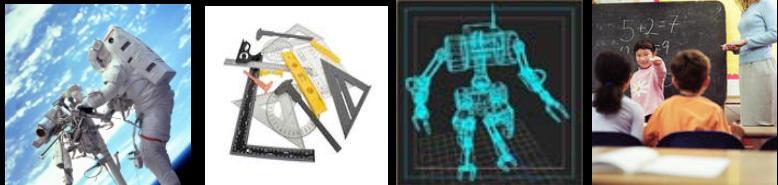


# Saugus Union School District

*Extraordinary Excellence **Everyday!***

**The following slides were presented at Emblem's Open House and parent meetings. Please be sure to check out the Q&A presentation slides on the web site as well. If you should have any further questions please contact Jon Baker at 294-5300.**



# Saugus Union School District

*Extraordinary Excellence Everyday!*

## S T E M

### What is **STEM**?

**Science**

**Technology**

**Engineering**

**Math**

**STEM EDUCATION** . . . Helps students understand how these academic disciplines impact their world and prepare them for the workforce of tomorrow.

**STEM** authentically integrates these disciplines into a new whole. Technology helps us communicate; Math is the language; Science and Engineering are the processes for thinking.



# Saugus Union School District

# *Extraordinary Excellence Everyday!*

# S T E M

# University Degrees by Country

## **Natural Sciences (Physical Science, Biology, Earth Science)**

| <b>Year</b> | <b>US</b> | <b>China</b> |
|-------------|-----------|--------------|
| 1985        | 129,670   | 28,360       |
| 1990        | 105,020   | 36,220       |
| 1995        | 129,470   | 54,390       |
| 2000        | 150,900   | 68,370       |
| 2004        | 170,240   | 168,240      |

**% Change** +30% +500%

## Engineering

| <b>Year</b> | <b>US</b> | <b>China</b> |
|-------------|-----------|--------------|
| 1985        | 77,570    | 73,080       |
| 1990        | 64,710    | 108,730      |
| 1995        | 63,370    | 148,840      |
| 2000        | 59,540    | 212,910      |
| 2004        | 64,680    | 442,460      |

**% Change** **(18%)** **+500%**

Credit: NSF, [www.nsf.gov/statistics/seind08/c0/fig00-49.xls](http://www.nsf.gov/statistics/seind08/c0/fig00-49.xls)

# What Now? The Concept for Emblem

There may be modifications to the following concept as staff plans for Emblem's future programs.

**IMAGINE**

**A school that. . .**

**Empowers students with  
21<sup>st</sup> century learning skills**

**Embraces hands-on  
Project Based Learning  
with real world  
application**

# **Promotes critical thinking and ethical decision making**

Think

Think

Think

Think

Box

Think

Think

Think

Think

**Emphasizes academic  
achievement and positive  
social interactions**

**Encourages  
community involvement**

**A school with a ...**

**Focus**

**It's a school like ...**

**No other**



The logo consists of the word "No other" in a bold, black, sans-serif font. Above the letter "o", there is a small, stylized graphic element resembling a face or a flower with three green lines extending upwards from the top of the "o" and a single green dot centered below it.

No other

**It's**

**E S T E E M !**

- **Ethics**
- **Science**
- **Technology**
- **Entrepreneurship**
- **Engineering**
- **Math**

**Is That Possible?**

**Yes!**

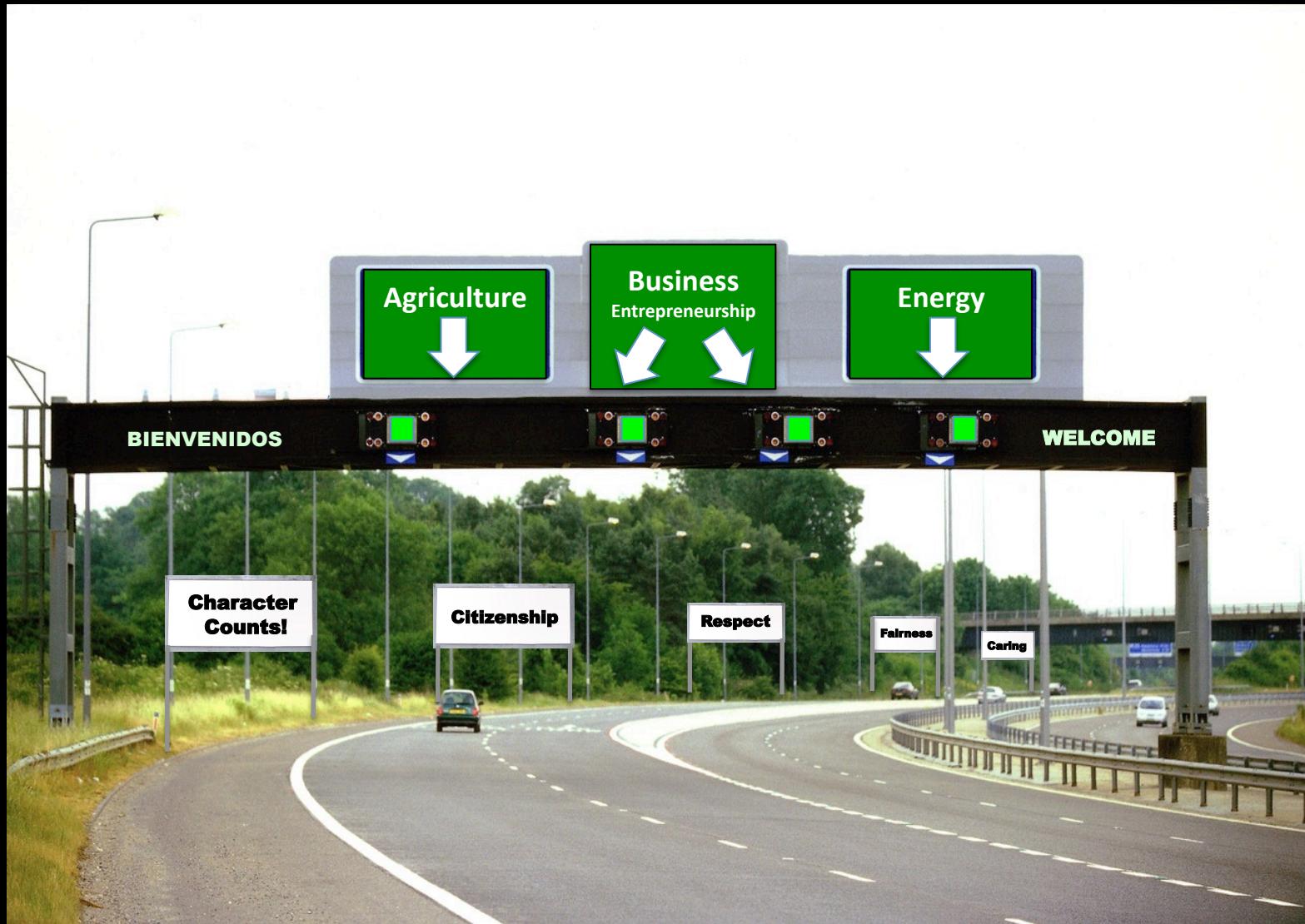


**To create a dynamic learning environment where all students, teachers and parents become involved in the learning process.**

**Blending ethics and the spirit of entrepreneurship with the technical skills of STEM will create a unique opportunity for all students to gain and apply 21<sup>st</sup> century skills that include the four “C’s” ....**

**Critical Thinking  
Communication  
Collaboration  
Creativity**

# Road to Success











# Why use



?

**To support our entrepreneurial, ethical focus  
while fostering hands-on 21<sup>st</sup> century learning.**



# Defined STEM

## Grades 3-6

**Defined STEM** is a **web-based** application designed to promote effective and relevant connections between **21st century learning skills** and how those skills are used **across all subjects** and curriculum. The ultimate goal is to **grow the proficiency** level of students in **sciences and mathematics** and provide them with an understanding how those skills can be applied across all subjects and eventually careers.

### Instructional Models

- Learning Connections
- Performance Tasks
- Literacy Tasks
- Real World Interactive Simulations

# **What is Project Based Learning?**

Project-based learning, or PBL, is the use of in-depth and **rigorous** classroom projects to facilitate learning and assess student competence.

- Provides students with **complex** tasks based on **challenging** questions or problems that involve problem solving, decision making, investigative skills, and reflection.
- Develops valuable **research skills** as students engage in **design, problem solving, decision making**, and **investigative** activities.
- Through project-based learning, students learn from these experiences, take them into account, and apply them to the world outside their classroom.
- Promotes new learning habits, emphasizing **creative thinking skills** by allowing students to discover that there are many ways to solve a problem.

## PBL - Grade 4



*"I think the challenge we face now, is that we don't have a financially literate population. As important as reading and math and social studies and science, I think today more than ever financial literacy has to be part of that [systemic instruction on the subject in schools]. To continue to have a population that is relatively illiterate in these matters I think has real negative consequences to our democracy."*

- Arnie Duncan  
U.S. Secretary of Education



**Students** who participate in the The Stock Market Game™ learn core academic concepts and skills that can help them succeed in the classroom — and in life.

**SMG** materials and resources correlate to Math, Business Education, Economics, English/Language Arts, Technology, and Social Studies.

4<sup>th</sup> grade students would research and select stocks that focus on agriculture and environmental technologies.

**SMG** teaches and reinforces the following essential skills and concepts:

- Critical thinking
- Decision-making
- Cooperation and communication
- Independent research
- Saving and investing

## **PBL - Grade 5**

# **Garden - Based Learning**



- School Gardening engages students by providing a **dynamic environment** to observe, discover, experiment, nurture, and learn.
- School Gardens are **living laboratories** where interdisciplinary lessons are drawn from real life experiences, encouraging students to become active participants in the learning process.

# **A Garden? Why?**



# **Project based activity that integrates business and STEM**

**Engages students with big ideas and real-world challenges**

- ❖ **The garden is one part of a two part project/business. It will fund itself through grants and harvest sales and will help fund the 6<sup>th</sup> grade project – clean energy production.**
- ❖ **Promotes 21<sup>st</sup> century skills:**
  - **Planning, Critical Thinking, Problem Solving, Communication:**
    - **Where to plant the garden?**
    - **What configuration to use for optimal production?**
    - **What types of soils are needed?**
    - **How much watering is needed?**
    - **How to irrigate the garden?**
    - **What types of plants to grow in order to produce a profitable harvest?**
    - **When and what to feed the plants?**
    - **Who to communicate with to get answers?**
    - **How to fund the cost of the garden?**
    - **How to write a grant? (All grants will be written by students)**
    - **How to create a business plan?**
    - **How to present to a “Board of Directors” (i.e. student council)?**



# Curriculum Integration

**Language Arts:** Reading garden-related literature or conducting research in science and history, reinforces reading skills. Writing research reports or descriptions filled with details helps students meet writing standards. Students' oral presentation of ideas, questions, research findings, and experiences develops the students' listening and speaking skills.

**Math/Technology:** Gardens provide an excellent place for observation, data collection and experimentation. Math skills are obtained as we measure and record the growth of plants, trees, and plan for the dimensions of the garden. Comparing and contrasting the success of different plants and different conditions combine both science and math concepts.

**Social Studies:** The study of food, agriculture, and the cultures that developed alongside food production is included in the history-social science standards at all grade levels. Through gardening, students explore connections to the past and the differences between the **past and the present**.

**Science:** Gardens address physical and life science standards related to plant biology, life cycles, weather, ecosystems, water, decomposition, and the interrelationships between plants and humans.

# Lots of Free Resources!

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**Harvest of the Month**  
Network for a Healthy California

[Back to Mainpage](#)

**Download Monthly Elements**

**Harvest of the Month Successes**

"This program has virtually doubled teacher participation in our nutrition education program!" – Child Nutrition Director

"Harvest of the Month is a great way to bring nutrition [into] the classroom. The teacher resources offer helpful and fun curriculum ideas." – Middle School Teacher

"Harvest of the Month is an easy way for teachers and schools to highlight local and seasonal produce. The materials make it simple for teachers to incorporate nutrition education into the lessons and make the links between the cafeteria and the classroom." – 5th Grade Teacher

**Educators' Corner**

Activities   Assessment   Resources   Images   Recipes  
Materials

Welcome to the Harvest of the Month **Educators' Corner** – a place where educators can access additional tools and resources to help students get even more out of Harvest of the Month. Click on the links in the above chalkboard to find these valuable resources:

**Activities**

- **Adventurous Activities** – Find all activities from the educator newsletters – and additional ones too – in one convenient location.
- **Student Sleuths** – Get answers to all of the Student Sleuths here.
- **Literature Links** – Search from an expansive list of available literature for primary and secondary school students.

**Assessment**

- **Nutrition Education Survey (NES)** –The Network created the Nutrition Education Survey (NES) to assess the impact of nutrition education delivered to primarily 4th-8th graders. The NES is a modular tool that contractors can customize to fit the specific nutrition education activities implemented.

**Resources**

- **Content Standards** – Identify links between Harvest of the Month activities and the California Content Standards. These "Links" demonstrate how Harvest of the Month activities support the key curricular areas of health, English-language arts, science, history-social science, mathematics and physical education for grades K-12. For the early childhood audience connections have been made to the Desired Results for Children and Families 3 years through Prekindergarten, CDE and Prekindergarten Learning and Development Guidelines CDE.
- **Glossary** – Find basic definitions for nutrition and health terms used in the educator newsletters.
- **Web Links** – Connect with other Web sites that contain useful information – for educators, students and families.
- **Support Materials** – Use these materials, found on the [How to Grow Healthy Students Guide](#), to help with the implementation of classroom and cafeteria activities, such as taste testing, classroom cooking and school gardening. Also included are fact sheets and general program information to help gain external support and interest for your program.

**Images & Graphs**

- **Nutrition Facts Labels** – Download full size Nutrition Facts labels for each of the featured produce items. Use these learning tools in a variety of classroom activities.
- **Botanical Images** – Access the printable botanical image diagrams featured in the "How Does It Grow?" section of the educator newsletters. Images can be utilized in class to familiarize students with various plant parts.
- **Nutrient Graphs** (from CDE's Fresh Fruit and Vegetable Photo Cards) – Use these printable bar graphs in classroom activities to help students learn more about the nutrient values of the featured fruit or vegetable. Each card contains a detailed

## **PBL - Grade 6**

# **Build an Alternative Energy Power Grid**



- Solar Panels    • Wind Energy

**Supported by community experts, grants and income from the 5<sup>th</sup> grade garden project, students will build a power system using solar panels or other type of alternative energy source to produce enough electricity to power the school's garden, marquee or other location/object on campus.**

# Why Study Alternative Energy?



## Why not?

Promotes learning and builds skills in the area of Science, Technology, Engineering and Math (**STEM**)

- Our students will need these 21st century skills in order to be part of a viable workforce.
- By 2050, one-third of the world's energy will need to come from solar, wind, and other renewable resources. Climate change, population growth, and fossil fuel depletion mean that renewables will need to play a bigger role in the future than they do today.
- Environmentalism has become a hot topic over the years with the general public being encouraged to use recycled products and to conserve natural resources. An important part of the **green** movement has been educating children about the reasons for and the benefits of recycling and conservation.

# Benefits of ESTEEM

- **Promotes:**
  - \* Critical thinking
  - \* Problem solving
  - \* Decision making
  - \* Collaboration and communication (written and oral) within and between grade levels
  - \* Community involvement
- A unique blend between Science, Technology, Engineering and Math (**STEM**) concepts and **business** principles/applications.
- Unlike most focus schools, ESTEEM is **not** dependent on hiring **specialists**. Therefore operational costs remain constant, increasing the potential for longevity.
- Incorporating **Project Based Learning** with no predictable outcomes creates a dynamic learning environment that requires interaction, communication, cooperation, and authentic research.
- Provides parents a **choice** between a traditional school setting and one that incorporates a focus with project based learning.
- Potential for incorporating a foreign language component (i.e. Spanish).

# Core Curriculum

- **Includes:**

- \* Language Arts
- \* Social Studies
- \* Mathematics
- \* Science
- \* Visual and Performing Arts

- **Plus **STEM** Focus:**

- \* Hands on Project Based Learning
- \* Project Lead The Way
- \* Engineering in Elementary
- \* Grade wide Projects (Stock Market, Garden, Alternative Energy)
- \* **ESTEEM** Pathways
  - \* Robotics
  - \* Broadcasting
  - \* Weather
  - \* Alternative Energy
  - \* Recycling
  - \* Environmental Studies
  - \* Space Exploration
  - \* Product Development

# **Partnerships**



**Develop a K to work STEM pipeline**

- **Project Lead the Way**
- **Engineering in Elementary**

# **Partnerships**



**Integrated afterschool STEM program**

# Partnerships



*Improve Environmental  
Literacy in Santa Clarita Valley*

The mission of SCEEC is to proactively provide educational resources to promote environmental literacy in Santa Clarita valley. It aims to establish environmental resources for educators and students.

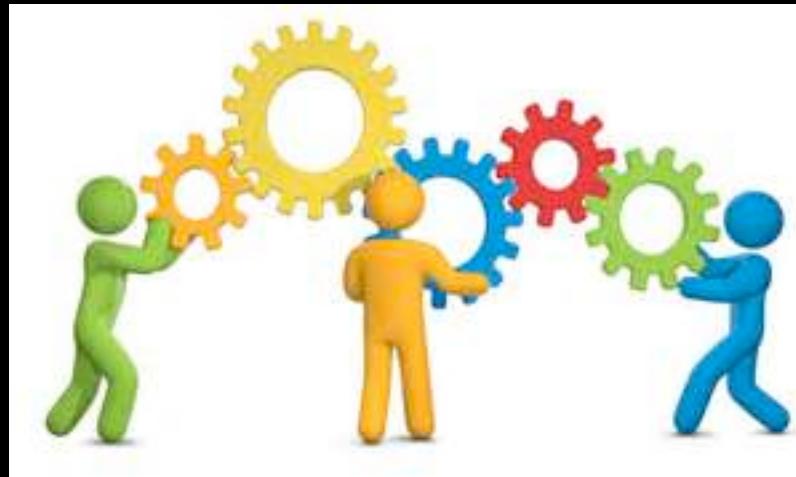
# **Grant Proposal**



**Lego Robotics**

# **Other Partners?**

**Emblem is always looking to establish partnerships  
to support its goals and mission.**



**Be A Part!**

# **Partner Opportunities**



- Seeking a donation to support a one time cost of \$10,000 to purchase JA materials.**



- Need a partner (s) to help support the purchase of Lego Mindstorm NXT or EV3 Robotics Kits.**

# **Parent Opportunities**

- **PTA**
- **Site Council**
- **Classroom Volunteer**
- **Guest Speaker**
- **Room Mom**
- **STEM mentor**