



**International Center for  
Leadership in Education**

# Session #59: Implementing Project- Based Learning in K-12 Classrooms

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# Learning Outcomes

- **Synthesize knowledge of how to effectively plan and implement engaging, rigorous and relevant PBL units.**
- **Develop components of a PBL unit, including a Driving Question, Entry Event and Project Summary.**
- **Describe how PBL supports College and Career Readiness and the Common Core State Standards.**
- **Identify technology tools, literacy strategies and assessments appropriate for use throughout PBL.**

# Making Connections: QuickWrite

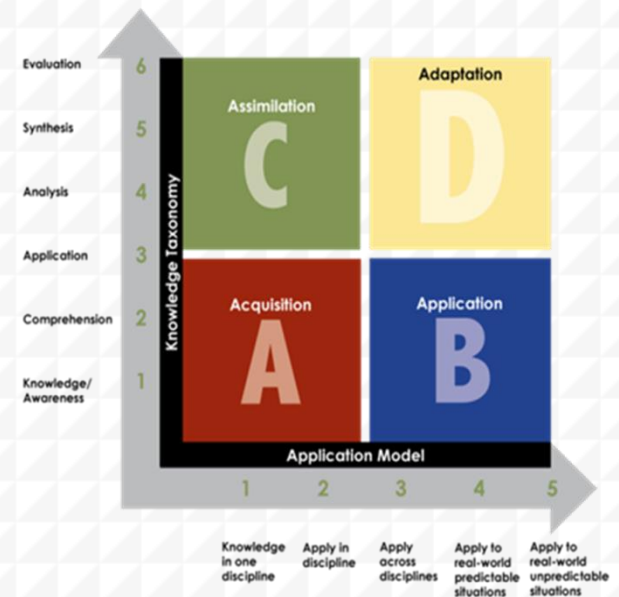
- On a scrap sheet of paper or a post-it note, be prepared to write down as many words or phrases you can think of associated with Project Based Learning.



- You have 30 seconds to write down your ideas.
- Discuss your words or phrases with an elbow partner, noting any similarities or differences.
- Be prepared to share some of your ideas out loud.

# What is Project Based Learning?

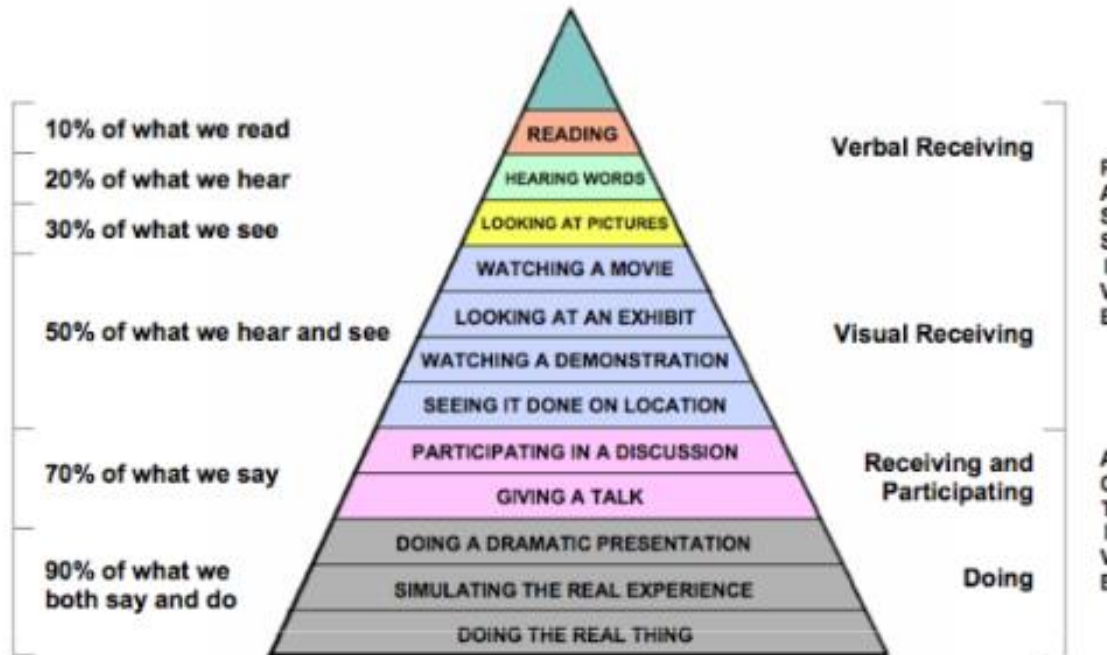
- Constructivist and Inquiry-Based approach to learning
- Focus is on the learner
- Geared toward “real world”, or relevant tasks
- Projects or problems have more than one approach or answer
- Simulates professional situations
- Teacher as coach or facilitator
- Students generally work in cooperative groups
- Students encouraged to find multiple sources of information
- Emphasis on authentic, performance-based assessment
- Emphasizes individual and collaborative problem solving
- Incorporates peer feedback and instruction



# Edgar Dale's Cone of Experience

## CONE OF LEARNING WE TEND TO REMEMBER OUR LEVEL OF INVOLVEMENT

(developed and revised by Bruce Hyland from material by Edgar Dale)



Edgar Dale, *Audio-Visual Methods in Teaching* (3<sup>rd</sup> Edition). Holt, Rinehart, and Winston (1969).

# Foundation of Project Based Learning

***“Tell me and I forget,  
show me and I remember,  
involve me and I understand.”***

**- Confucius**

# Clarifying Misconceptions

## *What makes projects different from Project-Based Learning?*

### Projects

- Content driven & product-based
- Teacher-directed
- Knowledge distributed
- Composed of a direct, or closed, project assignment
- Designed with the “average” student in mind
- Typically requires application-level learning with project production at the end of a benchmark or unit
- Usually allows only one outcome
- Summative assessment only

### Project-Based Learning

- Curriculum driven & standards-based
- Student-directed
- Knowledge seeking
- Is open-ended and process-oriented
- Poses a question or a problem that all students can answer
- Is investigative; student learning takes place throughout project development, with learning benchmarks in place
- Several outcomes may be generated
- Summative & formative assessment



# Examples: Project v. PBL

## **Project**

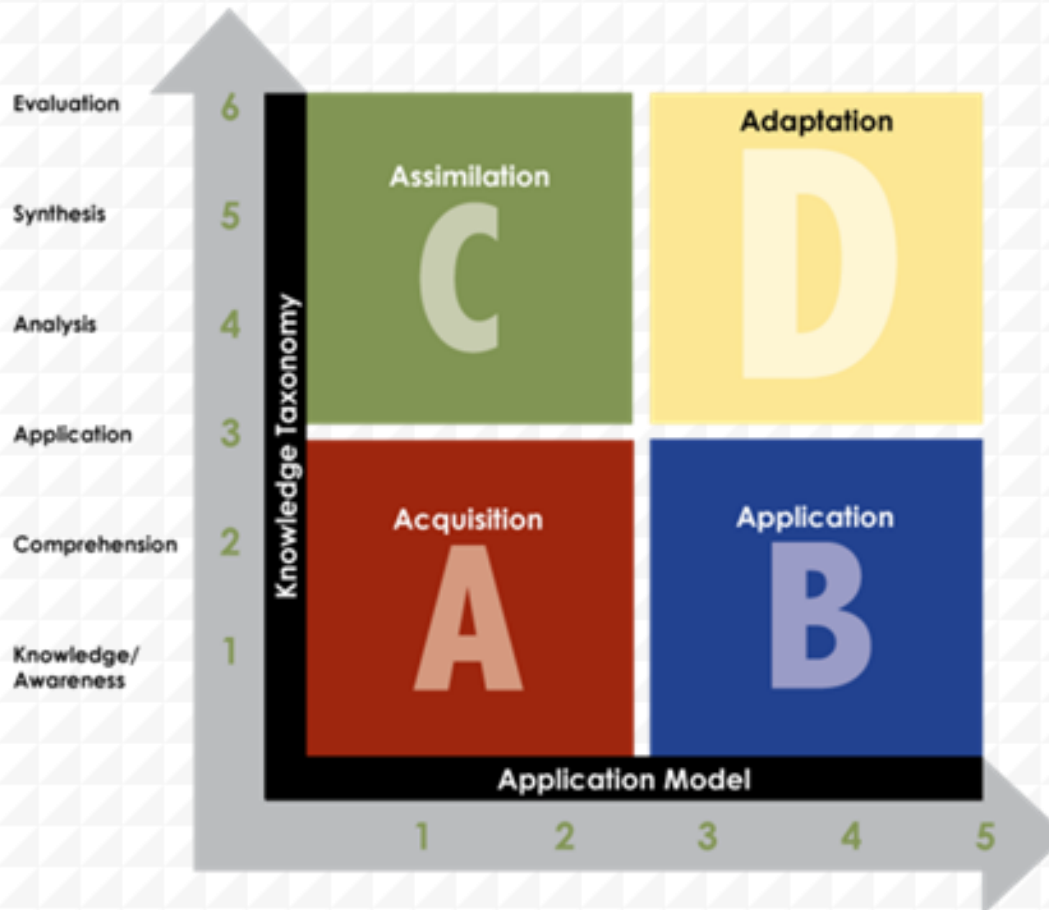
Students research and learn about aspects of advertising and then produce a brochure or short video of a new advertisement for a popular product.

## ***Project Based Learning***

*Students investigate the question, “How can we persuade tourists to come to our town?” Students work with local businesses to plan new ways of advertising to attract tourists and help the economy, while learning about persuasive writing and graphic design used in advertising. The students also work with the business leaders to develop a presentation to the Chamber of Commerce and general public to elicit support in the community for local businesses.*



# Rigor/Relevance Framework



Project Based Learning –  
**High Rigor, High Relevance**

# Rigor Means Thinking

Instruction that is ***Rigorous*** means that lessons are framed at the high end of the Knowledge Taxonomy.



EVALUATION

SYNTHESIS

ANALYSIS

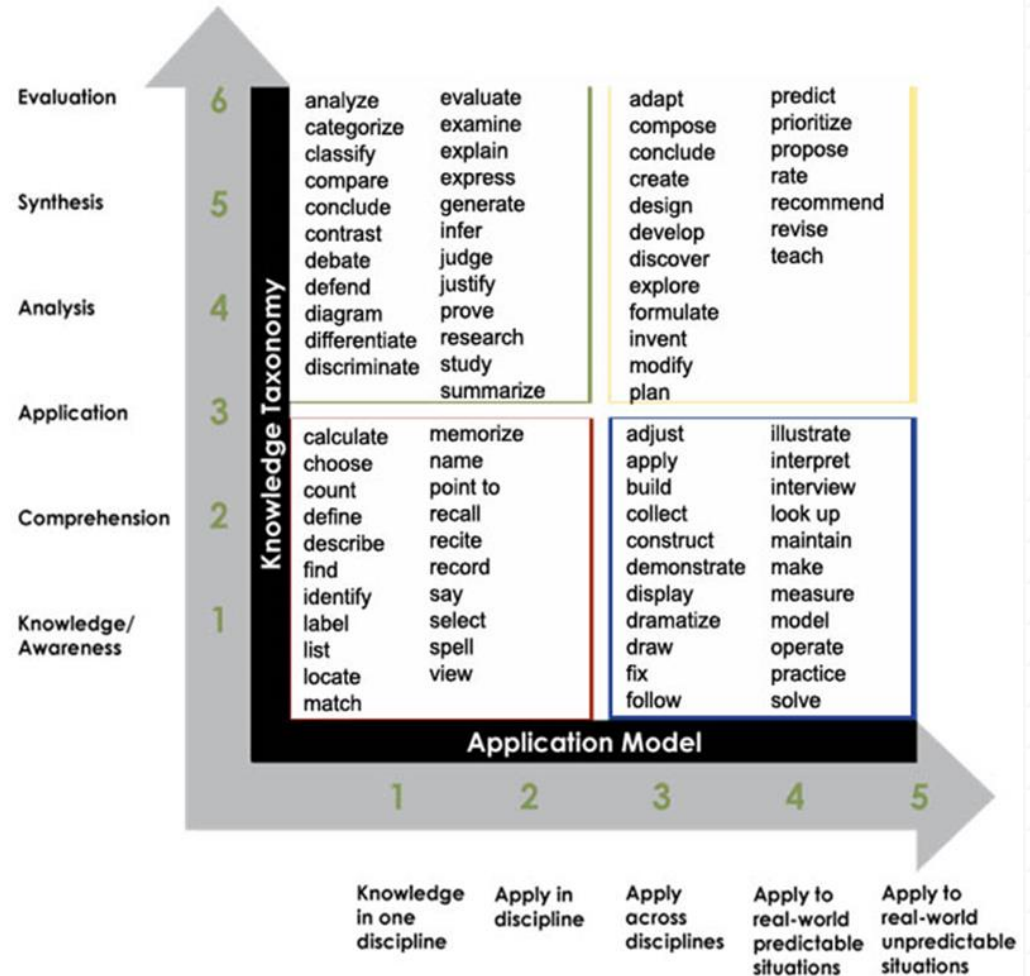
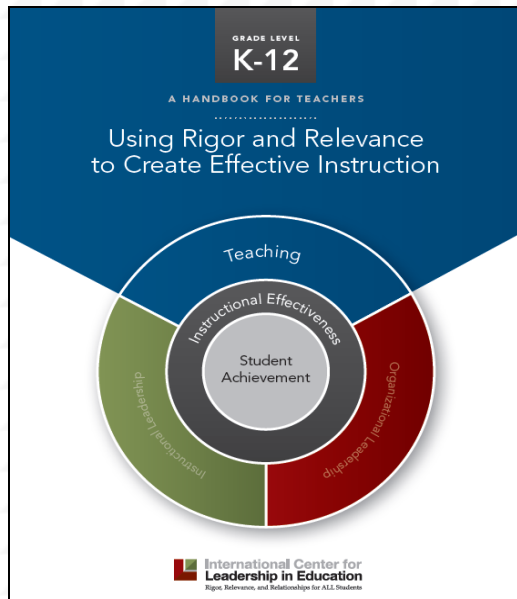
APPLICATION

COMPREHENSION

KNOWLEDGE

# Analyzing the Rigor of PBL

## Verb List by Quadrant



# Relevance

*Relevance* is the purpose of learning.



**ACQUIRE KNOWLEDGE**

**APPLY KNOWLEDGE**

**INTERDISCIPLINARY**

**REAL-WORLD PREDICTABLE**

**REAL-WORLD UNPREDICTABLE**

# Relevant PBL

A relevant learning experience asks students to ***use their knowledge to tackle real-world problems that have more than one solution.***

# Planning PBL: The Template

We will be learning about the components of this template today, as well as actively engaging in activities and strategies that will assist with planning some specific components, including the Driving Question, Entry Event and Project Summary.

The References & Recommended Resources slides at the end of this presentation will also direct you to many useful tools for you to use in the continued planning of PBL.

Project Based Learning Planning Template			
Project Title			
Driving Question			
Grade Level(s)		Subject(s)	
Teacher(s)		Duration	
Project Summary			
Priority Standards to be Assessed (ELA and/or Math CCSS, NGSS, etc.)			
Related Standards (standards learned, but not necessarily assessed)			
21 <sup>st</sup> Century Skills			
Instructional Strategies (Differentiation, ELL, Oral Language, etc.)			
Pre-Assessment			
Student Grouping			
Entry Event (engaging activity to initiate inquiry)			
Culminating Products/Outcomes			
Group Responsibilities		Individual Responsibilities	
•		•	
Audience for Student Presentations			
Resources & References (including websites)	Resources: • References: •		
On-Going Assessments (Group, Individual and/or Whole Class) Aligned with Priority Standards			
Formative Assessment(s)	Summative Assessment(s)	Student-Driven Assessment(s)	
•	•	•	
Criteria for Scoring Guide (see attached)			

# Planning PBL: The Process

Project Based Learning Planning Template	
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Group Responsibilities	Individual Responsibilities
Audience for Student Presentations	
Resources & References (including websites)	Resources: References:
On-Going Assessments (Group, Individual and/or Whole Class) Aligned with Priority Standards	
Formative Assessment(s)	Summative Assessment(s)
Criteria for Scoring Guide (see attached)	Student-Driven Assessment(s)

- **Logistics**

Project Title, Grade Level(s), Subject(s), Teacher(s) & Duration

- **Alignment to Standards**

Interdisciplinary Focus; includes priority & related standards (ELA & Math CCSS, NGSS, etc.) and 21<sup>st</sup> Century Skills

- **Devise & Revise the Driving Question**

Open-ended; addresses a real-world issue; engages the participants

- **Develop a Project Summary**

Supports the Driving Question; identifies the purpose, and the intended goals and outcomes; demonstrates rigor and relevance



# Planning PBL: The Process

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	Student-Driven Assessment(s)
Criteria for Scoring Guide (see attached)	

- **Develop the Assessment(s)**

Formative and summative; aligned to priority standards; Rubrics/Scoring Guides to be developed and used

- **Draft the Stages and Outcomes of the Project**

Timelines; students' responsibilities; grouping of students; determine resources needed

- **Facilitate the PBL Process**

Plan the Entry Event; determine instructional strategies; scaffold students as needed; revise the plan as needed with students; arrange for experts or mentors; elicit student questioning; support collaboration; arrange for an appropriate audience

# Characteristics of Driving Questions



A PBL experience should be established around a driving question, which:

- Creates interest and challenge (***Rigor***)
- Connects the work involved with real-world experiences (***Relevance***)
- Fosters independence and interdependence (***Relationships***)
- Initiates, focuses and engages inquiry
- Clearly communicates the purpose, or main focus, of the project
- Is framed according to standards
- Acts as a guide for project planning

# Identifying High-Quality Driving Questions

## Defining a Driving Question

**What are the major causes of the Civil War?**

**Is global warming fact or fiction?**

**Does playing video games cause children to act violent?**

**Is Democracy the best form of government?**

**What is the purpose for school bell schedules?**

**What is the right balance between security and freedom?**

**In what ways do animals become endangered?**

**What is the process for financing a home?**

## Refining a Driving Question

# Develop a Driving Question

Using the Project Based Learning Planning Template provided, develop a Driving Question appropriate for your grade level, content or specialty.



# Driving Question Frames

- Can we **design** a \_\_\_\_\_ for/to do \_\_\_\_\_?
- How can we **create** a \_\_\_\_\_ for \_\_\_\_\_ to **demonstrate** \_\_\_\_\_?
- How can we **convince/persuade** \_\_\_\_\_ that/to \_\_\_\_\_?
- Can we **adapt** \_\_\_\_\_ to do \_\_\_\_\_?

# PBL Entry Event

The entry event is an engaging activity that should initiate student inquiry. It should illicit students' interest, excitement and motivation for the PBL topic.

Along with the driving question, the entry event is a critical component for PBL. The entry event should address students' "need or want to know", as this will increase the likelihood of students being fully engaged in the learning process.

***Let's look at some possible ideas for PBL entry events that can engage students, initiate inquiry and that are relevant...***

# Entry Events: High or Low Rigor?

Examining the Level of Knowledge	H or L
High school students read and discuss a mock crime report and view sketches of the details of the mock crime scene they are going to investigate further.	<input type="checkbox"/>
Middle school students listen to a guest speaker discuss his/her experience with career counseling before investigating careers.	<input type="checkbox"/>
Secondary students view educationally appropriate clips from several documentaries about the food industry before exploring global health and nutrition issues.	<input type="checkbox"/>
Elementary students develop and administer a survey about an important community issue to help narrow the focus of a project addressing the issue.	<input type="checkbox"/>
Students are required to complete a series of reproducible or teacher-made worksheets to get familiar with a topic they will be studying.	<input type="checkbox"/>
Secondary students explore and debate the legitimacy of a variety of false and sensationalized resources to initiate inquiry into the power of the media.	<input type="checkbox"/>



# Example PBL Entry Event

## Step Inside Routine

**Step 1:** introduce an image, story, video or question

**Step 2:** ask students to take the perspective (or step inside) a person or thing in the image

**Step 3:** ask students to list what they see, then step inside and list what the person in the image might believe, what they care about and what they wonder

**Step 4:** have students make their thinking visible and public (chart or poster paper), then share with others

# Making it Visual

## Step Inside Routine

My perspective about...



see



believe



care



wonder

# What's Going On in This Picture?

The New York Times has a wonderful resource, [The Learning Network: Teaching and Learning with the New York Times](#), that could be used for PBL Entry Events.

# Let's Reflect...

## Step Inside Routine

My perspective about...



see



believe



care



wonder

# Describe an Entry Event

Using the Project Based Learning Planning Template provided, jot down some ideas for an Entry Event that aligns with the Driving Question you developed appropriate for your grade level, content or specialty.

# Rigor & Relevance in PBL

## Chunk, Chew & Check

A PBL unit will also require a Project Summary. Let's look at a few examples.

**Chunk**: Read a PBL unit Project Summary.

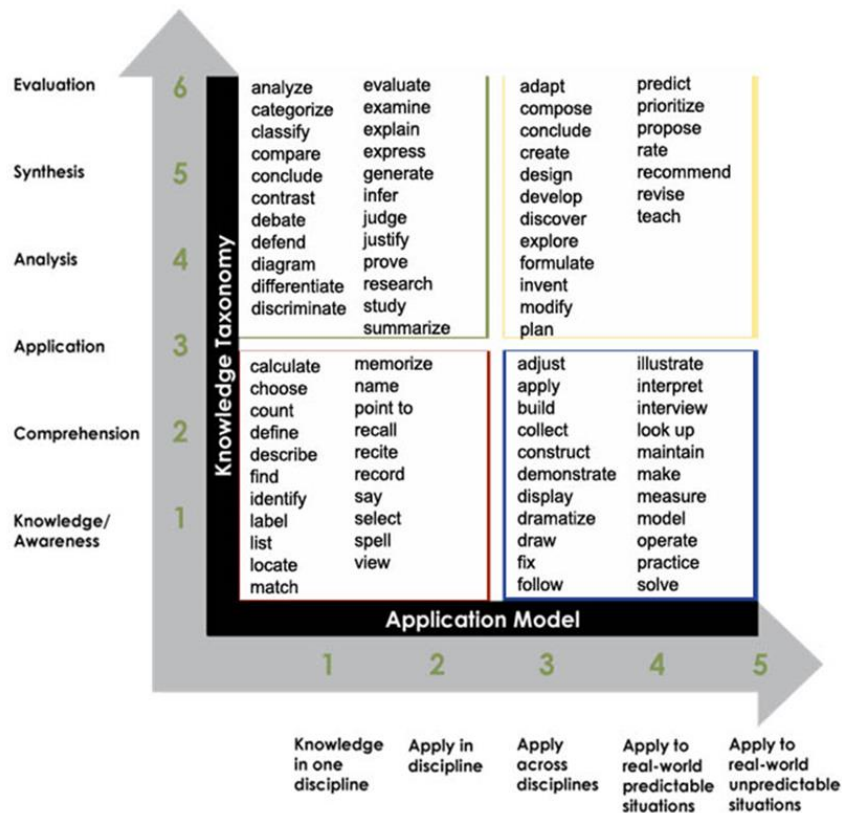
**Chew**: Take time to think about what makes the Project Summary rigorous and relevant.

**Check**: Turn to a partner and share what you found to be rigorous and relevant about the Project Summary. Be sure to give supporting evidence.

Students research and estimate the costs associated with designing a dream home and plan a personal budget. They investigate and compare and contrast the types and costs of various home furnishings using catalogs, magazines and on-line stores that stock furniture. Based on building codes and their budget, they individually develop a blueprint of a dream home with all perimeter and area calculations included. They then analyze the characteristics of different real estate ads and write a real estate advertisement for their dream home, enticing other students, teachers and staff to decide which home they would "purchase", with all proceeds being contributed to a charitable housing organization.

# Draft a Project Summary

## Verb List by Quadrant

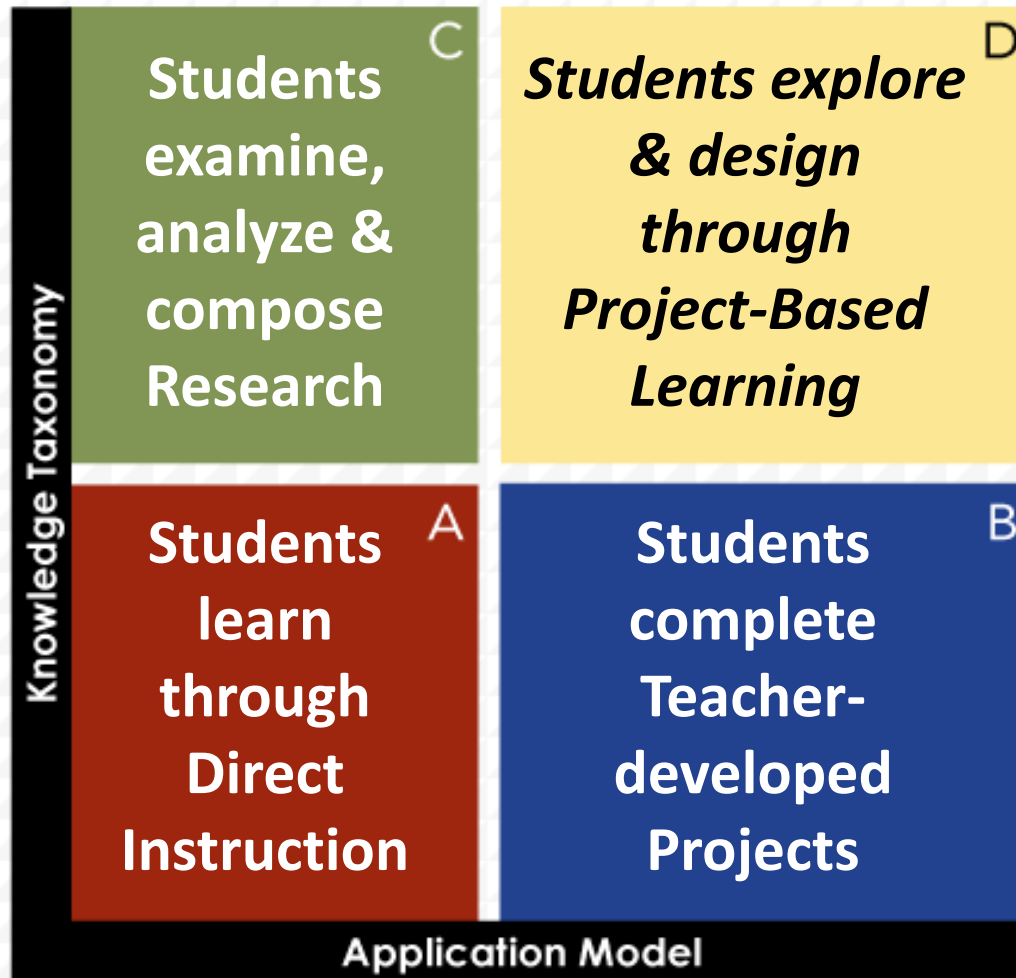


Using the Project Based Learning Planning Template provided, begin drafting the Project Summary for your PBL unit.

Reflect on the level of rigor and relevance of this section by completing a verb analysis.



# PBL & the R/R Framework



# College & Career Readiness

**Students who are college and career ready are able to:**

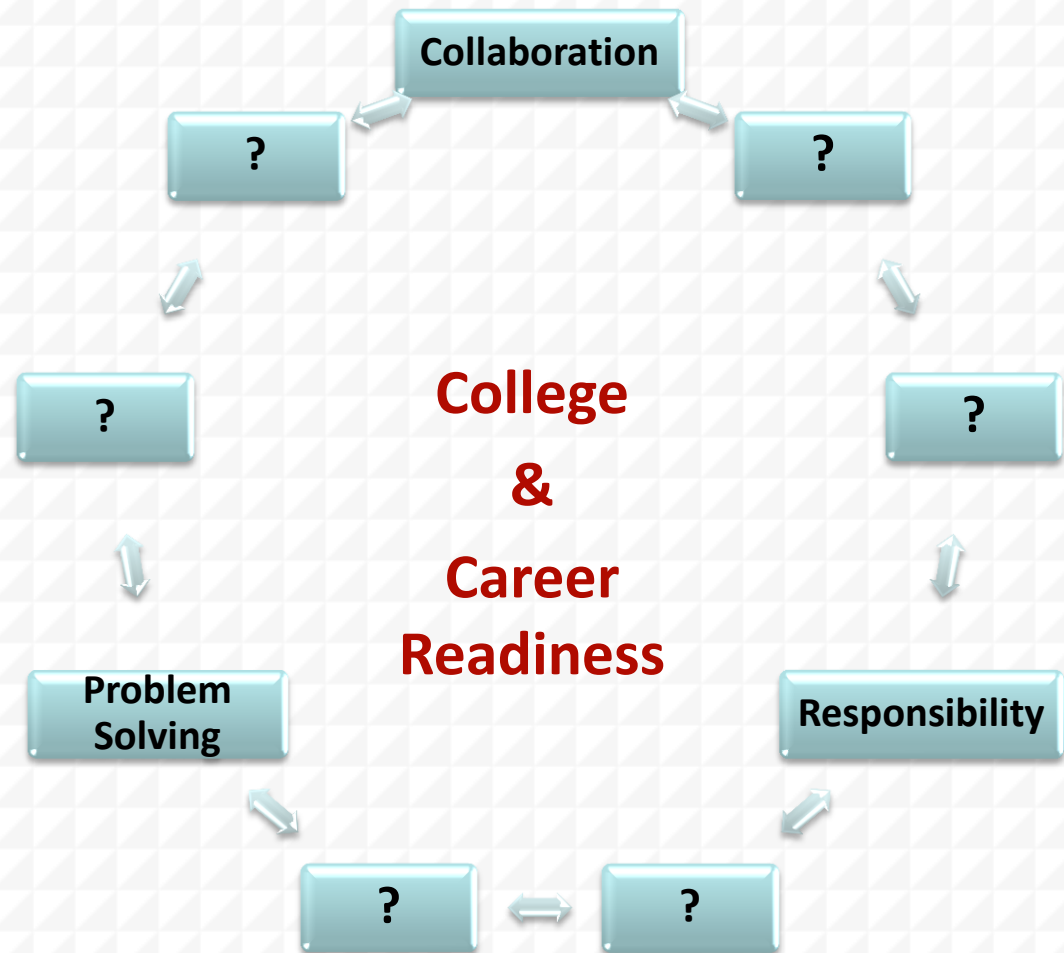
- Demonstrate independence
- Build strong content knowledge
- Respond to the varying demands of audience, task, purpose and discipline
- Comprehend as well as critique
- Value evidence
- Use technology and digital media strategically and capably
- Understand other perspectives and cultures

Common Core State Standards Initiative

<http://www.corestandards.org/>

# 21<sup>st</sup> Century Skills & PBL

*What do you consider to be some of the 21<sup>st</sup> Century Skills that PBL addresses that we could expand this graphic with?*



# Making Connections

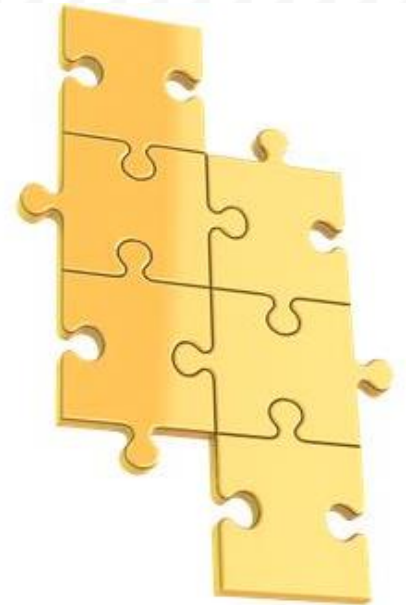
Reflect on the concepts of college and career readiness and how they connect with the 21<sup>st</sup> Century Skills.

Take a minute and **THINK** about your response to the following question: *How does PBL help prepare students for 21<sup>st</sup> Century careers?*

On a scrap sheet of paper or post-it note, **WRITE** down your ideas and responses. Be prepared to later share aloud.

**PAIR** with a someone and explain your responses to the question.

Be prepared to **SHARE** what you or your partner discussed.



# Some Key Points in ELA CCSS Related to PBL



## ELA Writing

“Research—both short, focused projects (such as those commonly required in the workplace) and longer term in depth research —is emphasized throughout the standards but most prominently in the writing strand since a written analysis and presentation of findings is so often critical.”



## ELA Speaking & Listening

“The standards require that students gain, evaluate, and present increasingly complex information, ideas, and evidence through listening and speaking as well as through media.”

# A Few Best-Fit Literacy Strategies

<b>Explicit vocabulary instruction (academic &amp; domain-specific vocabulary, word walls, etc.)</b>	<b>Varied methods for student communication &amp; collaboration</b>	<b>Use diverse information sources (photographs, illustrations, video clips, movies, audio, etc.)</b>
<b>Chunk, Chew &amp; Check (also known as 10-2, 5-2)</b>	<b>Expert Groups</b>	<b>Graphic organizers, concept mapping, brainstorming</b>
<b>Debate, Discussion, Role-Play, etc.</b>	<b>QuickWrite or QuickSpeak</b>	<b>Varied groupings, such as Jigsaw</b>
<b>Make connections across curriculum; interdisciplinary studies</b>	<b>Paraphrase; use synonyms, antonyms, cognates</b>	<b>Charts (observation, inquiry, pictorial, comparative)</b>
<b>Develop academic language (oral and written)</b>	<b>Incorporate note-taking skills</b>	<b>Provide sentence and question frames</b>

# Some Key Points in Math CCSS & NGSS Related to PBL

## Mathematics

“The high school standards call on students to practice applying mathematical ways of thinking to real world issues and challenges; they prepare students to think and reason mathematically.”



Common Core State Standards Initiative  
<http://www.corestandards.org/>

## Next Generation Science Standards, Framework Dimension 1: Practices

“As in all inquiry-based approaches to science teaching, our expectation is that students will themselves engage in the practices and not merely learn about them secondhand. Students cannot comprehend scientific practices, nor fully appreciate the nature of scientific knowledge itself, without directly experiencing those practices for themselves.”



# Technology & PBL

“Just as media and technology are integrated in school and life in the twenty-first century, skills related to media use (both critical analysis and production of media) are integrated throughout the standards.”

Common Core State Standards Initiative

<http://www.corestandards.org/>



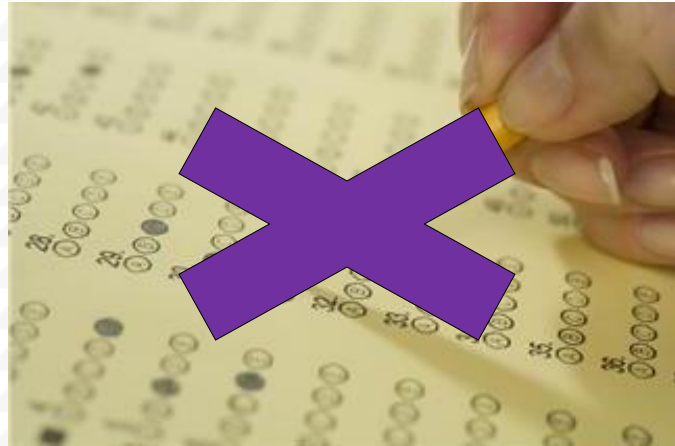
***What kinds of technological and digital resources do you currently have access to for instruction and student learning?***

***How can you currently use the technological and digital resources that are available to support Project Based Learning in your classroom?***

# PBL Assessment

## PBL Assessment:

- Should have a balance of both *formative* and *summative* assessments
- Must be aligned to standards (CCSS, NGSS, etc.)
- Might be different for each student or for groups of students
- Should be on-going, and student-driven as much as possible



# Assessment Types

## Formative

Criteria and goal setting  
with students

Pre-testing

Observations and  
record keeping

Questioning strategies

Self and peer assessment

Student record keeping or  
journaling

## Summative

District benchmark or  
interim assessments

End-of-unit or chapter  
tests

Term papers

Projects

Quarter, trimester or  
semester exams

Report cards/grades

*Scoring Guides  
& Rubrics*

*Homework*

*Portfolios*

# Intentional Planning

Intentional planning for Project Based Learning is the first step toward achieving rigorous and relevant learning experiences.

Empower students in this process as much as possible.

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Formative Assessment(s)	Summative Assessment(s)	Student-Driven Assessment(s)
•	•	•
Criteria for Scoring Guide <i>(see attached)</i>		

# 3-2-1 Reflection

Take a moment to reflect on Project Based Learning and write down the following:

- **3** things you learned about PBL
- **2** things you need to plan and implement PBL
- **1** concern or question you still have to ponder

# References & Recommended Resources

Assessment and Teaching of 21<sup>st</sup> Century Skills. *What Are 21st-Century Skills?* Copyright © ATC21S 2009-2014. All Rights Reserved. <http://atc21s.org/index.php/about/what-are-21st-century-skills/>

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Common Core State Standards. ©2014 Common Core State Standards Initiative. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved. <http://www.corestandards.org/>

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Microsoft Office. Clip Art, Photos, and Animations. © 2014 Microsoft Corporation. <http://office.microsoft.com>

Next Generation Science Standards. © 2011, 2012, 2013, 2014 Achieve, Inc. All rights reserved. Next Generation Science Standards and the associated logo are trademarks of Achieve, Inc.4 <http://www.nextgenscience.org/>

Partnership for 21<sup>st</sup> Century Skills. P21 Content on this website is licensed under a Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Unported License. <http://p21.org/>

Problem-Based Learning at the University of Delaware. University of Delaware. Institute for Transforming Undergraduate Education. <http://www.udel.edu/inst/>

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West Virginia Department of Education: Teach21 Project Based Learning <http://wveis.k12.wv.us/teach21/public/project/Mainmenu.cfm>



# THANK YOU!


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# Session Feedback

Your feedback is important to us!

Complete the print version or go to the MSC 2014 app.



 **International Center for Leadership in Education**  
2014 Model Schools Conference Session Evaluation Form  
PLEASE DO NOT FOLD

Session Number  Day  Monday 06/23  Tuesday 06/24  Wednesday 06/25

Session Title

Presenter

Your feedback about the presentation is important to us. Please take a few minutes to answer the following questions.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. This presentation was beneficial to me.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The speaker was effective.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The content was relevant and helpful.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I will be able to use what I learned in my work.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The speaker engaged the audience.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. What were the best aspects of the presentation?

7. What were the least effective aspects of the presentation?

Continued on Back