two skills that you feel students in your class find difficult.

3. Would you include STEM activities to enhance social studies, literacy, or mathematics if they connected to a common theme?

4. If you had an opportunity would you collaborate on one STEM project that aligned with your grade level curriculum.

5. Would you be interested in developing STEM activities for your students.

6. If so, what curriculum areas would you be interested in integrating STEM activities?

Brief Description of the Actual Professional Development Training

Nasa Introducing the design process for engineers.

<https://www.nasa.gov/audience/foreducators/best/edp.html>

NASA Connections- The students will share their design process result using Screencastify.

The professional development training would begin with a short discussion about 21st century skills using a mind map. Next, the teachers would identify the alignments of similar themes within the New York State social studies curriculum. Focusing on a specific concept, they will be introduced to a STEM challenge using the design process. Teams will be formed to build a communication device, mobile home, and boat. Each activity would be aligned to the k-5 social students' framework. Time would be allotted to brainstorm the positive and negative aspects of integrating stem. Finally, the session would end with a circle, square, triangle evaluation form.

Follow-up Activities & Post-questions Survey List

We have a T-share file in our school that all teachers can access throughout the year. The file contains a place for STEM activities that I have been organizing for each grade level. When the file is opened, the teachers can search by subject area and content. There is also a file for

mindfulness and collaboration activities. Hopefully, this professional development will open a door for a Professional Learning Community that will focus on STEM opportunities in the classroom.

Post Questions

- Did you find the presentation informative?
- Do you feel more comfortable adding a STEM activity to your social studies lesson?
- What other areas would want to incorporate STEM?
- Would you be interested in participating in a Professional Learning Community to discuss STEM opportunities for students?

NASA Connection: Discussions would continue through Flip Grid.