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DoDEA 21st CENTURY WORLD CONGRESS SPEAKER SERIES

Department of Defense Education Activity (DoDEA)

August 2012



Introduction

- Objectives
- History of Education
- *Activity and Discussion: 21st Century Worker Characteristics*
- *Video and Discussion: Sir Ken Robinson*

Instruction

- Current Approaches
- 21st Century Habits and Habitats

Programming

- 21st Century DoDEA Programming: Students for the Future
- *Activity and Discussion: Instilling 21st Century Skills*

Facilities

- *Video and Discussion: The Third Teacher*
- *Discussion: 21st Century Design and Construction Strategies*
- 21st Century DoDEA School Facility Concepts
- Aligning Facilities with Programming and Instruction

Disussion

- Q&A



OBJECTIVES

What are the expectations for this session?

- To understand why the education reforms of the 1900's are hindering education in 2012.
- To create an understanding of 21st Century teaching and learning support systems, behaviors, and tools.
- Establish the link between facility design and instruction.
- To develop strategies for facility design and construction process that lead and support the needed change.

HISTORY

Imagine...

You are a facility planner in 1912!

What was education like in 1912?

- Who was the teacher?
- Where did students live?
- What kind of education did they need for success in the 1900's?

HISTORY

Now – imagine...

...designing a school for 2012?



**The
standard
was set
in 1892!**

HISTORY

Education was designed to...

...develop career-ready workers.



HISTORY

Education was designed to...

...develop future industrial workers.



HISTORY

This is how education looks today...

...have we changed?



HISTORY

This is how education looks today...

...how is this relevant?



A photograph of two students sitting at their desks in a classroom. The student on the left is wearing a grey hoodie and dark pants, with their head resting on their hand. The student on the right is wearing a green shirt and blue jeans, also with their head resting on their hand. The desks are metal-framed with wooden tops. The background is a plain wall.

Why is education the way it is today...

...and what should it be?

ate - Changing Educa...

http://www.youtube.com/watch?v=zDZFcQGpL4U

Google

Getting Started Latest Headlines

Bookmarks

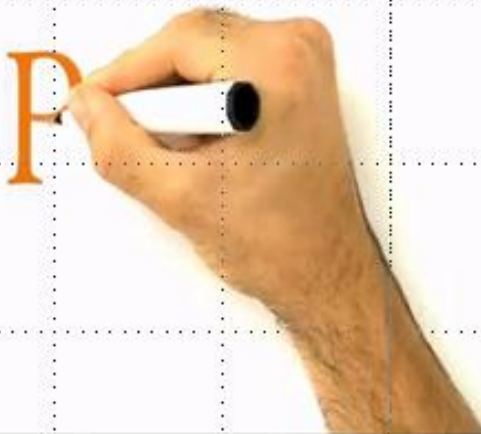
YouTube

RSA Animate - Changing Education Paradigms

428 videos

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Sir Ken Robinson



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21st CENTURY WORKER CHARACTERISTICS

What do we want our students to be able to do when they leave our educational program to be able to succeed and thrive in the world?

ACTIVITY

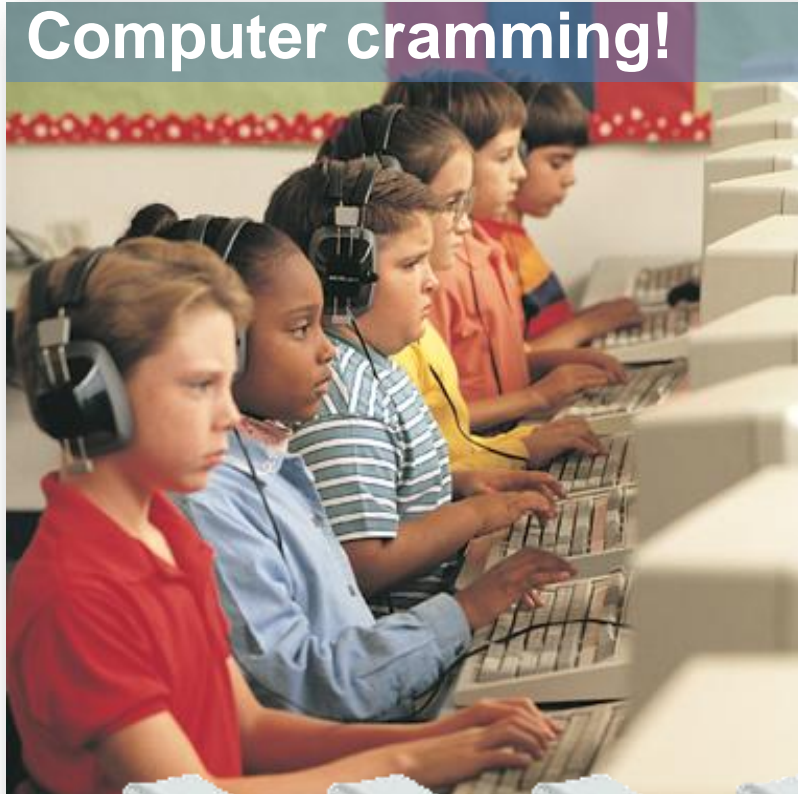




21st CENTURY INSTRUCTION

INSTRUCTION

Computer cramming!



INSTRUCTION

Cooler computer cramming!





HABITS

Teachers





HABITS

Student-Centered



HABITS

Teaming & Collaboration



HABITS

Blended Learning



HABITS

Mobile Learning

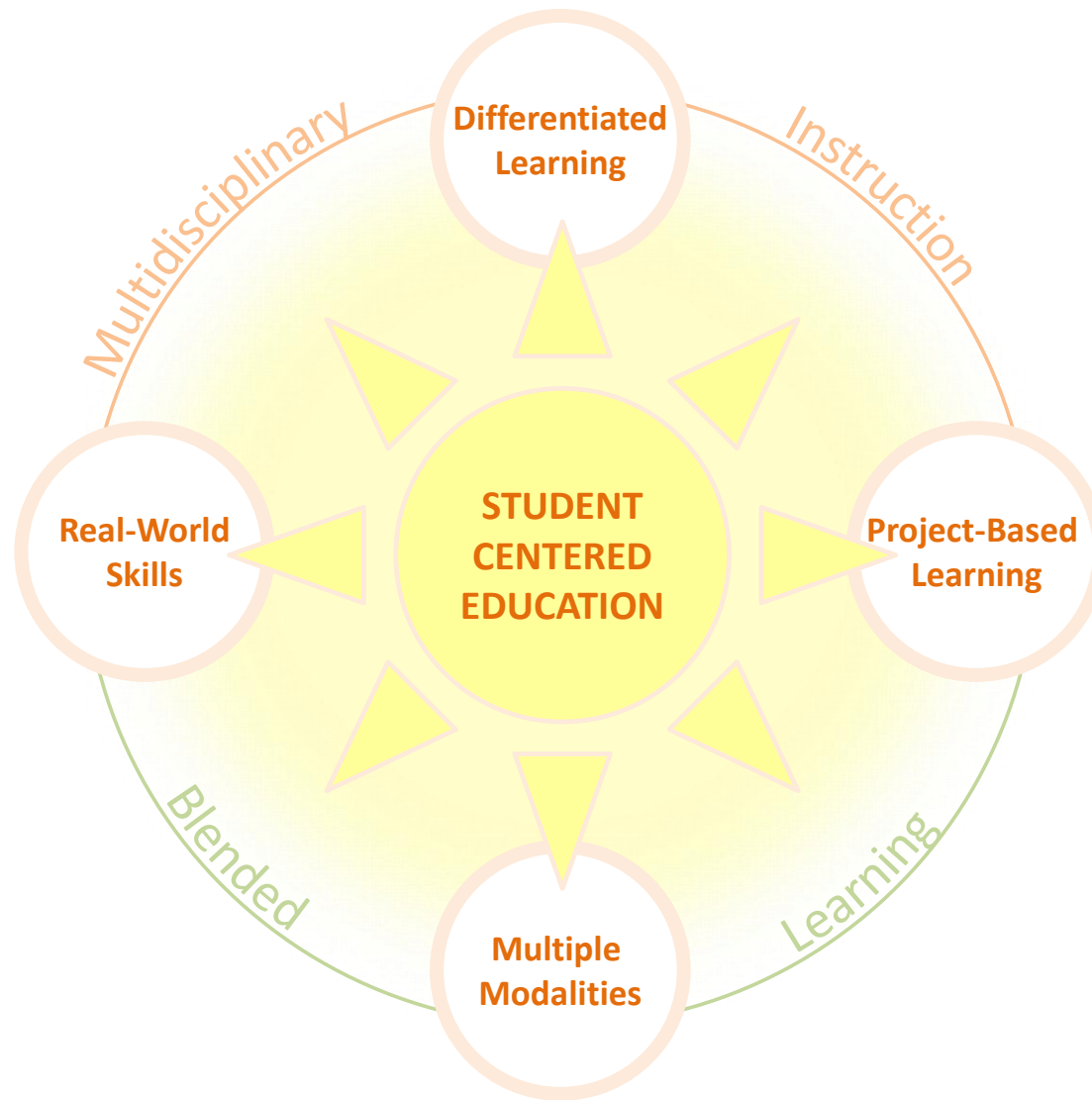


HABITS Experiential





DoDEA 21st CENTURY PROGRAMMING



PROJECT-BASED LEARNING

- **a learning tool where students use inquiry to develop a solution**
- **teachers facilitate learning, but refrain from overtly directing the students**
- **when the project has real-world application—especially one that is meaningful for students, student engagement is increased.**
- **can also encourage emotional and social maturity**



DIFFERENTIATED LEARNING

- **students are individuals with unique learning requirements and a “one size fits all” curriculum will not be successful**
- **learning models must be personalized and varied to empower each student to realize his or her potential**
- **some students work best as individual learners, while others prefer one-to-one or group arrangements**



MULTIDISCIPLINARY TEACHING

- **multidisciplinary teaching can provide ways of exploring new subjects within the context of familiar, more approachable topics**
- **the process would teach students to synthesize subject content across disciplines**
- **allow for teachers to integrate their lessons with other subjects for a broader and richer experience**





MULTIPLE MODALITIES

- **Education must evolve beyond the traditional classroom configuration**
- **Provide spaces that can respond to a variety of concurrent instructional activities including team-building events, small group sessions, individual learning, peer presentations, and large group instruction**
- **Sharing spaces increases the usefulness of each room by keeping it utilized for more hours of each day**



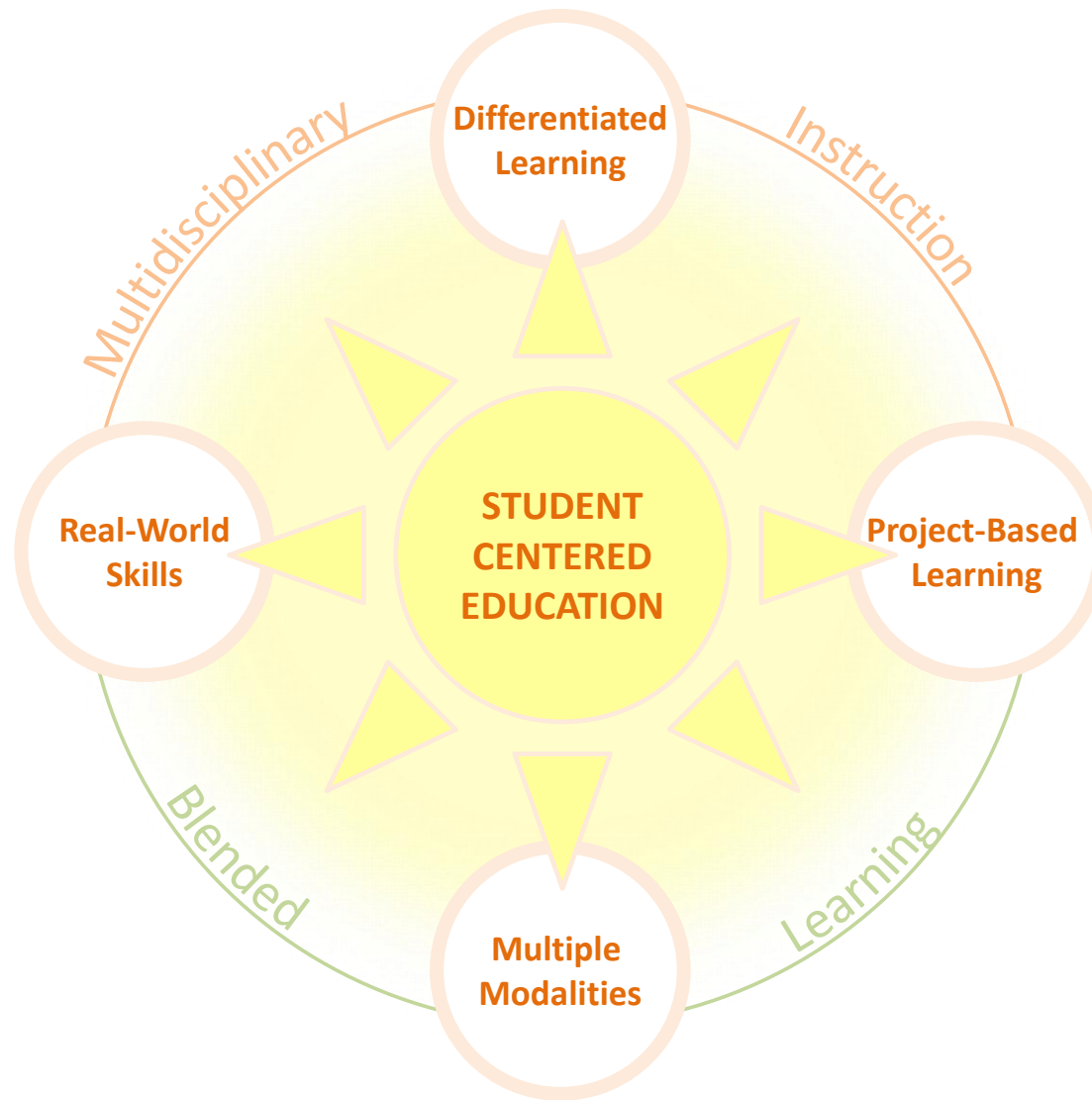
BLEND**E**D LEARNING

- integrates various learning environments, combining instructor-led classroom learning with mobile and online computer education
- greater scheduling flexibility and options; learners and educators can connect at any time and any place
- tools such as videoconferencing, television, cellular telephones, laptops and tablet computers can be effectively used in blended learning strategies

REAL-WORLD SKILLS DEVELOPMENT

- **learning environments need to provide hands-on instruction and the opportunity for students to apply their knowledge within a challenging framework**
- **aligning coursework with business, technical, and career applications will help students acquire the skills necessary for success in the world beyond school**







INSTILLING 21st CENTURY SKILLS

- Where are we along that path?
- What more do we need to do?
- Why is this important?

ACTIVITY



DoDEA 21st CENTURY FACILITIES

HABITS & HABITATS

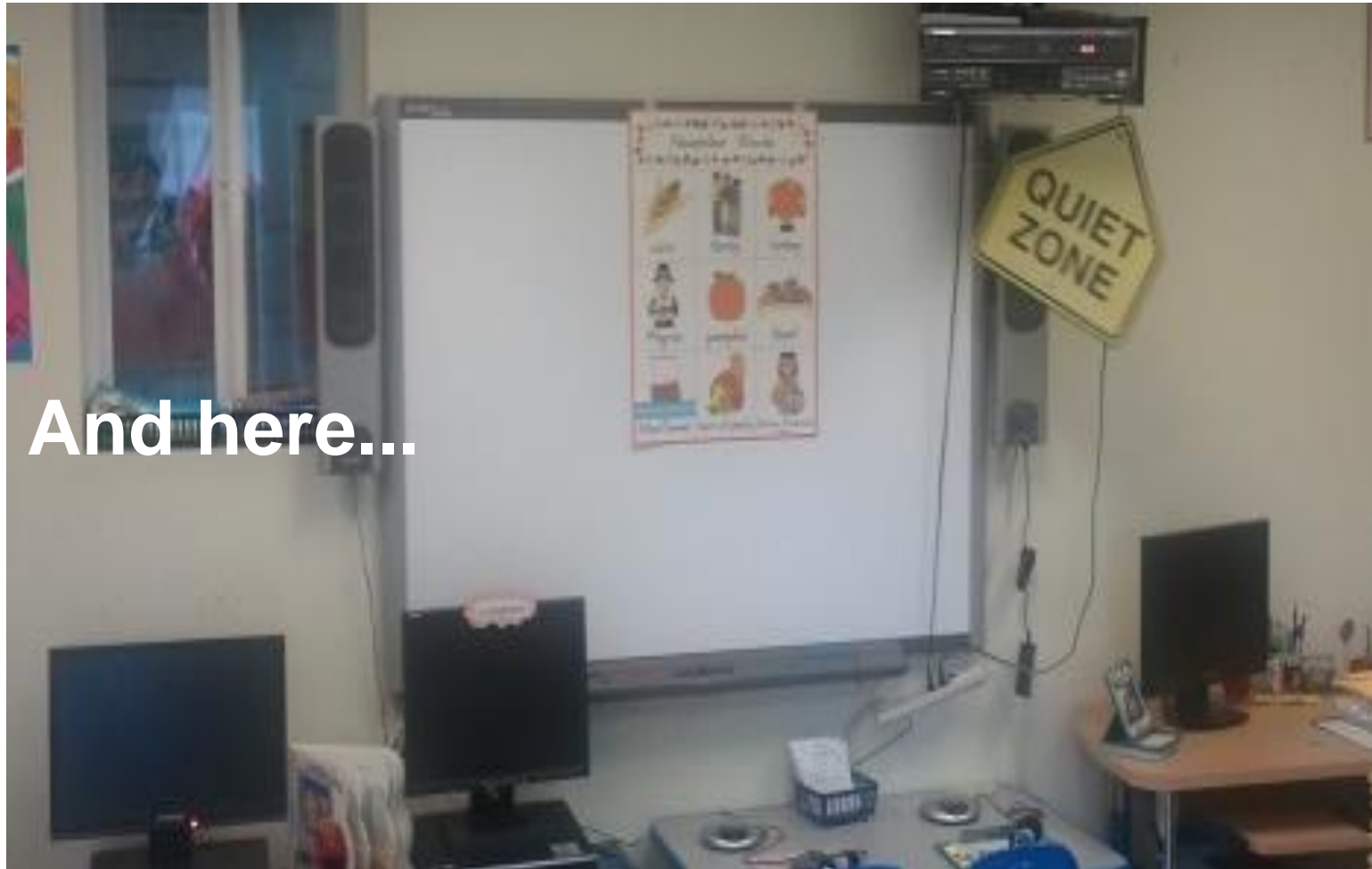
How do we use the built environment to support 21st Century Teaching and Learning?



HABITS & HABITATS



HABITS & HABITATS



HABITS & HABITATS



To the FUTURE

The Third Teacher

OWP/P Architects, VS Furniture, Bruce Mau Design, Published in 2009

DISCUSSION

21st Century Project Design and Construction Strategies

- How does today's process reinforce the status quo?
- Are there alternatives? And if so, what does it take to make it happen?
- How would today's process need to change to fit 21st Century teaching and learning?



HABITS & HABITATS



SMART SPACES



Handwritten mathematical work on a whiteboard, including a graph of a parabola, the quadratic formula, and a list of steps for solving quadratic equations.

$x^2 + 11x + 28 = 0$

$a=1, b=11, c=28$

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$x = \frac{-11 \pm \sqrt{121 - 112}}{2}$

$x = \frac{-11 \pm \sqrt{9}}{2}$

$x = \frac{-11 \pm 3}{2}$

$x = \frac{-11 + 3}{2} = \frac{-8}{2} = -4$

$x = \frac{-11 - 3}{2} = \frac{-14}{2} = -7$

1. Set equal to zero
(all terms on the same side)

2. Identify a, b, and c

3. populate the formula

4. simplify

Point of Intersection

$g(x) = 2x^2 - 8x + 6$

$g'(x) = 4x - 8$

$g'(x) = 0 \Rightarrow 4x - 8 = 0 \Rightarrow x = 2$

P.O.I @ $x=2$
because $g(x)$ changes from positive to negative at $x=2$

$g(2) = 2(2)^2 - 8(2) + 6 = 8 - 16 + 6 = -2$

$g(2) = -2$

$g(2) = -2$

$g(2) = -2$



IMAGINATION SPACES



gravity slide and bounce tube



photovoltaic panel



helix slide and stairs



solstice window pixelation

COMMUNITY HABITS AND HABITATS





FLEXIBLE HABITS AND HABITATS





NEIGHBORHOOD

- **the primary organizing structure for a variety of learning spaces for a small community of learners and teachers**
- **provides flexible and adaptable spaces that allow for instructional activities, including individual learning, student-led project collaboration, team-building events, small group sessions and peer presentations**
- **general learning settings; an inclusive learning disabilities program; spaces for teacher collaboration and professional development; home-school partnerships; and storage and rest rooms**

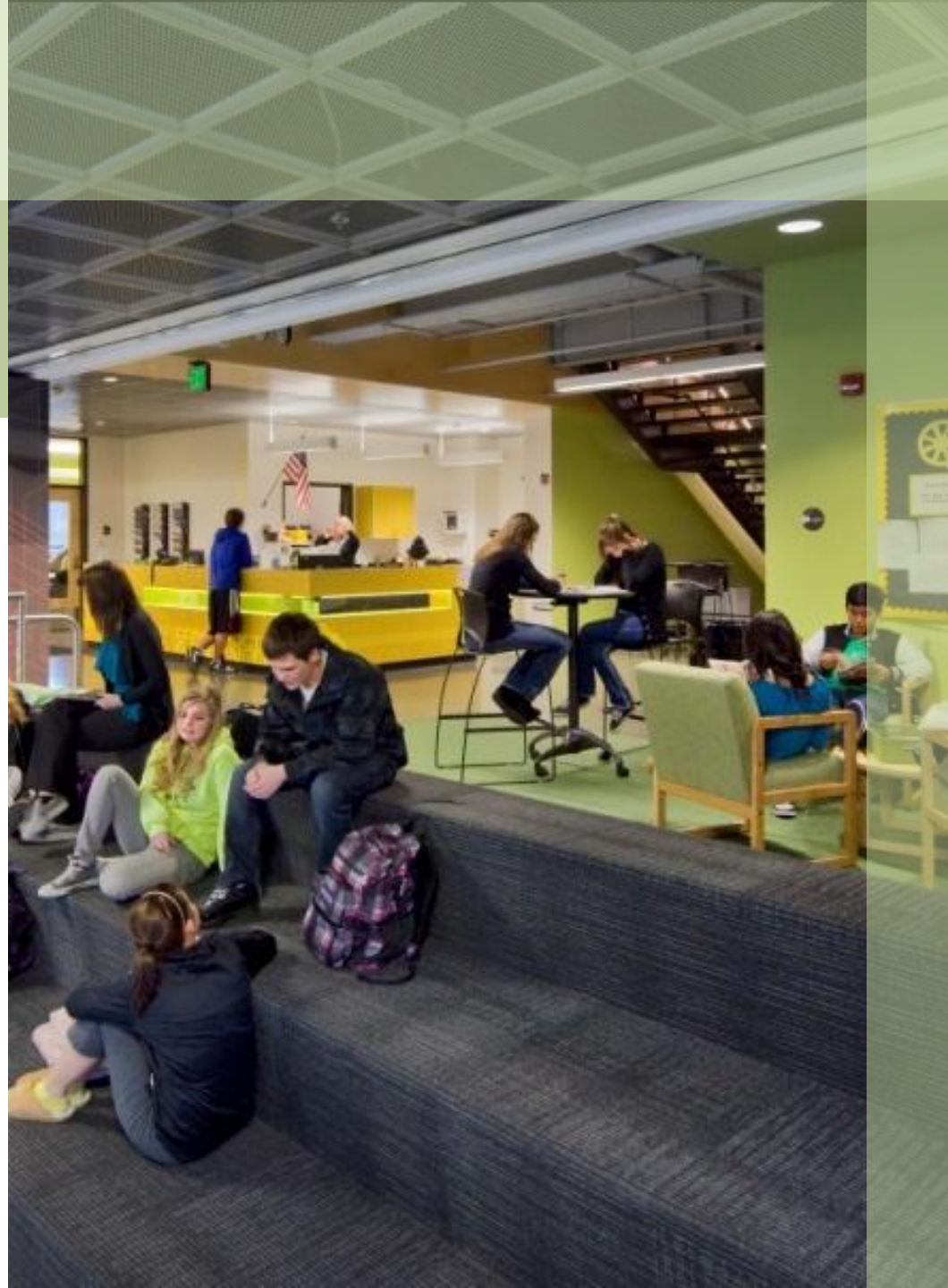
COMMONS

- a place considered the physical “heart” of the school
- this space can be multi-story and multi-purpose and will link major school components together, blurring traditional boundaries
- provides for health and wellness activities
- effectively the cultural and intellectual nucleus of a school



STUDENT SUPPORT

- **counseling and special education services; health services; professional development spaces; and administrative offices**
- **professional development areas are crucial and must accommodate both individual and collaborative work required for educators**
- **these areas may be centrally located for efficiency but should be visually and physically accessible to students**



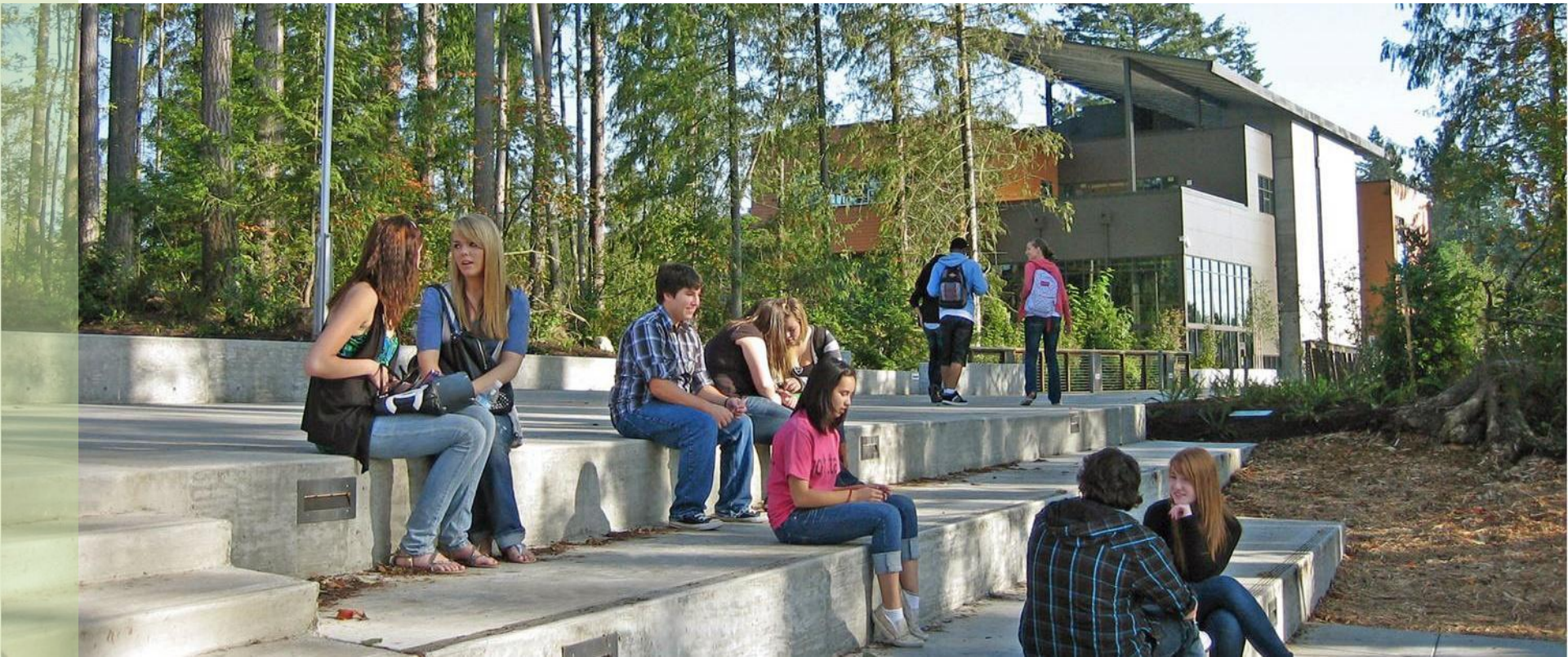
A photograph of a modern school building with a large, curved, metallic roof structure. A group of students in white shirts and dark pants are walking on a wooden floor under the overhang. The building's facade is made of large, light-colored panels. The sky is blue with some clouds.

EXPLORATORY SPACES

- **Dedicated, purpose-built areas are critical for many learning experiences**
- **Learning experiences including:**
 - **Art**
 - **Music**
 - **Drama**
 - **Laboratories**
 - **Distance Learning**
 - **Career and Technical Education (CTE)**
 - **Occupational and Physical Therapy (OTPT)**
 - **JROTC**

OUTDOOR LEARNING

- **may include everything from individual exploration to large-scale group projects and messy activities**
- **experience is horticulture, including flower, fruit, and vegetable gardening**
- **blur the boundaries between nature and man-made**





TECHNOLOGY

Transparently and interactively supports:

- **Whole group (20-30)**
- **Large group (6-8)**
- **Individualized**



SUSTAINABILITY

Maximize

- **Natural light**
- **Conservation learning opportunities**
- **Use of sustainable landscaping**

Minimize

- **Fuel usage**
- **Water usage**
- **Electricity usage**
- **Maintenance costs**
- **Training expenditures**



SAFETY AND SECURITY

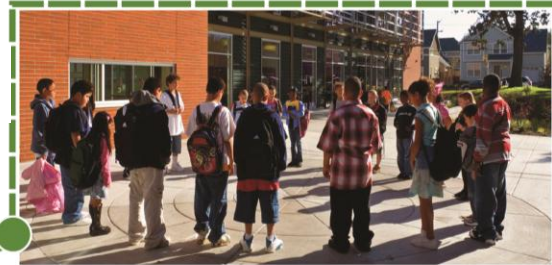
- Teacher prep areas place adults in closer and more **direct contact with students**
- Students spend day in the neighborhood and commons which promotes a sense of **belonging and identity**
- Safety facilitated by student ownership of spaces



INSTITUTIONAL IMPLEMENTATION

- **Professional development**
- **Collaboration**
- **Student centered**
- **Consistency**
- **Communication**
- **Leverage technology**
- **Communities**

DESIGN THEMES



Neighborhood



Outdoor Learning

Commons

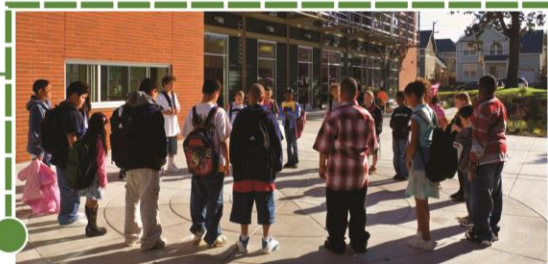


Exploratory Spaces



Student Support

DESIGN THEMES



Neighborhood



Outdoor Learning

Commons

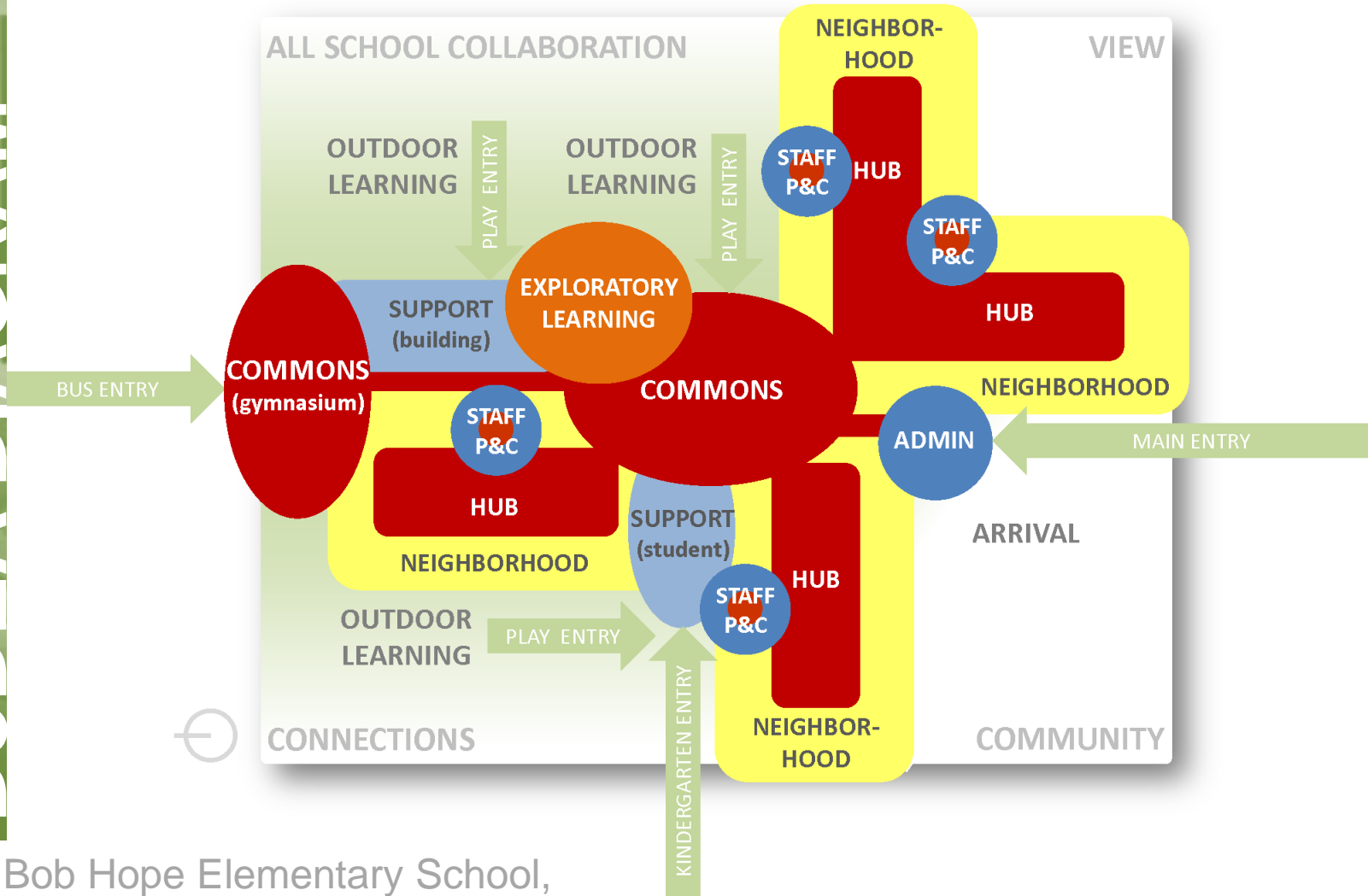


Exploratory Spaces

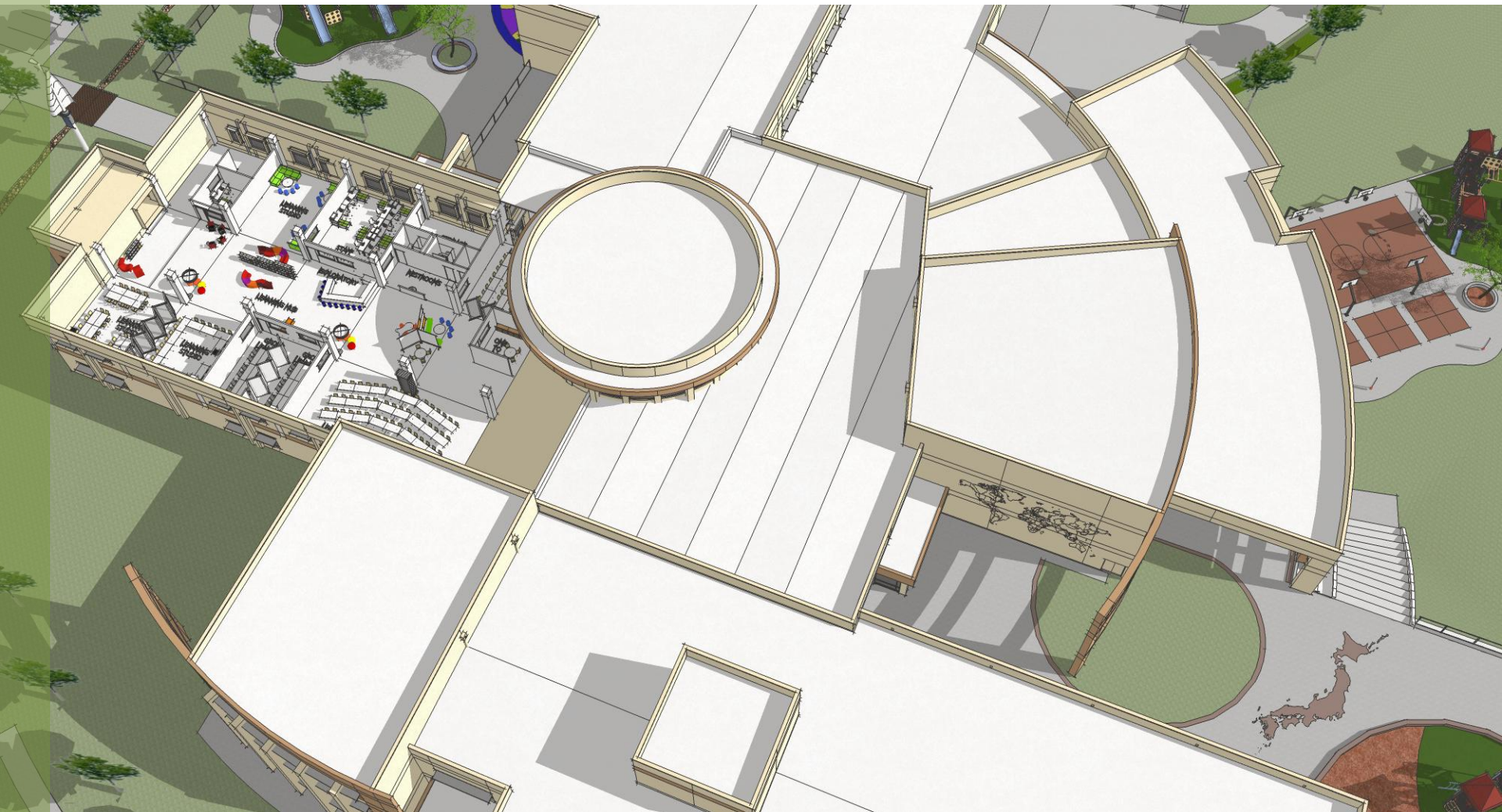


Student Support

DoDEA DIAGRAM



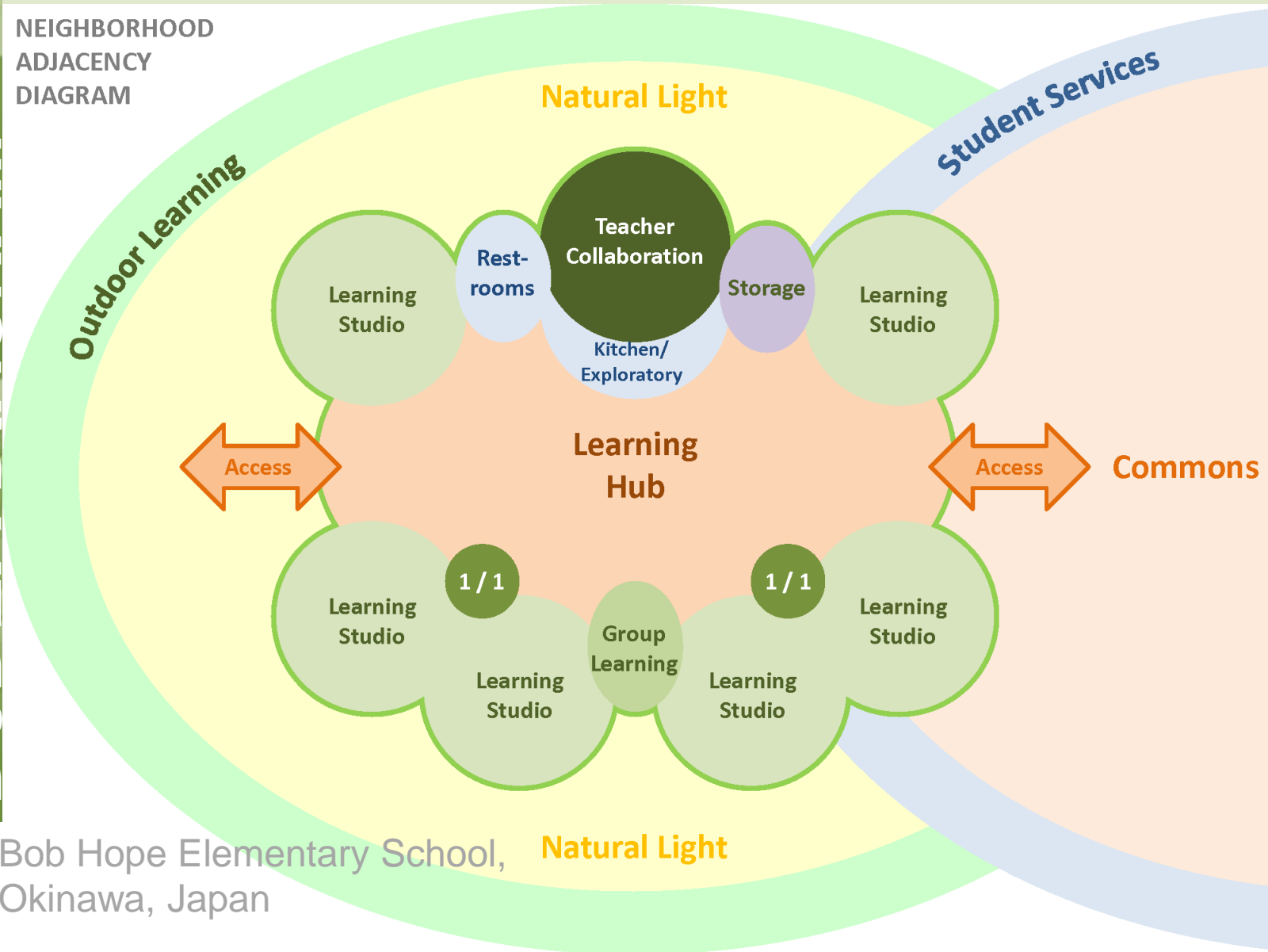
Bob Hope Elementary School,
Okinawa, Japan



Bob Hope Elementary School, Okinawa, Japan

DoDEA DIAGRAM

NEIGHBORHOOD
ADJACENCY
DIAGRAM



Bob Hope Elementary School,
Okinawa, Japan



Bob Hope Elementary School, Okinawa, Japan

DISCUSSION

How Can Facility Planners, Designers and Builders Make a Difference?

- Respect the planning and professional development time vs. facility completion and delivery time
- Use all available systems to improve the facility delivery process
 - Engagement of school/district leadership is critical
 - Make process fit the needs
 - Design
 - Pre-construction pricing, scheduling and implementation
 - Construction and commissioning

