

# K-12 STEM Education Update



# STEM

science • technology  
engineering • math

Capistrano Unified School District  
Education Services

# Then and now...

**Know Your Biosphere**

Mason and Phil have given you clues to the different biospheres below. Read the descriptions and write the name of the correct biosphere on the line.

1 It has different areas, or zones. Forests are at the lowest zone. Farther up is a zone of small plants. Snow covers the top, which is very cold.

2 It's hot all year round. Every afternoon there's a rainstorm. Lots of lush green trees and plants are the result. Many animals live here.

3 The nights are usually cold and clear. The days are burning hot. The sand blows into dunes.

4 Large water-filled hollows in the earth's crust. Home to many plants and animals.

5 Dry, grassy plain dotted with trees and shrubs. Home to many large animals, including elephants, zebras, and lions.

**Here's Help!**  
rain forest savanna desert ocean mountains

**Skitter Says:**  
You've had a chance to visit each biosphere by now. On a separate piece of paper draw yourself in each biosphere above and put in a speech bubble to show what you would be saying.

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# Why STEM?

- 8 of the 10 most sought after careers are STEM related (2009 study by US Dept. of Labor)
- According to the U. S. Department of Commerce, STEM occupations are growing at 17%, while others are growing at 9.8%.
- Estimates show the U.S. will have over 1.2 million unfilled jobs in science, technology, engineering, and math by 2018.
- Producing students who have this understanding will not only help to fill this need, but will empower them to be effective citizens in a global economy.

# History

- Beckman@Science (2001-2013)
  - Seed money for professional development and hands-on/inquiry-based kits (K-5)
  - Science TOSA – Elisa Slee
- Science@OC
  - Sponsored team to attend STEM Institute (Summer 2012)
    - Strategic planning



# Working Mission for STEM

- “Working in collaboration with its community partners, provide an articulated K-12 STEM education that develops the behaviors, skills, and knowledge deemed necessary to prepare students for college, career, and global citizenry.”

# CUSD STEM Education Priorities



## Ensuring Inquiry-based STEM Experiences for All (K-12)

- STEM Units
- Science Kits & SMART Center (for replenishment)
- Elementary School Labs (24/35 schools – 70%)
- Gardens for science integration
- After-school enrichment and connections to school science projects (YMCA, ASES, FSEA)



## Building Teacher Capacity through Professional Development

- STEM TOSAs (Elementary and Secondary)
- STEM Specialists (additional assignment sponsored by Kids@Science)
- Secondary Task Force/Teacher
- STEM Conference
- Project-based learning training/Leadership training
- NGSS Transition activities



## Establishing Pathways to Engineering

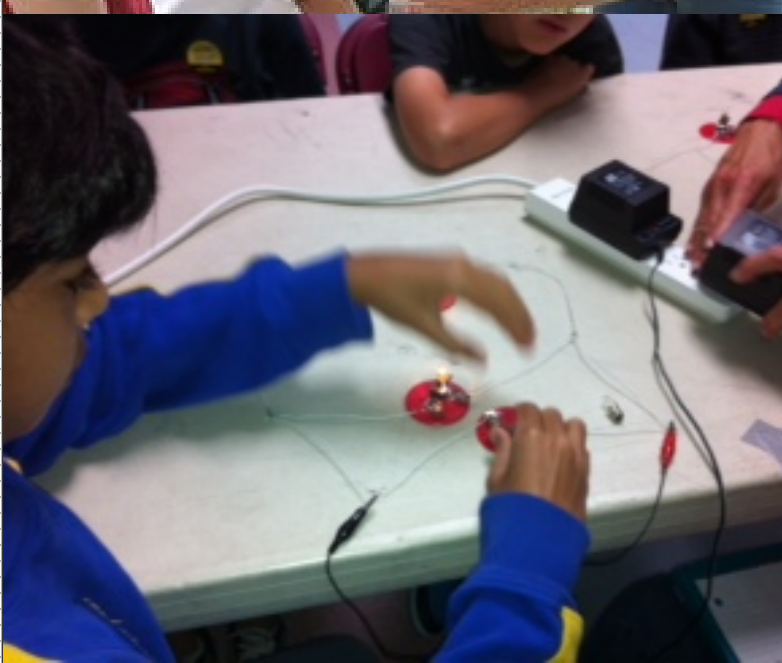
- Robotics electives and clubs
- NASCAR STEM Club
- FSEA clubs
- Camp Invention
- Engineering is Elementary/Project Lead the Way
- CTE Engineering Pathway expansion – CVHS and other sites



# Ensuring Hands on Science Experiences for All (K-12)

- STEM Units
- Science Kits & SMART Center (for replenishment)
- School Labs (24/35 schools – 70%)
- Gardens for science integration
- After-school enrichment and connections to school science projects (YMCA, ASES, FSEA)









# The Science Materials And Resources for Teaching (SMART) Center





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# Malcom Elementary World Champion STEM Project







# STEM Pathways – CCPT Grant

- \$500,000 over the next 5 years (OCDE)
- Engineering Pathways projected for all high schools
  - 2014-15: CVHS STEM Career Academy
    - Intro to Engineering course
    - STEM units in all science courses
    - Sound Engineering class
    - Project Lead the Way (PLTW)



# Pathways in Progress

- Engineering: CVHS and ANHS
- Alternative Fuels: ANHS, SCHS, SJHHS
- Healthcare/Biotechnology: DHHS, SJHHS
- Information/Communication Tech: SCHS, Cal Prep Academy, Serra



# The Power of Partnerships

Science@OC

CUSD Foundation

PTA

PEAK Science

The Ecology Center

Covidien

Gray Whale Foundation

Camp Invention

Ocean Institute

Eagle & Girl Scouts

OCDE

Discovery Science  
Center

Ritz Carlton

Crystal Cove Alliance

UCI/NSF Grant

OC STEM

NASCAR

Western Digital

Kids@Science