

# GLOBE CAP: Using Real World Science for Next Generation STEM Learning

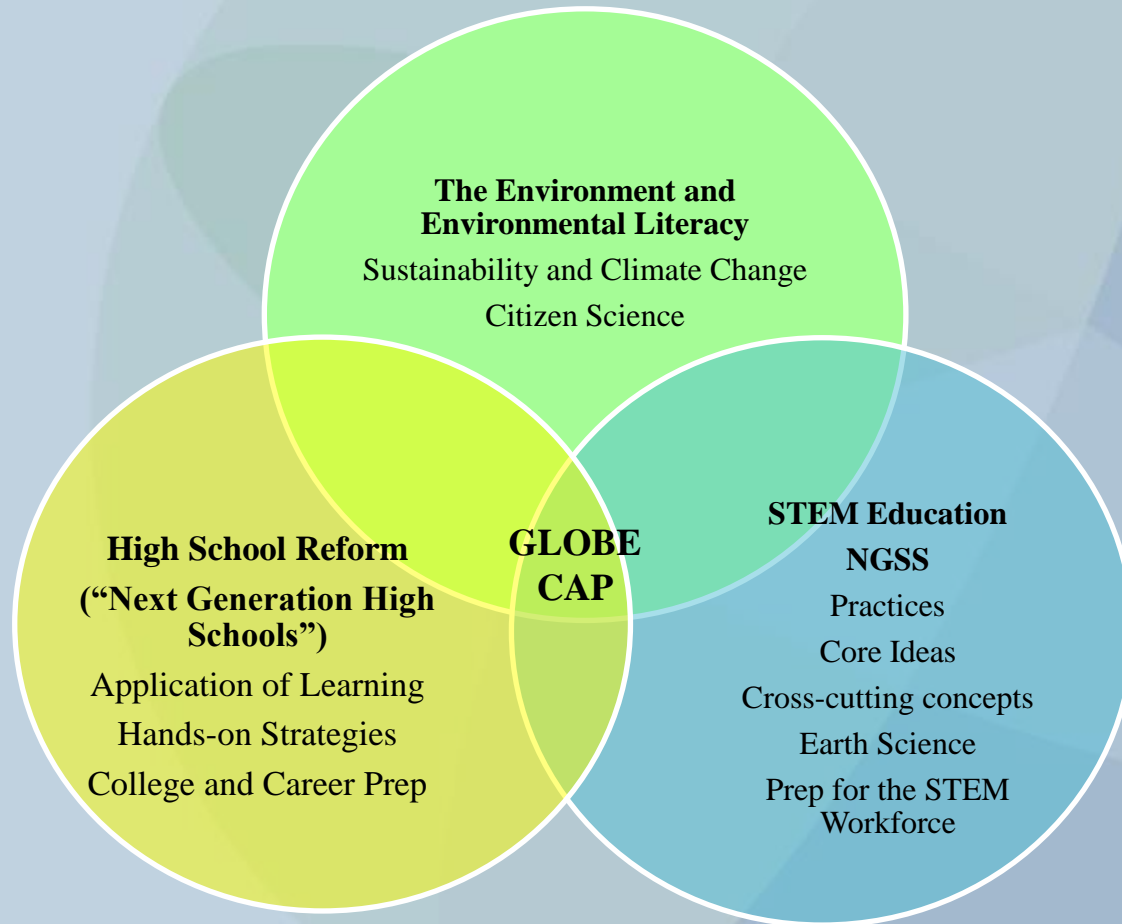
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# Key Idea

- GLOBE CAP offers motivating group “work-based learning” and career exposure that prepares students for STEM careers.

# At the Nexus of Key Policy Concerns



# Work-Based Learning: Real Work as the Context for Learning

# A Continuum of Experiences

## Work-based Learning Continuum

Pre-K

13+

### Career Awareness

#### Learning ABOUT work.

Build awareness of the variety of careers available and the role of post-secondary education; Broaden student options.

### Career Exploration

#### Learning ABOUT work.

Explore career options and post-secondary requirements for purpose of motivation and to inform decision-making in high school and post-secondary.

### Career Preparation: Practicum & Internships

#### Learning THROUGH work.

Apply learning through practical experience that develops knowledge and skills necessary for success in careers and post-secondary education.

### Career Training

#### Learning FOR work.

Train for employment and/or post-secondary education in a specific range of occupations.

# Refining the Definition of Work-Based Learning

Defined as an educational strategy that:

- Links school-based instruction with activity that has consequences beyond the class or value beyond success in school
- Uses the workplace, or in-depth experience with employer or community input, to engage students and intentionally promote learning and access to future educational and career opportunities

# Key Elements of Work-Based Learning

1. Purposeful connection to learning — and to standards and curriculum, as well as employer expectations (*not disconnected work experience*)
2. Depth of experience with opportunity to engage in a professional community of practice (*not job shadowing*)
3. Direct, systematic employer and/or community input (*not project-based learning*)



# Key Elements of Work-Based Learning

4. Producing goods/services of value beyond the classroom (*not just for the class*)
5. Authentic value/benefit to students beyond the classroom (*not just for the grade*)



# GLOBE CAP:

GLOBE: Global Learning and Observation to  
Benefit the Environment

CAP: California Academy Program

Supported by the **National Science Foundation** under Grant No. 1139664.

# GLOBE CAP Facts

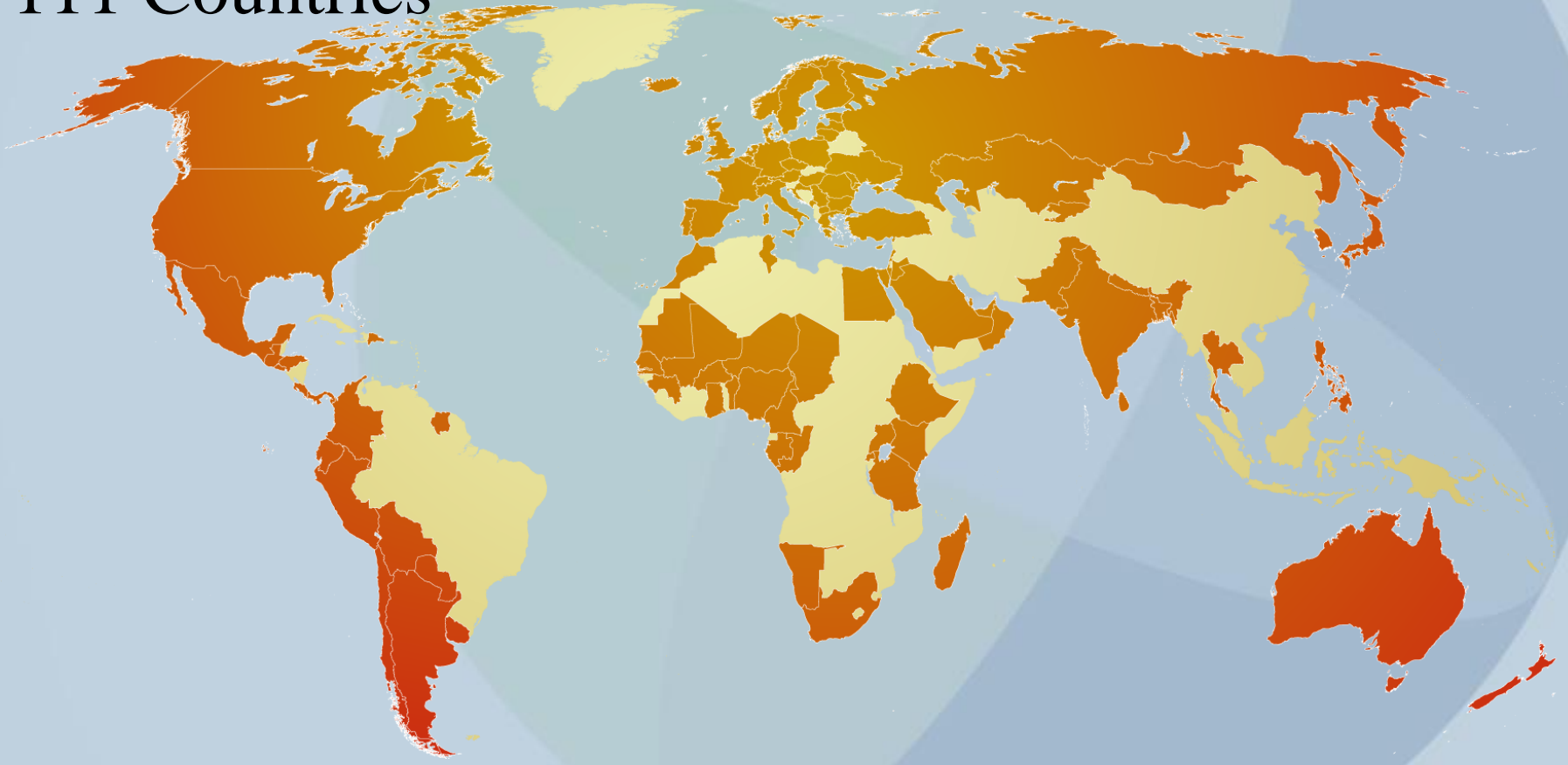
- Funded by the NSF, 2011-2015
- Operating in six (6) high school environmental career academies in Northern California
- To embed GLOBE into the curriculum and programming of career academies to deepen learning and promote sustainability

# Key Strategies

- Students collect real data that contribute to our understanding of climate change and other environmental issues
- GLOBE data collection is linked to curriculum and students' interests; students delve deeply over a prolonged period of time and carry out projects to apply what they are learning
- Scientists and other professionals support data collection, provide feedback, and provide exposure to careers

# GLOBE Around the World

- 111 Countries



# The Career Academy as Context

- Multi-year cohort
- Interdisciplinary teaching and collaboration
- Academics plus CTE
- Hands-on learning, including work-based learning

# GLOBE CAP Three-Year Trajectory

- **Grade 10:** *What is it about?* – data collection
- **Grade 11:** *What does it mean?* – data visualization and analysis
- **Grade 12:** *What can I do?* – application of knowledge and skills in the community



# Students Collect Data and Upload to an International Database





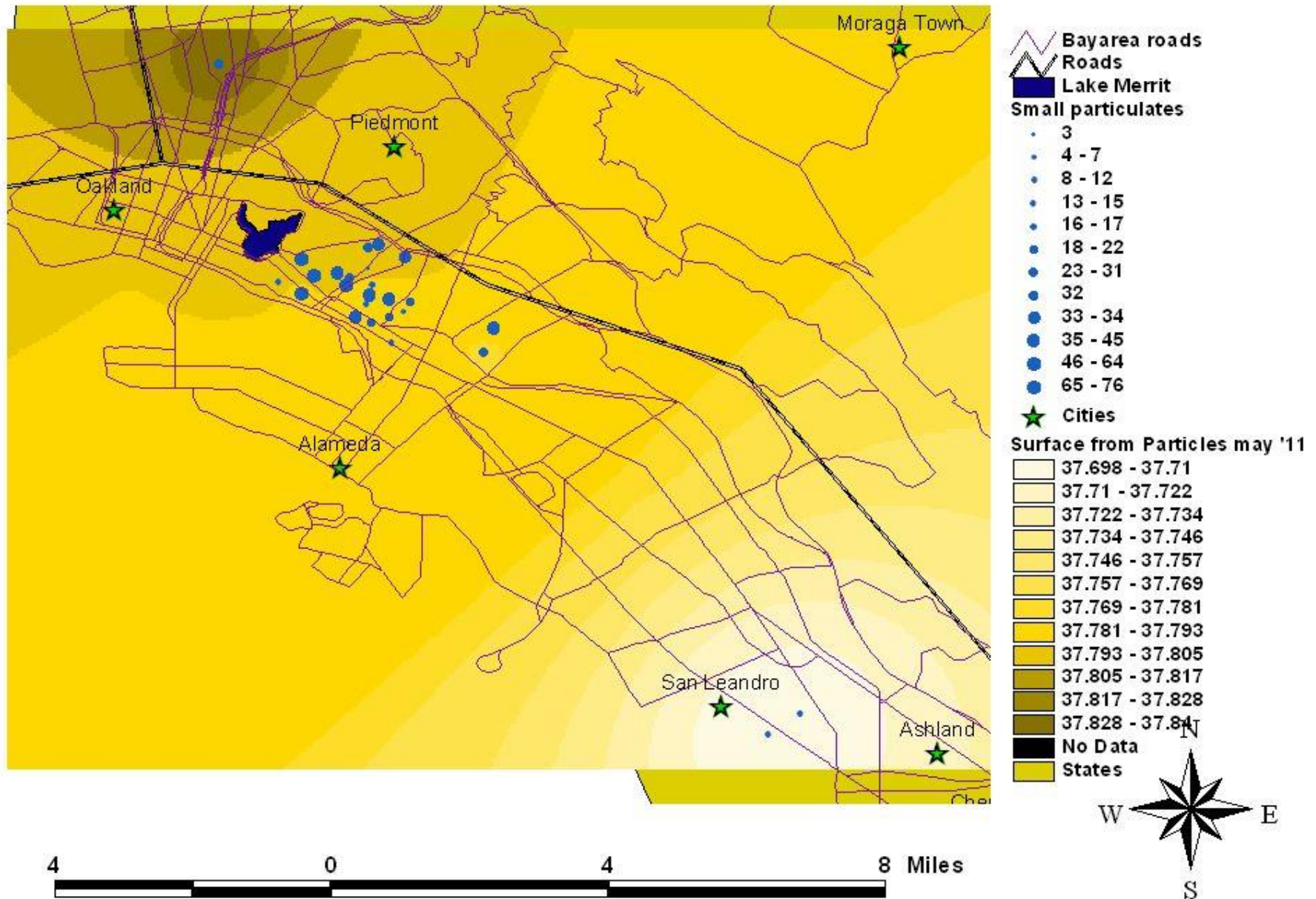
# Students Collecting CO<sub>2</sub> Data on their Campus







# Eric's Particulates Bay Area Map



# UC Berkeley Grad Students Work with GLOBE CAP Students





# Accolades from the Mayor of Oakland



The mayor of Oakland talks to the lead teacher and students of the Oakland Environmental Science Academy about the students' project.



# Grad Students Share their Career Experiences



# GLOBE CAP

## as Work-Based Learning

- ✓ Purposeful connection to learning — and to standards and curriculum, as well as employer expectations
- ✓ Depth of experience with opportunity to engage in a professional community of practice
- ✓ Direct, systematic employer and/or community input



# GLOBE CAP as Work-Based Learning

- ✓ Producing goods/services of value beyond the classroom
- ✓ Authentic value/benefit to students beyond the classroom

# GLOBE CAP as Work-Based Learning



# Thank you!

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