

California Environmental Literacy Initiative

District Innovation Hub

Webinar Series

Tim Baird, ED. D.

January 30, 2025





Nate Ivy

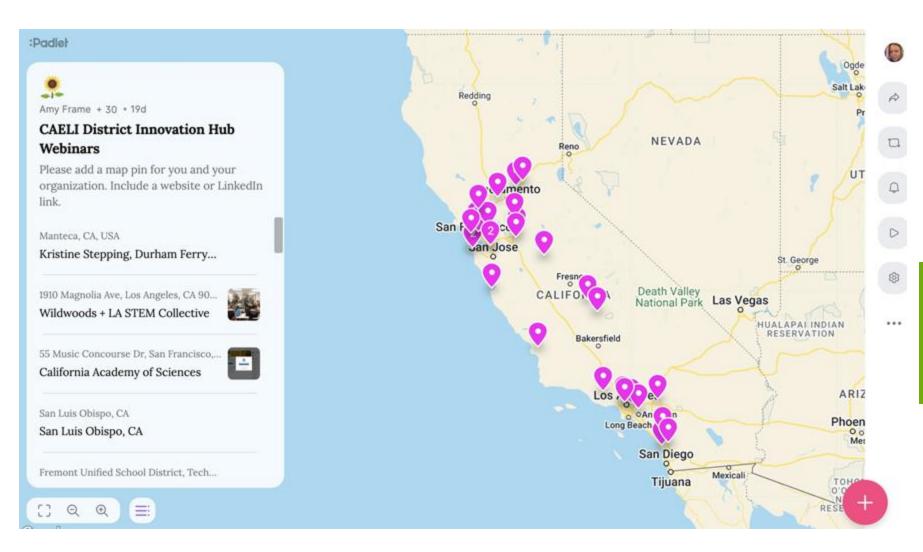
Instructional Coach

Fremont Unified School District

nivy@fusd.k12.net



Map Padlet





GO TO PADLET TO ADD YOUR LOCATION – https://bit.ly/4gicexW



Systems Approaches







4Cs Whole Systems Framework for Environmental and Climate Action in Schools

*Adapted from Sustainable Schools Project & Plymouth University: Andra Yegholan - 2013



CAMPUS

Operations across the buildings and grounds model sustainable and resilient practices, minimize disruptions for learning, and serve as a lab for learning.



CURRICULUM

Curriculum integrates Environmental and Climate Literacy as well as principles and practices for Solutionary Teaching and Learning.



COMMUNITY & CULTURE

Evidence exists within the "walk" and the "talk" of the school community for prioritizing sustainability and resiliency, and developing strategic partnerships with community based organizations.

Constituents



Students



Faculty



Administrators



Community Partners and **Families**

Agenda

- 4:00 4:10 Welcome and Connections
- 4:10 4:50 Tim Baird, Green Schools National Network
- 4:50 5:00 Q&A
- 5:00 5:05 Closing, Feedback, and Resources
- 5:05 5:30 Breakout Room Discussions



GREEN SCHOOLS NATIONAL NETWORK

- District sustainability coach
- Served as director of partnerships
- Contributor to GreenPrint



- Superintendent 2009-2019
- District was U.S. Green Ribbon District in 2014
- Farm Lab established 2013
- District recognized for sustainability, technology, innovation, and achievement

WHO IS THIS GUY?



TIM BAIRD



- Co-chair of District Innovation Hub (DIH)
- Founding member of DIH
- Executive Committee member
- Part of organization since 2016



BAIRD FAMILY HOUSEHOLD

- Asst. Manager (1981-Present)
- Duties include: Taking out trash; dishes; attempting to fix things before calling the handyman; calling the handyman; and other duties as assigned

MATERIALS IN THIS PRESENTATION CAN BE ACCESSED HERE

LINK TO BAIRD ENVIRONMENTAL LITERACY MATERIALS FOLDER



https://tinyurl.com/yvvy8pbt Tim Baird Email – cupofsupe@gmail.com



LAUSD TEACHERS – To get Professional Development Attendance Credit, Sign in here!

https://bit.ly/DOICLPD-SignInOut24-25



Jerry Song

STEAM Coordinator: Climate Literacy Division of Instruction 333 S. Beaudry Ave. Los Angeles, CA 90017 (213) 241-5521 www.lausd.org/climateliteracy





ENVIRONMENTAL LITERACY DEFINITION

North American Association of Environmental Education definition:
 "Someone who demonstrates the knowledge, dispositions,
competencies, and behavior to actively engage—individually or
as a group—in addressing environmental challenges."

Tim Baird's addition to this definition:

Environmental literacy can only be taught and understood in an educational setting that actively promotes sustainability and environmental equity and justice. Our schools must model sustainability to effectively teach sustainability. Use your school and community as models and tools to teach environmental literacy.



SO, WHAT ARE ALL THE NEW THINGS WE HAVE TO TEACH NOW?????

THERE ARE MANY
DIFFERENT
ENVIRONMENTAL
LITERACY SKILL SETS,
STANDARDS, AND
FRAMEWORKS

- YOU DON'T HAVE TO USE THEM!

Teachers have too many standards to teach already! Instead, Teach environmental literacy through your current state standards.



Surprise!

They are already there. Environmental literacy is integrated into CA State standards and frameworks. Also, AB 285 mandates that climate science be taught in science frameworks. More materials and tools are coming.

HEALTH, EQUITY, AND SUSTAINABILITY MINDSET

TIM BAIRD, ED.D.

THE MVPs (Most Valuable Principles) of HEALTH, EQUITY, AND SUSTAINABILITY

PEOPLE

Make Learning Authentic

- Connect learning with families and community
- Find partners to support learning
- Make learning culturally relevant
- Engage the learner (Purpose, Passion, Power, and Play)

Value people

- Embrace our differences
- Recognize our commonalities

Protect yourself and others

- Create healthy and safe environments and practices
- Promote environmental equity and justice

PLANET

Make Learning Authentic

- Environmental Literacy
- Acquire, Analyze, & Apply
- Research and Design
- 4PBL (Phenomena, Place, Project, & Problem based)

Value nature

- Beauty
- Balance
- Biomimicry

Protect our Earth

- Reduce our environmental impacts
- Help others to reduce their impacts

THE VEGGIE BURGER OF SCHOOL DISTRICT SUSTAINingABILITY

Tim Baird, Ed. D.

FACILITIES/OPERATIONS

The Works

The facilities and operations that demonstrate district sustainable practices



The Foundation

The systems, teams, plans, policies, resources, and practices that initiate and support sustainability



The Umbrella

How district stakeholders view and engage with sustainability, other stakeholders, and the district

CURRICULUM/INSTRUCTION

The Protein

Environmental literacy that is taught, both within and between specific curricular areas and that utilizes facilities and operations of the district as sustainable learning opportunities

Let's start with some big ideas about learning and teaching in general-

What's should students learn?

How do we teach these things?





AI = AUTHENTIC INTELLIGENCE

LEARNER PROFILE

Tim Baird Ed.D.

TRAITS AND WORK HABITS

What We Need to Be

What We Need to Know and Do

LEARNING DOMAINS

Optimistic
Appreciative
Curious

LEARNER

Mindfulness

- Awareness
- Contemplation

Continuous Improvement Drive Design Thinking

Research Skills

- Scientific Process
- Information Literacy

Cooperative Collaborative Altruistic

TEAM MEMBER

Social Skills

Collaboration Skills

Communication Skills

Civics

Foreign Language(s)

Environmental Equity and Justice

Persevering Responsible Motivated Self-Regulated Resourceful

WORKER

Subject Matter Mastery
- Language Arts, Math, Science, Social Studies
Healthy Lifestyle
Environmental Literacy

REAL WORLD TRAITS AND SKILLS



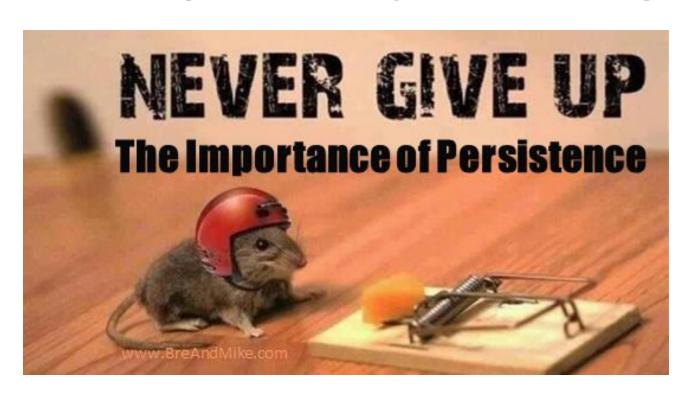
TRAITS

Altruism
Optimism
Appreciation
Curiosity
Cooperation

SKILLS

Perseverance, Collaboration, Self-Regulation, Resourcefulness, Responsibility, Effort / Motivation

ENVIRONMENTAL LITERACY ESSENTIAL AUTHENTIC LEARNING TRAITS AND SKILLS



TRAITS

Altruism Optimism Curiosity

SKILLS

Perseverance, Collaboration, and Resourcefulness

THE LEARNING PATHWAY

BLOOM'S TAXONOMY SIMPLIFIED









ANALYZE

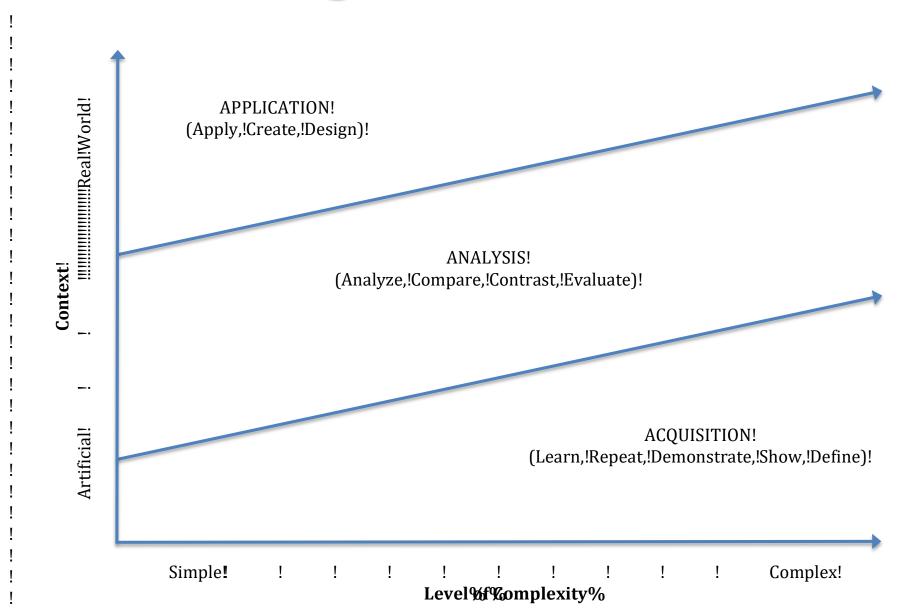






Simple to Complex

Cognitive Construct



APPLICATION MATRIX

Tim Baird

	DIFFERENT FORMS OF APPLICATION		
	PURPOSE Primary purpose to solve real problem while developing learner knowledge and skills	PURPOSE Primary purpose to solve real problem while developing learner knowledge and skills	
С	PROBLEM(S) Single problem focus	PROBLEM(S) Usually multiple problems / questions connected to main issue.	
AUTHENTIC	LENGTH OF ACTIVITY Lesson or few linked lessons	LENGTH OF ACTIVITY Unit AUDIENCE	
	AUDIENCE Authentic or Teacher	Authentic	
↑	SAMPLE Develop classroom rules Hold mock trial Find area of room PURPOSE	Design school waste plan Anti-idling PSA Energy teams PURPOSE	
	Primary purpose to improve learner knowledge and skills	Primary purpose to improve learner knowledge and skills. May serve as model for real world problem solving	
ARTIFICIAL	PROBLEM(S) Single problem focus	PROBLEM(S) Usually multiple problems / questions connected to main issue.	
А	LENGTH OF ACTIVITY Lesson or few linked lessons	LENGTH OF ACTIVITY Unit	
^	AUDIENCE Teacher	AUDIENCE Teacher, possible authentic	
	SAMPLE Build a bridge out of sticks Game based learning	SAMPLE Create Minecraft eco world Programming robots Token classroom economy	

D

В

SIMPLE COMPLEX

EXAMPLES OF AUTHENTIC E.L. APPLICATION

DO SOMETHING TANGIBLE



Start a garden
Clean up a wetlands or beach
Implement a recycling program

INFORM OTHERS ABOUT AN ISSUE



Make a documentary
Start a podcast
Present to the board or council

CONVINCE OTHERS TO MAKE CHANGES



Initiate an anti-idling campaign Help change a law Create a PSA

LEARNING PROCESS SKILLS

- Instead of separate environmental literacy skills
- Use your state standards and an environmental literacy lens

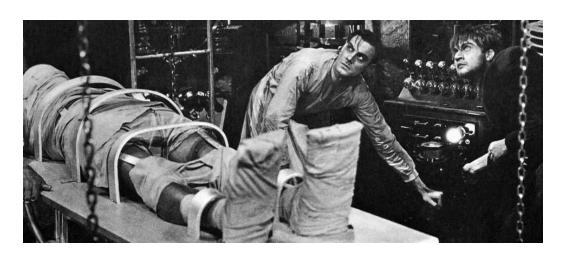


RESEARCH AND DESIGN WHY ARE THEY IMPORTANT? WHAT IS THE CONNECTION BETWEEN THEM?



RESEARCH

Scientific Process
Information Literacy



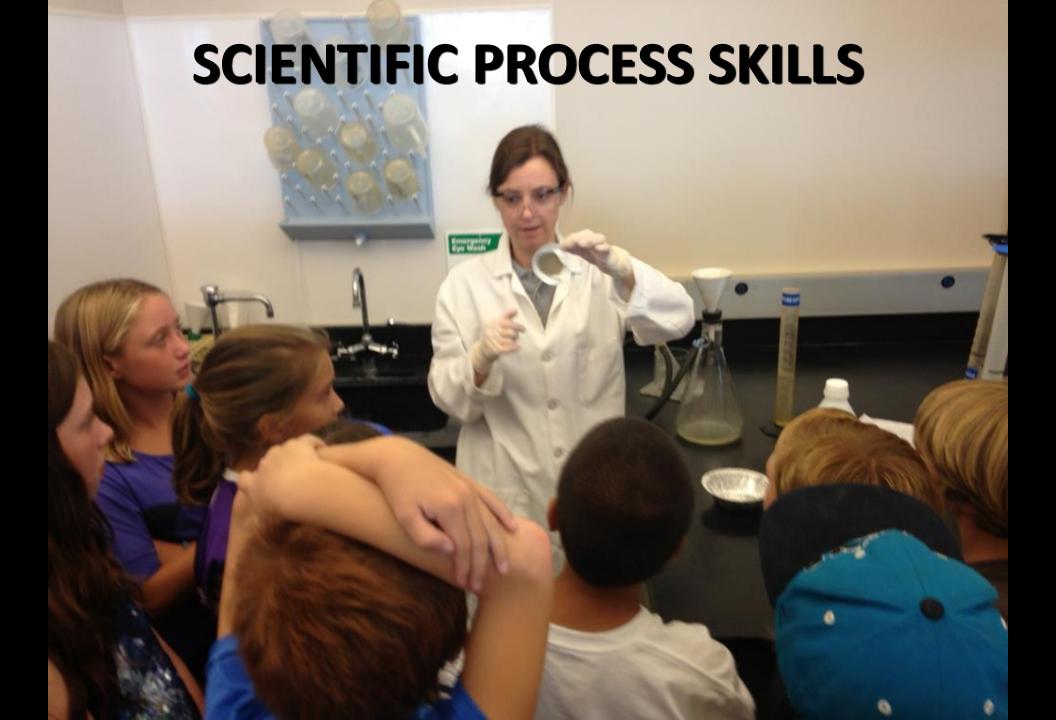
DESIGN

Design Thinking Process

RESEARCH

Scientific Process and Information Literacy





THE IMPORTANCE OF INFORMATION LITERACY



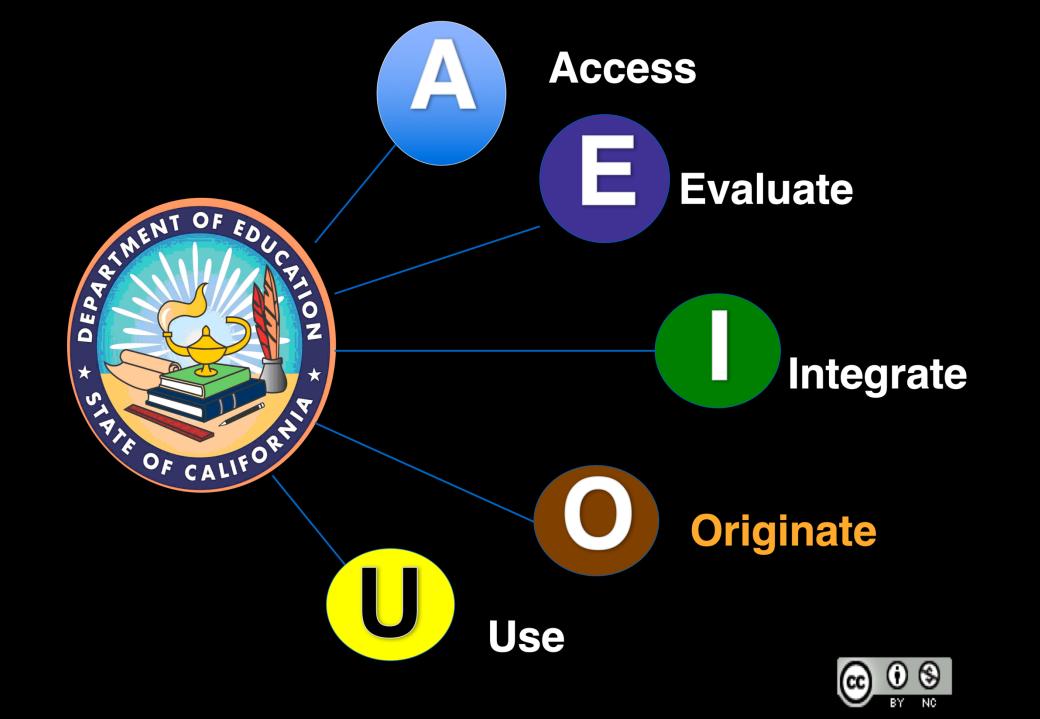
Sometimes, we just assume that:

- Students know how to find information
- Students know how to assess the accuracy of information
- Students know how to share information
- Students know how to cite information
- Students know how to create information



So how hard can this surgery thing be, anyway?







We can't just say, "Go design something."





Pilot and Test Your Prototypes



CONNECTING RESEARCH AND DESIGN THE LEARNING BOUNCE



- **RESEARCH**
- Acquisition Focus
- Convergent Thinking
- Conceptual Understanding

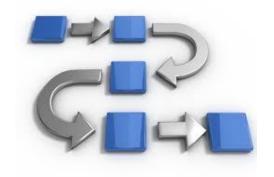


- Application Focus
- Divergent Thinking
- Creativity

DREAMS

TIMOTHY BAIRD, ED.D.

PROCESS SKILLS



Design Thinking Research

- Scientific Process
- Information Literacy

CONTENT AREAS



Engineering Art Math Science



WE NEED TO CHANGE OUR APPROACH TO TEACHING

LEARNING OUTCOME – If we wanted students to have the skills to build a house...



CURRENT PRACTICE – THE HOME DEPOT TEACHING MODEL

- Step 1 Take every student down every aisle at Home Depot. Teach the the name and purpose for every tool and item in the store.
- Step 2 Give random assessments where pictures of every tool are shown on a chart and students must name the tool and pick the best answer that defines it's use.
- Step 3 Provide a final exam where students must write down all steps to building a house and what tools they would use to use for each step.



NEW PRACTICE – THE YOU TUBE TEACHING MODEL

- Step 1 Start building a house
- Step 2 Learn about the tools you need and how to use them when you need them. Learn from real models and examples when you can.

 Learn from experts on how to do each step.
- Step 3 Finish building the house. Assess learning as you go. If you need more time to finish something, take more time. Build on successful learning progress.



PURPOSE



PASSION

LEARNER ENGAGEMENT



POWER



PLAY

LEARNING AND TEACHING TOOLS

- 4 PBL (Phenomena, Place, Project, and Problem Based Learning
- Question Based Learning
- Learning Quest



4 PBL PEDAGOGY

Phenomena

Place

Project

Problem





SAMPLE PLACE BASED LEARNING ACTIVITY NORDHOFF HIGH SCHOOL WETLANDS PROJECT



USING SCHOOL GARDENS FOR LEARNING















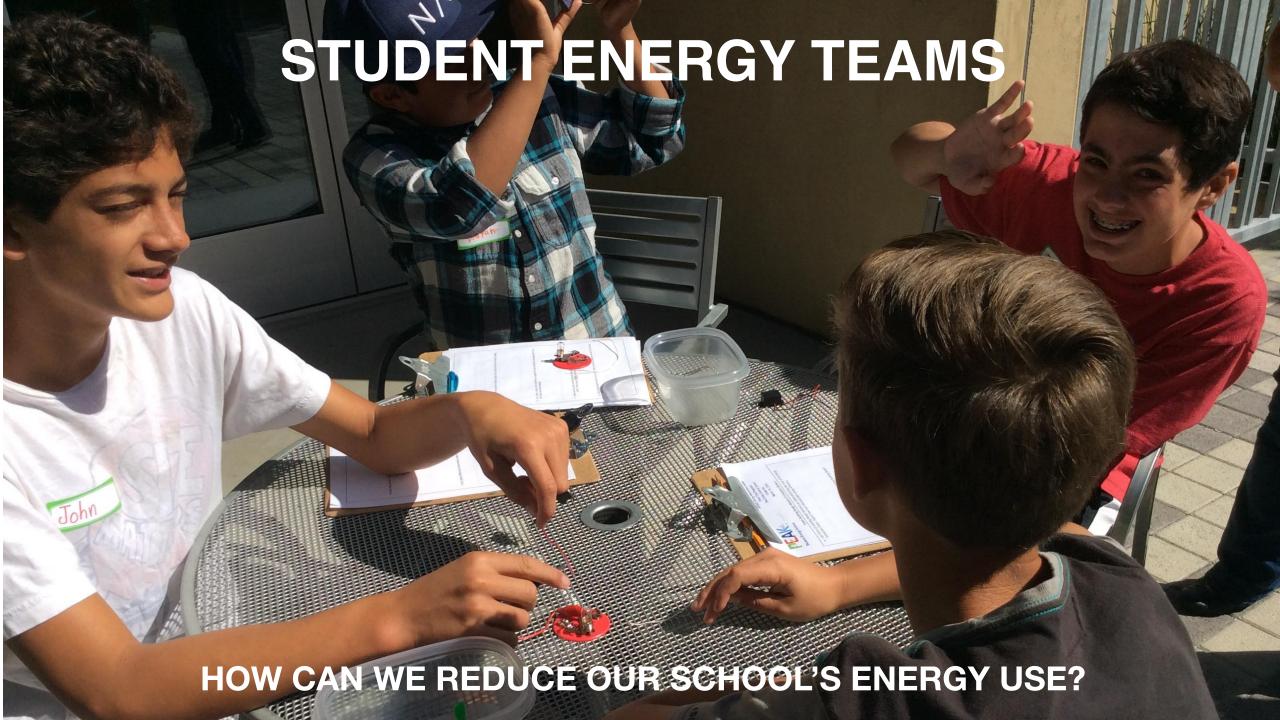


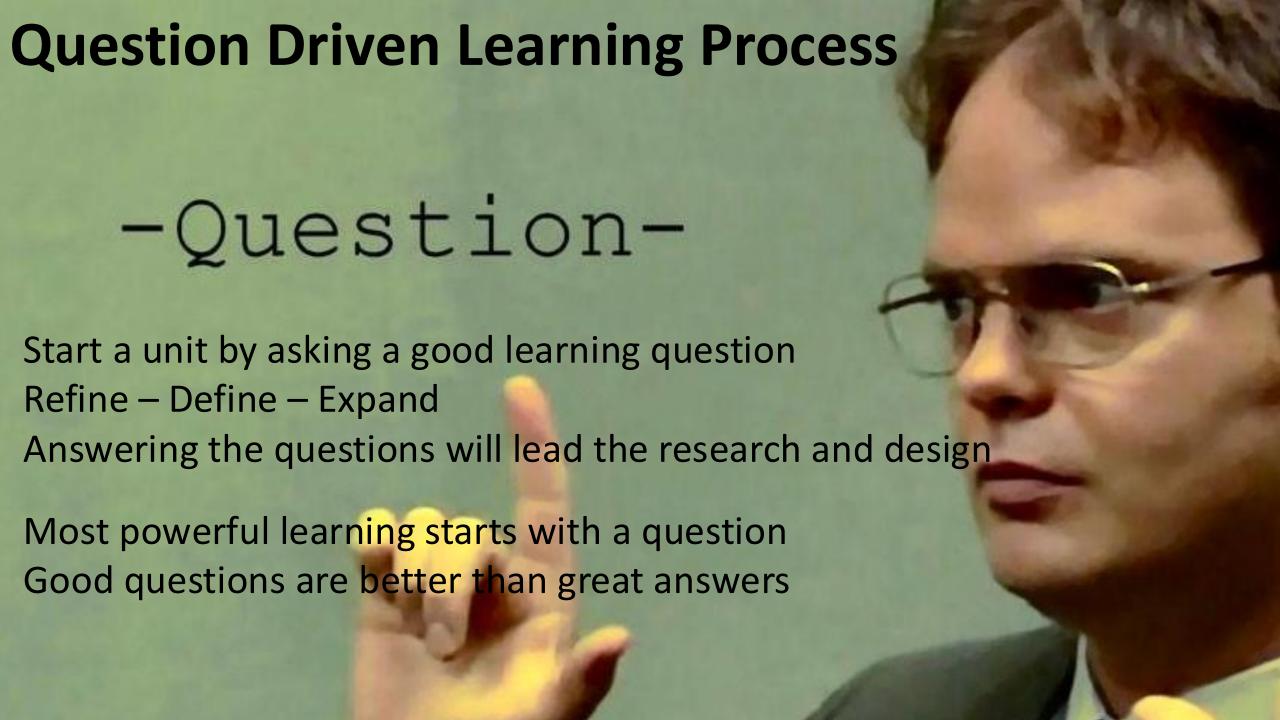
SAMPLE PROJECT OR PROBLEM BASED UNITS (Whenever possible turn it into a problem to solve)



PROJECT – NATIVE VS.
NON-NATIVE POLLINATORS?









QUESTION DRIVEN LEARNING PROCESS

LEARNING QUESTION

- 1. Should lead to intensive research (which may lead to design)
- 2. Teacher doesn't need to know answer or final product
- 3. Question can relate to 4PBL learning
- 4. Question shouldn't be something that can be answered by Google, Siri, Alexa, or your smart toaster. It needs to be worthy of deep work
- 5. **Refine** the question for to make the activity and context for learning more clear

FOLLOW-UP QUESTIONS

DEFINING QUESTIONS

Questions that help you define concepts and terms

EXPAND QUESTIONS

 Questions that help you gather information. Other questions that learners may have.

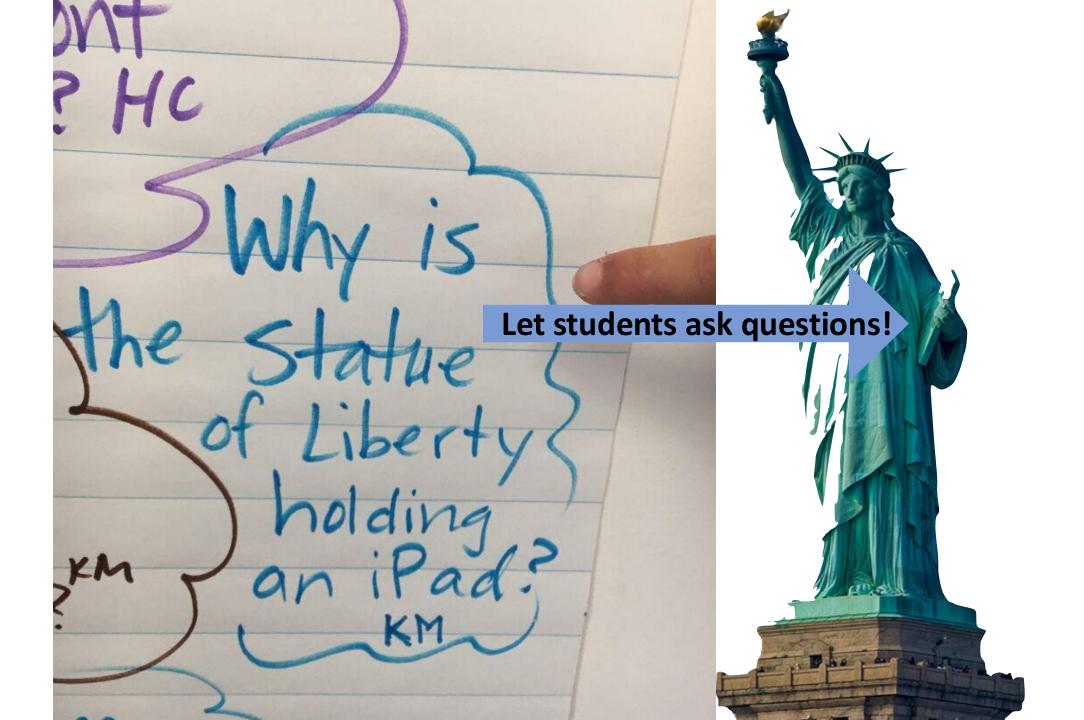
Learning Question – How do we start a recycling program?

- **Refining Questions** These are questions that help clarify the learning question and make clearer what you are trying to find out.
 - What problem are we trying to solve?
 - Where are we solving this problem?
 - Possible new Learning Question –

How can we reduce the waste going into the landfill on our campus?

Defining Questions – These questions help define terms or concepts in the learning question. They also help point out the learning and research that needs to be done to answer the learning question.

- o What types of waste are found on our campus?
- o How much of each waste is produced?
- o Where is this waste produced?
- o What is our current process for dealing with this waste?
- **Expanding Questions** Often the learning question will lead the learner to think about other ideas or concepts. These questions are wide open and extend the learning for individual learners. Not all expanded questions have to be researched or included in the unit.
 - What does our city and county do with all the waste?
 - How could we work with vendors to reduce waste?



QUESTION BASED LEARNING THROUGH THE ACQUIRE – ANALYZE – APPLY FRAMEWORK

RESEARCH



What information do I need to know to do this?

What skills do I need to know to do this project?

What do I need to learn Next after solving this Problem? Is this new knowledge real or relevant?
What are the criteria that I am using to evaluate options?
What are my audience's needs and core beliefs and my biases related to this project?
How much risk am I willing to take to put this plan into action?
Time, Money, Effort

DESIGN



What problem am I trying to solve?

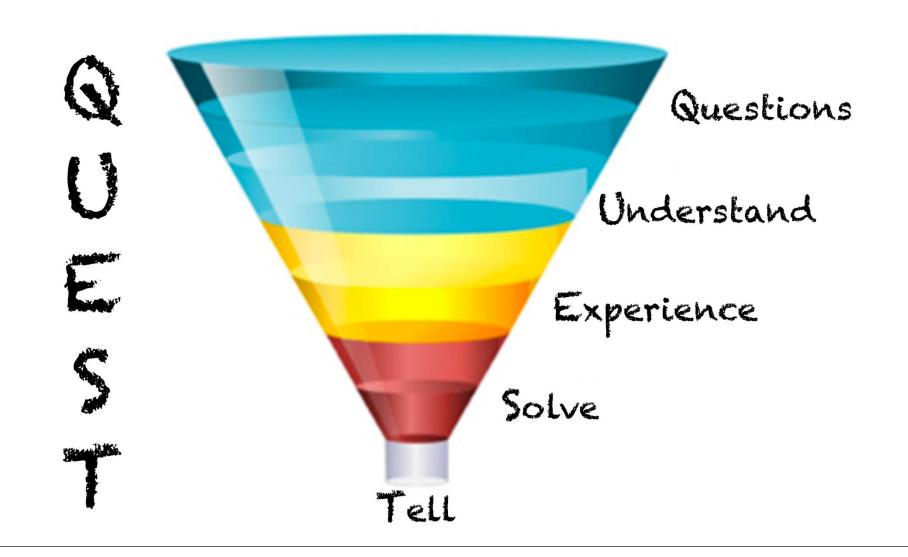
What is the best course of action to take?

How do I apply this action to achieve what I want?

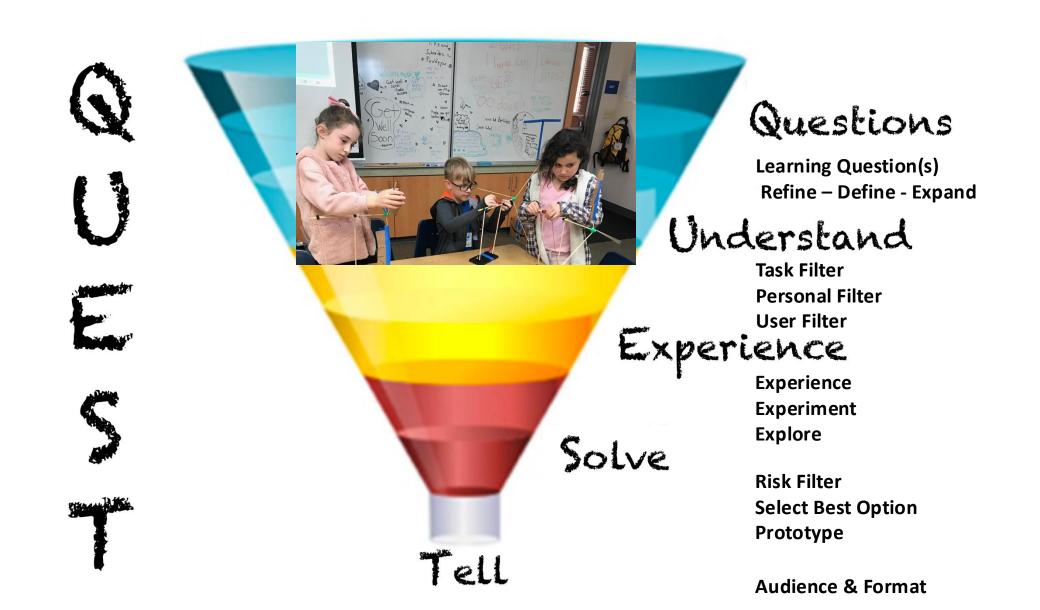
Who is my audience?

How do I know that I was successful?

THE LEARNING QUEST



THE DESIGN LEARNING QUEST



QUESTION

Learning Question Follow-up Questions

- Refine the learning question to make it clearer
- Define key terms in the learning question
- Expand by letting students ask questions

UNDERSTAND

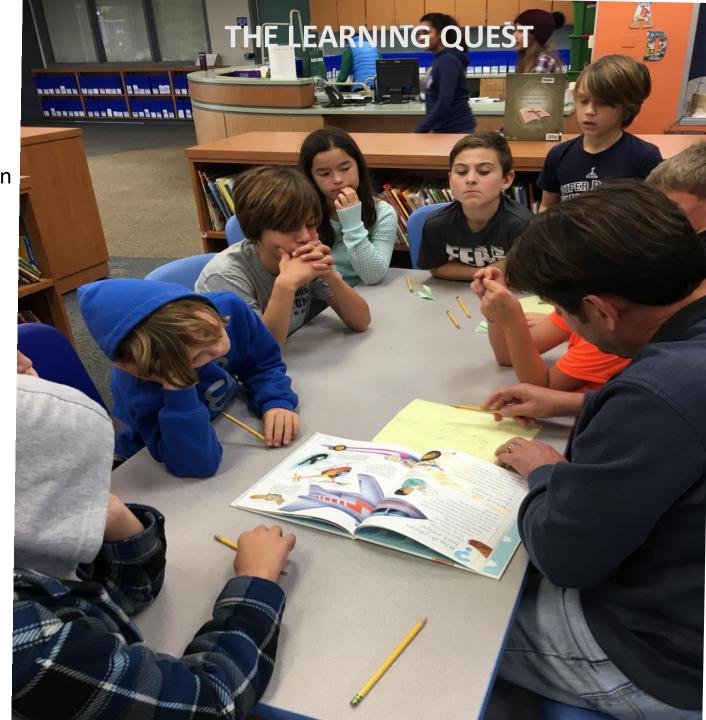
Task Filter – What are parameters of unit? Personal Filter – What are your personal biases? User Biases – What are users biases?

EXPLORE/EXPERIMENT/EXPERIENCE

Use scientific process and information literacy to research questions

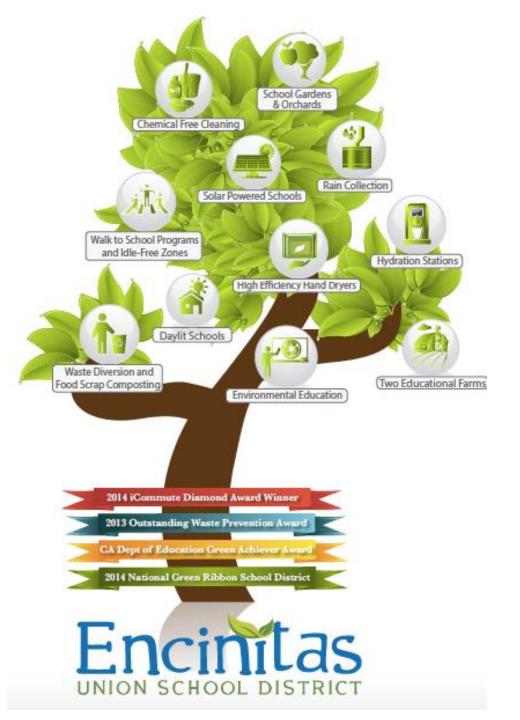
SOLVE Answer learning question

TELL Share findings in authentic setting and with an authentic audience



EXAMPLES OF DESIGN PROJECTS





LEARNING QUEST Energy Program

Solar Energy

Daylighting

Campus Conservation

Home Action

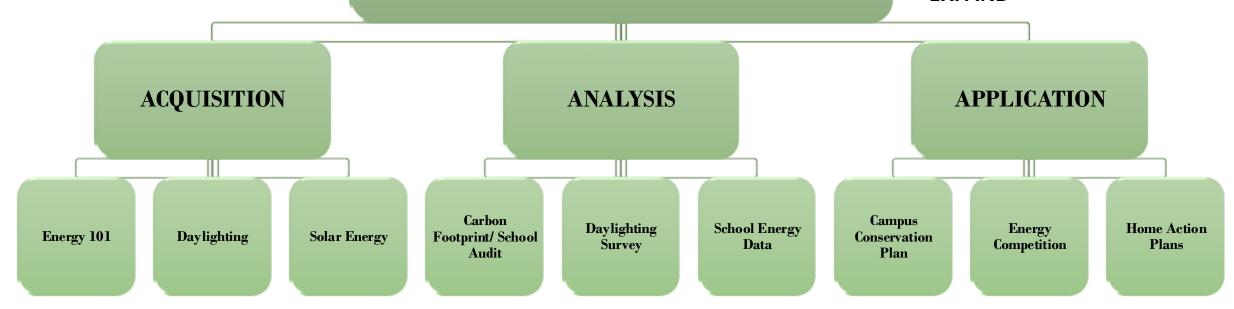


LEARNING QUEST Energy

LEARNING QUESTION:

What can we do to save energy?

REFINE DEFINE EXPAND







Acquisition

Energy 101	Daylighting	Solar Energy
Energy Overview Scavenger Hunt Understanding and Measuring Energy	Research: What are Solatubes and how do they work? Why is natural daylight better than fluorescent lighting?	Unit 13
Watt Meter Activity Use Kill-a-watt Meter	Opportunity for industry expert to visit classroom	Show video about solar production
	Solatube at school for students to explore	Mini PV cells
		Visit the inverter on campus
	Students design a daylit classroom out of a shoebox to demonstrate how natural light can be utilized	Design a solar oven with a pizza box





Analysis

Carbon Footprint/School Audit	Daylighting Survey	School Energy Data
Carbon footprint calculator Show Bill Gates Movie on Carbon Footprint	Use Light meters	Use Solar Kiosk to evaluate energy use and production from solar panels
Student evaluation of consumption based on audits	Compare classroom light levels to generally acceptable levels based on architectural standards	Opportunity for Industry Expert to explain School Energy Bill
Have student research latest technology for lighting	Opportunity for industry expert to visit classroom to help with lighting survey	
Field trip opportunity to SDG&E's Energy Innovation Center	Pros & Cons of natural light – persuasive essay or class debate	



Application

Campus Conservation Plan	Energy Competition	Home Action Plans
Create a PSA to explain the importance of using natural light; include cost savings and health & academic benefits	San Diego county-wide competition	Examine home energy bill and create a home energy conservation plan
Create a media campaign to encourage energy efficient behavior at school	EUSD internal energy competition	
Create best practices manual for school site with directions for energy efficiency throughout campus		
Suggest facility upgrades to increase energy efficiency		



AIR QUALITY PLAN FOR SCHOOLS

Tim Baird, Ed.D.

Learning Question: How can we improve the air quality around our school?

PROJECT	QUESTIONS	ACTIVITY
RESEARCH PROJECT	- What impacts air quality?	- Review air quality and what factors impact it.
Assess current air quality on	- What is the average air quality	_
different parts of campus	rating for our city? - What is the air quality reading for different parts of the campus?	- Review air quality ratings for city. Learn how air quality ratings are taken.
	- Has the school taken steps in recent years to improve indoor air quality?	- Discuss air quality with an air quality engineer.
	-Does the air quality measure change at different times of the day and on different days?	- Review air quality ratings for campus. Learn how these ratings are taken.
	Is the air quality different indoors than outdoors? What might account for this?What parts of campus have the best air quality?	- Conduct an air quality measurement study. Plan study to take air quality measurements in different places and at different times and days around campus. Be sure to include drop off and pick up areas. As part of study,
	- What parts of campus have the worst air quality?	do a visual count of idling cars, length of idling, etc. over multiple measurements.
	- What factors might be impacting air quality differences on campus?	- Review results of air quality study and determine areas of campus that have poor air quality
DESIGN PROJECT Design a new campus wide air	What does the data tell us related to our air quality plan design?What are the needs of the	Design a new campus wide air quality improvement plan for the campus.
quality plan	different stakeholders impacted by our plan? - What resources will we need to design and implement our plan?	Assess your plan. Determine ways to improve plan.



THE WASTE FREE LUNCH LEARNING QUEST



"A big bundle of waste!"
- Flora Vista 5th Grader

RESPONSE CATEGORIES:

Change Utensils -

Biodegradable Materials – A variety of materials and brands are identified in student research Edible Materials – Bread based cutlery, cut ends off of celery or carrots to make spoons, use fruit to scoop, Use pretzel sticks as chopsticks

Wooden Chopsticks

Toothpicks

Fingers / Finger Pants

Make from current tray with perforated spork on side (Prototype design made)

Washable Trays with Dishwashers

Change Lunch Process

Pre-order Lunch with App to reduce food waste

Only Finger Foods served – Various menus were submitted to demonstrate concept

Other Ideas

Bring own utensils from home

Change School Hours so no lunchtime

Stop serving good tasting food – less purchases

Provide multiple utensil solutions with options for students to choose

Other Ideas

Bring own utensils from home
Change School Hours so no lunchtime
Stop serving good tasting food – less purchases
Provide multiple utensil solutions with options for





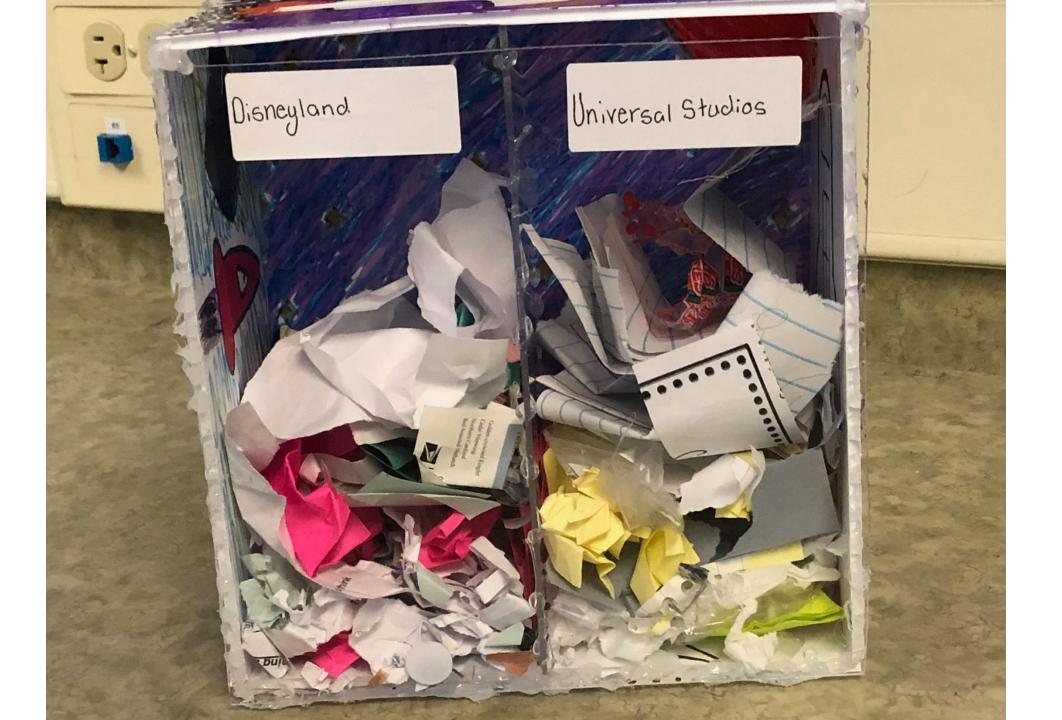
HOW CAN WE REDUCE THE WASTE AT OUR SCHOOL?

REFINE – DEFINE - EXPAND











HOW CAN WE HELP OUR LOCAL YMCA REDUCE THEIR LANDFILL WASTE?







Encinitas Students to Provide Technical Environmental Support to E3 Collaborative Partner







Encinitas Kindergartners Urge City Council To Ban Drinking Straws

HOW CAN WE REDUCE THE USE OF PLASTIC STRAWS IN OUR CITY?

Encinitas Students
Working With Carlsbad
And Encinitas for
Pesticide Free Parks



FARM LAB

Encinitas Union School District



The DREAMS Campus



ENVIRONMENTAL LITERACY CONCEPTS

OVERARCHING CONCEPTS -

Most Valuable Practices (MVPs) of Health, Equity, and Sustainability

Make Learning Authentic - Value People and Nature - Protect Yourself, Others, and Nature

Learning Pathway Acquire - Analyze — Apply

KEY LEARNING PROCESSES -

Research and Design

Questioning Strategies Refine, Define, Expand

LEARNER TRAITS AND ENGAGEMENT -

Super Learning Traits Perseverance, Altruism, Curiosity,

Collaboration, Resourcefulness,

and Optimism

Learner Engagement Purpose, Passion, Power, and Play

LEARNING AND TEACHING TOOLS –

Learning Quest Lesson / Unit Design Tool

4PBL Phenomena, Place, Project, and Problem

Question Driven Learning Sample Lessons / Units



DISCUSS THE TOOL THAT YOU MIGHT USE?

TOOLS

- Learner Profile
- MVPs of Environmental Literacy
- Acquire / Analyze / Apply Taxonomy
- Research and Design
- Real World Traits and Skills
- Learner Engagement Framework
- 4 PBL Learning Context
- Learning Quest Unit Design
- Question Driven Learning
- •

QUESTIONS

- 1. How might you use this tool?
- 2. What are the benefits of this tool?
- 3. What are the challenges of using this tool?
- 4. What questions do you have about using this tool?



LAUSD TEACHERS – To get Professional Development Attendance Credit, Sign in here!

https://bit.ly/DOICLPD-SignInOut24-25



Jerry Song

STEAM Coordinator: Climate Literacy Division of Instruction 333 S. Beaudry Ave. Los Angeles, CA 90017 (213) 241-5521 www.lausd.org/climateliteracy





THANK YOU!

MATERIALS IN THIS PRESENTATION CAN BE ACCESSED HERE

LINK TO BAIRD ENVIRONMENTAL LITERACY MATERIALS FOLDER



https://tinyurl.com/yvvy8pbt Tim Baird Email – cupofsupe@gmail.com



Appreciation, Reflection, & Commitment



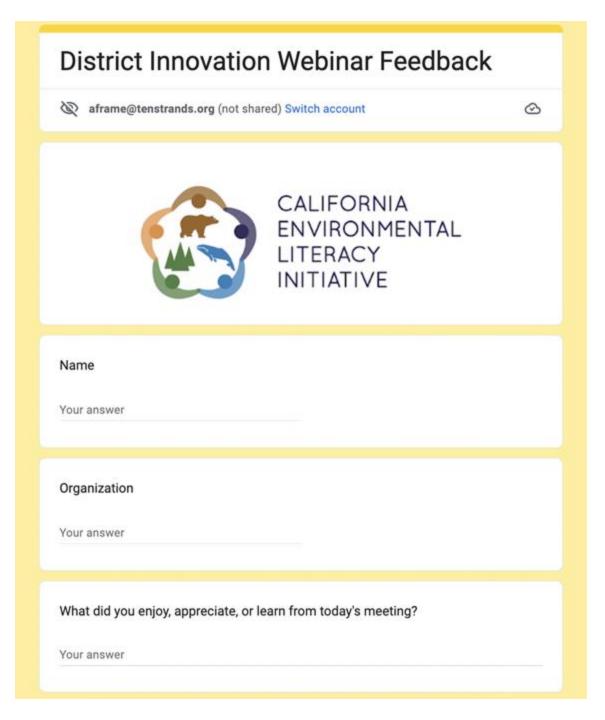
Take a moment to reflect on today's presentation, and the work still to come:

- ★ What is something you appreciate about this work?
- ★ What questions do you still have?
- ★ What is your next step?

Share one of your thoughts in the chat.

District Innovation Hub Webinar Closing, Feedback, and Resources





Meeting Feedback & Suggestions Link:

https://forms.gle/9vvi9FMDM9JzSbhh6

Contact:

Tim Baird

Co-Chair
CAELI District Innovation Hub
cupofsupe@gmail.com







Section 1 of 3

California Roadmap to a Green Economy Education Survey

The Green Career Innovation Hub of the California Environmental Literacy Initiative is developing a Roadmap to a Green Economy – a data-driven strategic plan to secure equitable access for TK-16 students to the high-growth, high-quality green careers essential to a sustainable future. Please contribute 5-10 minutes of your time to completing the following survey. This will help to grow awareness of the existing high-quality educational programming for student green career pathway development, and better understand the existing educational challenges and needs.

https://tinyurl.com/CAgreencareersurvey





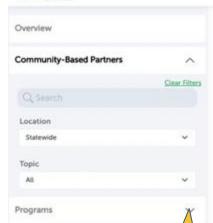
please complete and share!









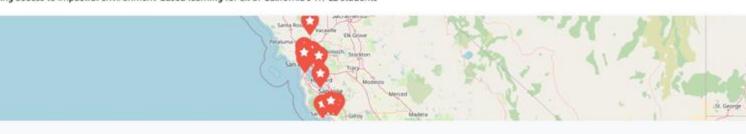




CAELI PARTNER PORTAL

Increasing access to impactful environment-based learning for all of California's TK-12 students

CommunityBased Partners,
please sign up
please included
to be included
on the site.

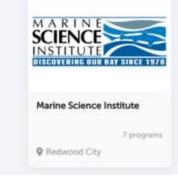


Community Members

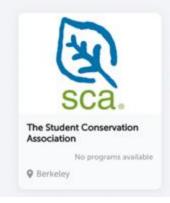
Community-Based Partners (30 of 186)



Q Los Altos



Educators



Sort By: Date: Newest first ~

ses Hide map

Breakout Rooms



- 1. Based on what you heard today, what role did students play?
- 2. What connections can you make to what's happening at your school?
- 3. What specific ideas or strategies presented today could be successfully implemented at your school?
- 4. What challenges might you experience? How might you overcome these challenges?
- 5. What wonderings might you have?