

Friday, March 29, 2019 10:45-11:45 am

Project-based Learning in a Sustainable School:

A Key to Supporting Young

Adult Success



Who We Are: Presenters



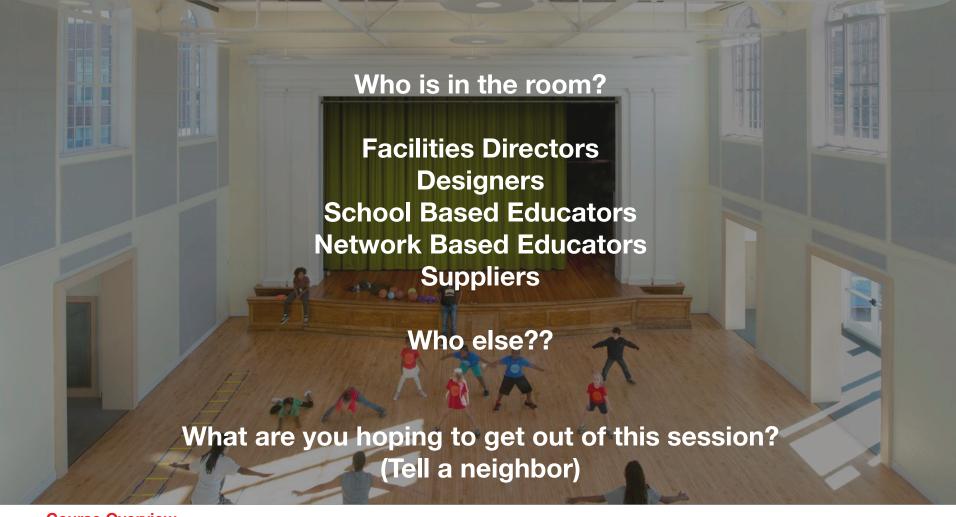
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Session Objectives

- I can define an Education for Sustainability framework that leads to successful outcomes for children.
- I can discuss and describe aspects of a Place Based learning approach.
- I can describe the relationship between a Project-based Educational model and the importance of site / place.
 - I can give specific program and architectural examples that enrich a school's Education for Sustainability framework.

Who We Are: School

Mundo Verde Bilingual Public Charter School

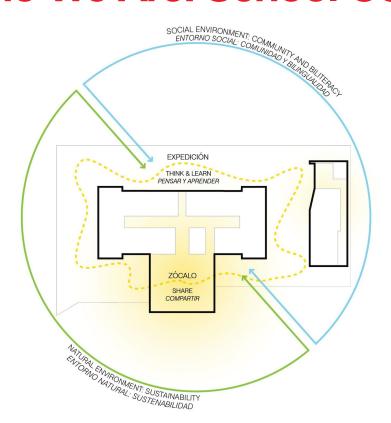
Mission	To foster high levels of academic achievement among a diverse group of students by preparing them to be successful and compassionate global stewards of their communities.
Location	Public Charter School - Washington, DC
Campus	Two award winning buildings ~ Renovated historic elementary school (LEED Gold) and new early elementary annex (LEED Platinum)

Who We Are: Firm

Page (Page Southerland Page)

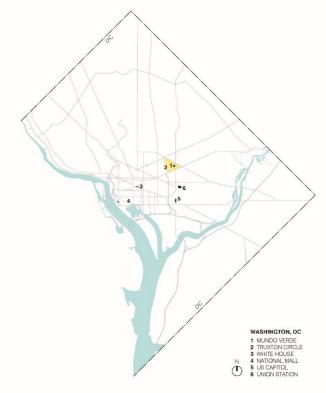
Mission	We promise design that makes lives better. Creativity, Collaboration, and Commitment
Locations	Washington, Houston, Austin, Dallas, San Francisco, Denver, Mexico City, and Dubai
Firm / Studios	Started in 1898 with two brothers and a friend. Now a 550-plus person multidisciplinary A/E firm.

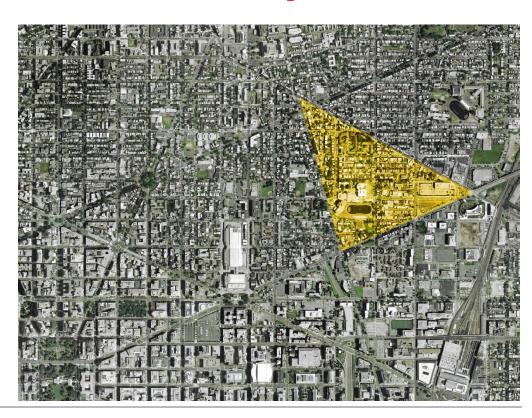
Who We Are: School Context



By the numbers: 2018-2019 Chartered 2010 Opening Year 2011 PK-3 - 5th Grades Served Enrollment 595 Full-time Staff 114 Student: Faculty school-wide ratio 8:1 Student: Teacher classroom ratio 8:1 (PK) 12:1 (K-1st) 22:1.5 (2nd) 22:1 (3rd-5th) Student diversity Female 49.9% Male 50.1% Hispanic/Latino 34.8% Black/African American 18.0% White 34.3% Mixed Race 10.4% Asian 2.5% English Language Learners 20.0% FARM Eligibility 24.0% Special Education 11.1%

Who We Are: School Context: City





Who We Are: School Context: Before









Education for Sustainability

Definition of Sustainability

- Connection to student outcomes / mission
- Set of standards
 - Alignment to other core academic standards
 - Vertical alignment to profile of a graduate

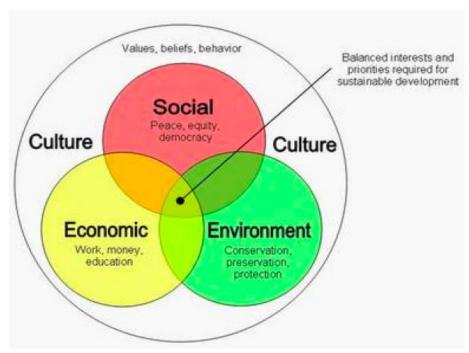
Place-based Learning (scale based on development appropriateness)

- School building as curriculum
- Service learning
- Assets and beauty of school community and city

Project-based Learning (expeditions)

- Interdisciplinary
- High quality student work (authenticity, craftsmanship, complexity)
- Fieldwork and Experts

Definition of Sustainability



(Image source: Sustainable Schools Project, Shelburne Farms)

Does your institution have a working definition of Sustainability?

At Mundo Verde, we prepare our students to be global stewards through our sustainability curriculum.

Mundo Verde defines sustainability as working to support and improve the quality of life for all beings - economically, socially, environmentally - now and for future generations.

Through our sustainability model our students:

- Form deep connections to the environment and their local community.
- Understand the interdependent nature of the world and develop systems-thinking skills.
- Believe in their ability to make change.

Definition of Sustainability

Standards and Measurability / Metrics

Education for Sustainability (EfS) standards and performance indicators + 12 Enduring Understandings from *The Cloud Institute for Sustainability Education*

Common Core State Standards for reading, writing, speaking and listening, language, and mathematics

Additional: Next Generation Science Standards, DC Social Studies Standards, National Association for Music Education Standards, etc.

THE 9 CORE EfS STANDARDS

Cultural Preservation & Transformation

Responsible Local & Global Citizenship

The Dynamics of Systems & Change

Sustainable Economics

Healthy Commons

Natural Laws & Ecological Principles

Inventing & Affecting The Future

Multiple Perspectives

Strong Sense Of Place

Metrics for Successful Student Outcomes

Key factors allowing a young adult to manage and adapt to changing demands and successfully navigate various settings with different cultures and expectations:

- Agency
- Integrated Identity
- Competencies

Foundations for Young Adult Success: A Developmental Framework

https://consortium.uchicago.edu/sites/default/files/publications/Foundations%20for%20Young%20Adult-Jun2015-Consortium.pdf

Agency

Ability to make choices about and take an active role in one's life, rather than solely being the product of one's circumstances

Requires the intentionality and forethought to derive a course of action and adjust course as needed to reflect one's identity, competencies, knowledge and skills, mindsets, and values

Supported at Mundo Verde through:

- Focus on sustainability problems that students are empowered to address
- Restorative justice / Responsive Classroom / Habits of Community Stewardship (Empathy, Speak your Truth, Appreciation)

Integrated Identity

A sense of internal consistency of who one is across time and across multiple social identities (e.g., race/ethnicity, profession, culture, gender, religion)

Serves as an internal framework for making choices and provides a stable base from which one can act in the world

Supported at Mundo Verde through:

- Focus on language learning (Spanish / English)
- Place based learning / projects with authentic local problems
- Focus on culture / social justice / race / equity

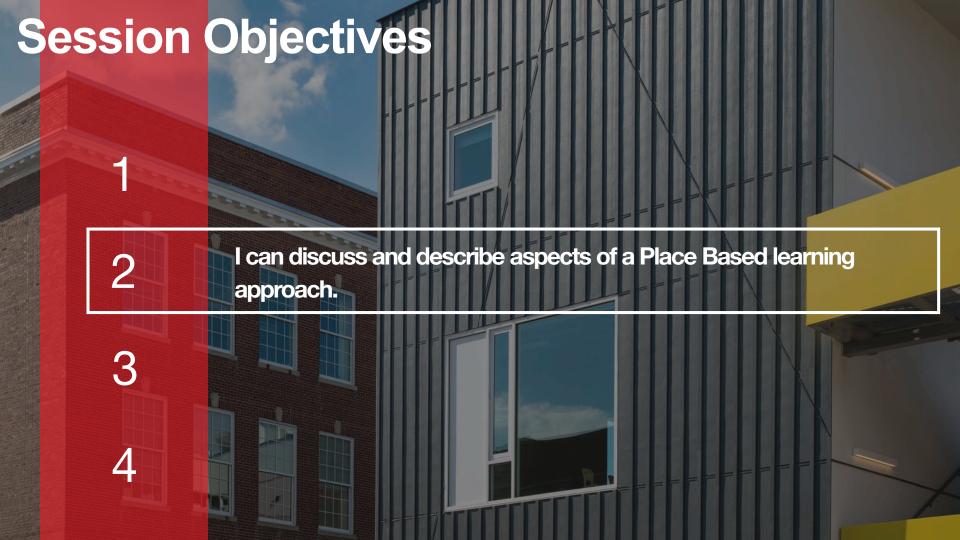
Competencies

The abilities that enable people to effectively perform roles, complete complex tasks, or achieve specific objectives

Allow young adults to be productive and engaged, navigate across contexts, perform effectively in different settings, and adapt to different task and setting demands

Supported at Mundo Verde through:

- Place based learning / projects with authentic local problems
- Common core alignment and focus on cognitive skills (Stanford rubric)
- Habits of Community Stewardship: Collaboration, Inquiry, Perseverance

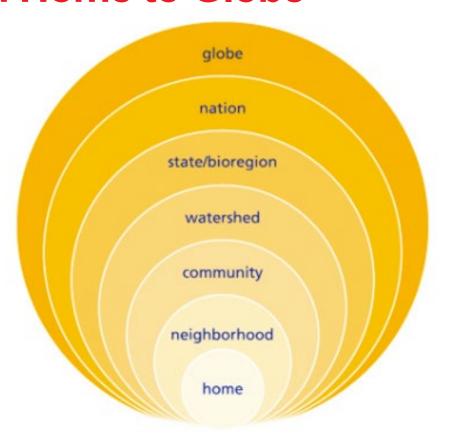


Place-based Learning

Place-based Learning

- Teaches students to be global stewards
- Provides students inquiry-based experiences in their natural and human communities
- Develops a student's "sense of place" and builds their empathy and value for their natural and human communities
- Ensures that we explore sustainability problems/opportunities from a developmentally appropriate scale of place and time

Place: From Home to Globe



Place: Scaled Curriculum

can start turn, and stop effectively in

can make a running jump of 28 to 38

6 years

complex acts

girls are superior in accuracy of

boys are superior in forceful, less

5 years

can jump a distance of 24-33 inches can descend long stairways unaided can throw with proper weight shift can accurately perform jumping jack can descend long stairways alternat- alternating the feet exercises ing the feet, if supported child understands importance of letting others know that there requests have ignored or forgotten child thinks that his or her point of view is the only one possible child realizes that others may interpret a situation in a way different from his or her own child has reciprocal awearess, realizes other have a point of view and that others are aware that he or she has a particular point of view gaining proficiency at classifying, manipulating numbers, dealing with concepts of time and children can think logically about "her & now" but not yet about abstractions ical thinking: children can think about objects, people, or events in space, and distinguishing reality from fantasy ing mental representations of them, but they cannot yet manipulate child learns not only by sensing and doing, but by thinking as well, basic understanding of cause and effect

balancing on one foot without looking

can hop and jump accurately into small

8 years

pressure

grip strength permits steady 12-pound

girls can throw a ball 40 feet

9 years

girls can jump vertically to a height of

boys can run 16.5 feet per second

8.5 inches; boys, 10 inches

boys can throw ball 70 feet

10 years

can judge and intercept pathways of

small balls thrown from a distance

girls can run 17 feet per second

11 years

standing broad jump of 5

possible for boys; 4.5 feet

7 years

becomes possible

4 years

suddenly or quickly

e of 15 to 24 inches

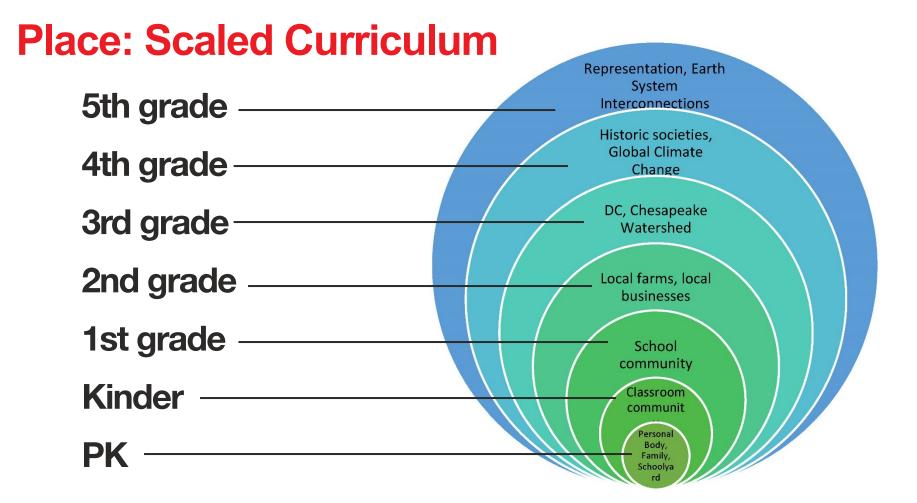
ys unaided, alternating the feet

ersation; breakthrough in attention to

girls are taller than boys

starting and turning

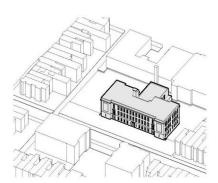
more effective control of stopping,



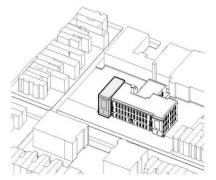
Place: Community



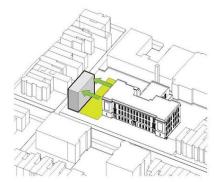
Place: Building to Community



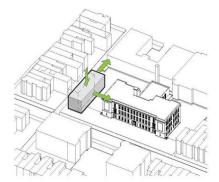
1. existing 1925 school building



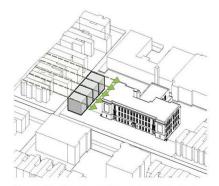
2. identify existing bar scheme + building scale



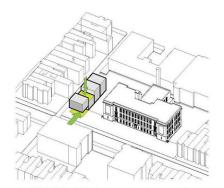
 replicate the bar at the east end of the site to create green space between existing building & new building



4. adjust building to programming requirements



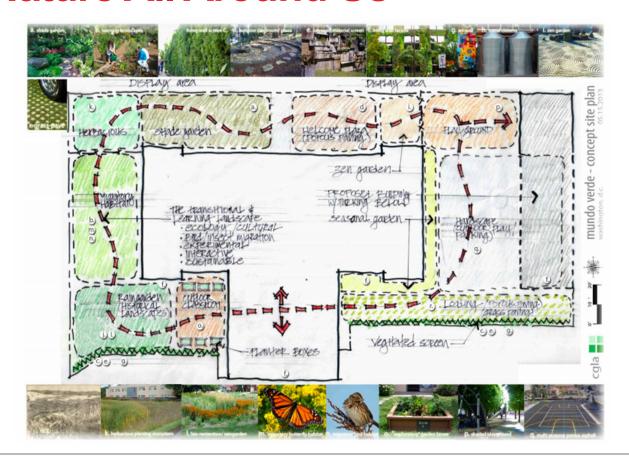
5. extend local rowhouse site texture to articulate and scale the building



6. shift individual blocks to create entrance and rooftop classroom



Place: Nature All Around Us

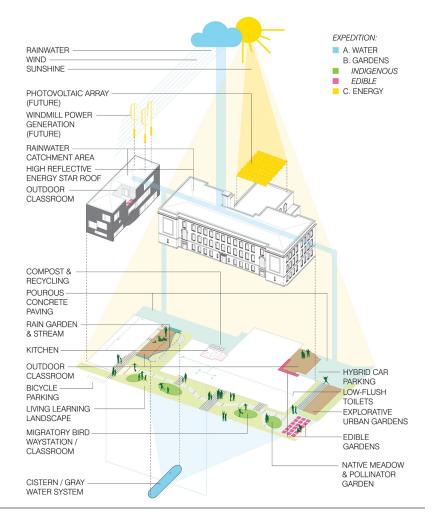




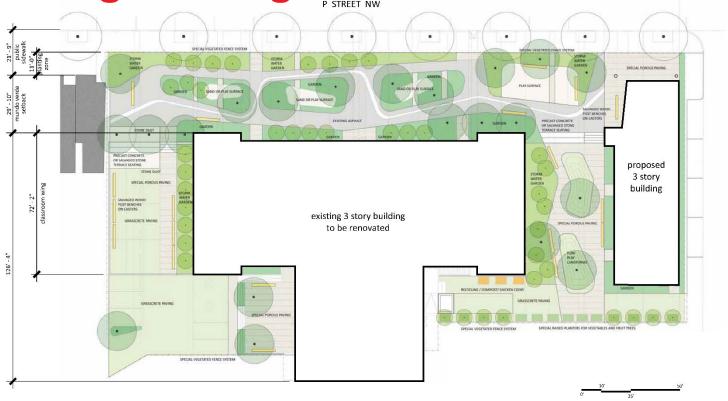
Project-based Educational Model

- Long term, in-depth studies
- Overarching guiding question
- Interdisciplinary: social studies, science, literacy, sustainability
- Real world connections and case studies
- Experts and fieldwork
- Hands-on, active learning
- Final products: professional formats and authentic audiences
- Character: inquiry, collaboration, perseverance (multiple drafts), spirit of adventure
- Culminating event: celebration of learning
- Enduring understandings / transfer

Place: Programming Site



Place: Programming Site





Curriculum for Project-based Model:

Grade: K

Content: Vegetables // Animal adaptations

Space / place: Onsite garden, urban farm, community gardens **Sustainability standards:** Responsible Local & Global Citizenship; Strong Sense of Place; The Dynamics of Systems & Change

Grade:

Content: Common spaces // Waste cycles (recycling and compost) **Space / place:** School building (shared spaces), school compost systems

Sustainability standards: Strong Sense of Place; Healthy Commons; The Dynamics of Systems & Change; Sustainable Economics

Grade: 2

Content: Market (consumers & producers) // Rock cycle **Space / place:** Local organizations and farms, ground beneath us **Sustainability standards:** Sustainable Economics, Natural Laws & Ecological Principles

Grade: 3

Content: Right to Read (literacy access) // Water

Space / place: City of DC, school water systems, Anacostia watershed **Sustainability standards:** Healthy Commons; Multiple Perspectives; The

Dynamics of Systems & Change

Grade: 4

Content: Pre-colonial / early colonial history of United States // Energy **Space / place:** Historical local context, mid-atlantic region, school energy efficient systems, global climate change

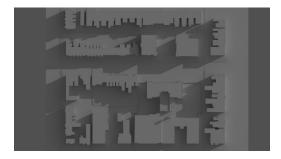
Sustainability standards: Multiple Perspectives; Cultural Preservation & Transformation; Natural Laws & Ecological Principles; Strong Sense of Place

Grade:

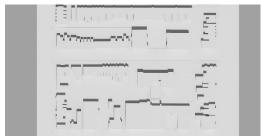
Content: Representation throughout US and Latin American history // Sustainable engineering

Space / place: Historical global context, school systems, vision for the future **Sustainability standards:** Responsible Local & Global Citizenship; Multiple Perspectives; Inventing & Affecting the Future

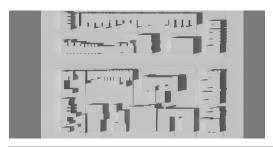
Curriculum for Project-based Model:



7am



12pm



3pm



Curriculum for Project-based Model:









Expeditions In Action: A Closer Look

3rd Grade: Save Our Water

Guiding Question: How do people and natural systems interact?

Final Products:

- Spanish: Bilingual postcard (informational writing) featuring water conservation tips for your daily life as well as a scientifically accurate and beautiful drawing of the shad fish
- English: Persuasive speeches (opinion writing) proposing solutions to water problems affecting DC
- Authentic Audience: Community (postcards mailed to hundreds of neighbors) and DC Water Board / local council members

Community Connections / Service Learning: Anacostia Watershed Society (river cleanup, shad hatchery and release); investigating water systems at Mundo Verde (permeable pavers, rain cistern, etc.)

Sustainability Standard: The Dynamics of Systems & Change

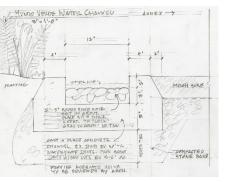
• Focus Performance Indicator: Define how their own (or other people's) actions affect the systems they are in.

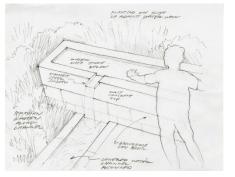
Expeditions In Action: A Closer Look

3rd Grade: Save Our Water







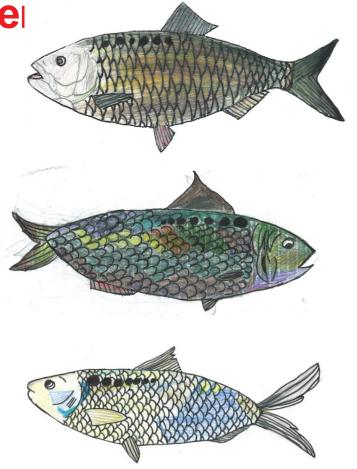


Community Connections / Service Learning: Investigating water systems at Mundo Verde (permeable pavers, rain cistern, etc.)

Expeditions In Action: A Close

3rd Grade: Save Our Water





Expeditions In Action: A Closer Look

4th Grade: Energy and Us

Guiding Question: How can we ensure we live within the means of nature for the next 1,000 years?

Final Product:

- Bilingual magazine featuring narrative, informational, and persuasive writing and original student artwork (feature articles, op-eds, interviews, stories). Student writing focuses on sustainable solutions to reverse the effects of the human interruption of the natural carbon cycle/ climate change.
- Presentation to our governing Charter Board to propose solar panel installation at Mundo Verde

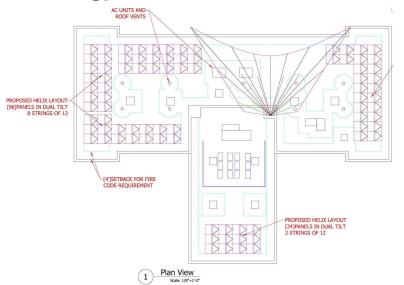
Community Connections / Service Learning: Investigating energy efficient systems at Mundo Verde (daylight harvesting, lighting/ heating, sourcing renewable materials, etc.); fieldwork to net-zero buildings; case study of energy sourcing in DC

Sustainability Standards: Natural Laws & Ecological Principles // Strong Sense of Place

• **Building on prior learning:** Student seek **multiple perspectives** (focusing on BIPOC) when studying the disproportionate effects of climate change and limited access to healthy and sustainable information and solutions, on communities that are historically marginalized.

Expeditions In Action: A Closer Look

4th Grade: Energy and Us







Community Connections / Service Learning: Investigating energy efficient systems at Mundo Verde (daylight harvesting, lighting/ heating, sourcing renewable materials, etc.); fieldwork to net-zero buildings; case study of energy sourcing in DC

4th Grade: Energy and Us

Enduring Understandings:

- EfS EU 1 A Healthy and Sustainable Future is Possible What will kids say?: We can learn to make change so that we have everything we want and need while taking care of natural systems.
- EfS EU 8 Think 1000 Years
 What will kids say?: Think about the future you want and work
 towards it. We can meet all of our needs in a way that does not
 interrupt, damage or destroy natural systems. There are many
 renewable sources of energy. We must use them to meet our needs
 in a way that makes sure they will still be available to future
 generations. We need to tear down current nonrenewable systems
 and build more sustainable ones.
- EfS EU 11 Live by the Natural Laws
 What will kids say?: You can't change nature. Instead we need to
 learn to work with and in nature. Energy is not created or destroyed,
 only changed. We can choose to get energy from sources that are
 renewable.









Session Objective Four





A4LE Enduring Understanding

Education for Sustainability framework

Place Based learning approach

Project-based Educational model and the importance of site / place.

How can you employ these educational models and activities into your current and future projects?

4

Discuss and Explore (AKA Q+A)

Think - Pair - Share:

- Establish / Adapt an Education for Sustainability Framework
- Encourage Place Based Learning Approach
- Explore Project-based Educational Models (expeditionary)
- Create Site and Buildings that integrate this framework

Contact Information

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