Project Based Learning for College and Career Readiness

Presented by La Villa ISD
December 2, 2010
Presentation Agenda

• What is Project Based Learning?
• TX College & Career Readiness Standards
• Training Resources (Folder Content)
• Culminating Project Ideas
• La Villa’s PBL Calendar of Events
• La Villa’s College & Career Scholars Program
What is Project-Based Learning?

Project Based Learning is an instructional approach built upon authentic learning activities that engage student interest and motivation.
What is Project-Based Learning?

These activities are designed to answer a question or solve a problem and generally reflect the types of learning and work people do in the everyday world outside the classroom.
Project Based Learning teaches students 21st century skills as well as content.

These skills include:
* communication and presentation skills,
* organization and time management skills,
* research and inquiry skills,
* self-assessment and reflection skills, and
* group participation and leadership skills.
Texas College and Career Readiness Standards

“Generally, the more standards a student can demonstrate successfully, the more likely it is that he or she will be college ready.”

- English/Language Arts Standards
- Mathematics Standards
- Science Standards
- Social Studies Standards
- Cross-Disciplinary Standards
# Texas College & Career Readiness Standards

## Texas College & Career Readiness Standards

### ELA
- **I. Writing**
  - Compose text that demonstrates clear focus, the logical development of ideas in well-organized paragraphs, and the use of appropriate language that advances the author’s purpose.
- **II. Reading**
  - Locate textual information, draw complex inferences, and analyze and evaluate the information.
  - Vocabulary use.
  - Describe, analyze, and evaluate information in texts.
- **III. Speaking**
  - Germanic and European literature.
  - Speaking styles.
- **IV. Listening**
  - Apply listening skills in lectures, discussions, conversations, term projects, presentations, interviews.
- **V. Research**
  - Formulate topic & question.
  - Select information from a variety of sources.
  - Evaluate & design a document.
- **VI. Statistical Reasoning**
  - Data collection.
  - Describe, analyze, interpret, & draw conclusions from data.
- **VII. Functions**
  - Function & applications of functions & functions.
  - Analysis of functions.
  - Model real-world situations with functions.
- **VIII. Problem Solving & Reasoning**
  - Mathematical problem solving.
  - Logical reasoning.
  - Real-world problem solving.
- **IX. Communication & Representation**
  - Language, icons, & symbols.
  - Interpretation of math work.
  - Presentation and representation in math.
- **X. Connections**
  - Connections among the strands of math.
  - Connections of math to nature, real-world situations, and everyday life.

### Math
- **I. Numerical Reasoning**
  - Numerical representation.
  - Number sense & concepts.
- **II. Algebraic Reasoning**
  - Expressions & equations.
  - Manipulating expressions.
  - Solving equations & inequalities.
  - Representations.
- **III. Geometric Reasoning**
  - Figures & properties.
  - Transformations & symmetry.
  - Congruence & similarity.
  - Size & similarity.
- **IV. Measurement Reasoning**
  - Physical & natural attributes.
  - Systems of measurement.
  - Geometry & algebra.
  - Statistics & probability.
- **V. Probabilistic Reasoning**
  - Counting principles.
  - Combinations & interpretations of probabilities.
- **VI. Statistical Reasoning**
  - Data collection.
  - Describe, analyze, interpret, & draw conclusions from data.
- **VII. Functions**
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### Science
- **I. Biology**
  - Structure & function of cells.
  - Biochemistry.
  - Evolution & populations.
  - Molecular genetics & heredity.
  - Classification & taxonomy.
  - Systems & ecosystems.
  - Ecology.
- **II. Chemistry**
  - Matter & its properties.
  - Atomic structure.
  - Periodic table.
  - Chemical bonding.
  - Chemical reaction.
  - Chemical nomenclature.
  - The mole & stoichiometry.
  - Thermodynamics.
  - Oxidation, reduction.
  - Nuclear chemistry.
- **III. Physics**
  - Matter.
  - Vectors.
  - Forces & motion.
  - Mechanical energy.
  - Rotational systems.
  - Electromagnetism.
  - Waves.
  - Optics.
- **IV. Earth & Space Sciences**
  - Earth systems.
  - Sun, Earth, & Moon systems.
  - Solar system.
  - Orbits & structure of the universe.
  - Planetary systems.
  - Energy transfer within & among systems.
- **V. Environmental Science**
  - Earth systems.
  - Energy.
  - Populations.
  - Economics & politics.
  - Human practices & their impacts.

### Social Studies
- **I. Interrelated Disciplines & Skills**
  - Spatial analysis of physical & cultural processes that shape the human experience.
  - Periodization & chronological reasoning.
  - Change & political ideologies, constitutions, & political behavior.
  - Change & community of groups, organizations, institutions, & their environment.
  - Problem solving & decision making skills.
- **II. Diverse Human Perspectives & Experiences**
  - Multicultural societies.
  - Factors that influence personal & group identities (race, ethnicity, gender, nationality, institutional affiliations, & core values).
  - Historical analysis.
  - Social studies.
  - Critical thinking.
  - Research & evaluation.
- **III. Interdependence of Global Communities**
  - Spatial understanding of global, regional, national, & local communities.
  - Global analysis.
- **IV. Analysis, Synthesis, & Evaluation of Information**
  - Critical examination of texts, images, & other sources of information.
  - Research & methods.
  - Critical thinking.
  - Decision making & evaluation.

### Cross Disciplinary Standards
- **I. Key Cognitive Skills**
  - Instructed curiosity.
  - Reasoning.
  - Problem solving.
  - Academic literacy.
  - Work habits.
  - Academic integrity.
- **II. Foundational skills**
  - Reading across the curriculum.
  - Writing across the curriculum.
  - Research across the curriculum.
  - Use of data.
  - Technology.

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**Cross Disciplinary Standards**
Cross-Disciplinary Standards

**KEY COGNITIVE SKILLS**
- Intellectual Curiosity
- Reasoning
- Problem Solving
- Academic Behavior
- Work Habits
- Academic Integrity

**FOUNDATIONAL SKILLS**
- Reading across the curriculum
- Writing across the curriculum
- Research across the curriculum
- Use of Data
- Technology
Why Project Based Learning?

New, Different Skill Demands…21st Century jobs require more educated workers with the ability to respond flexibly to complex problems, communicate effectively, manage information, work in teams, and produce new knowledge.

(Partnership for 21st Century Skills, 2008)
### Characteristics of Authentic Learning Activities

1. **Real-world relevance**: Activities match as nearly as possible the real-world tasks of professionals in practice rather than de-contextualized or classroom-based tasks.

2. **Ill-defined**: Activities require students to define the tasks and subtasks needed to complete the activity.

3. **Complex, sustained tasks**: Activities are completed in days, weeks, and months rather than hours, and are problem-solving tasks involving the use of intellectual resources.

### Project Based Learning

**Guide for Designing Your Projects**

**PBL Planning Resources**

- **Project Planning Form**: This form can be used to plan your project from beginning to end.
- **Assessment Tools - Grading Rubrics**: Examples of the best guides to designing rubrics for your project.
- **Sample Rubrics**: Use examples of complete rubrics.
- **Project Management Tools**: These guidelines provide specific tools for grouping and managing students.

### Designing Your Project

**Principle 1: Begin with the End in Mind**

1. Define the project's goals and objectives.
2. Establish the project's purpose.
3. Identify the project's stakeholders.

**Principle 2: Craft the driving question**

1. Develop a question that guides the project.
2. Ensure the question is specific, measurable, achievable, relevant, and time-bound (SMART).

### CROSS-DISCIPLINARY STANDARDS

**Foundations of Learning and Knowing**

The goal of the Cross-Disciplinary Standards is to provide a framework for learning that integrates knowledge and skills across disciplines and reaches beyond traditional subject matter differences. The standards are designed to enable students to engage in deep levels of thinking across a variety of subject areas. They support students in preparing for the workforce by ensuring that all students are college and career ready.

**Understanding and Using**

**Cross-Disciplinary Standards**

- **Key Cognitive Skills and Tools**: The Key Cognitive Skills and Tools are designed to foster critical thinking and problem-solving skills in students.
- **Foundations of Learning and Knowing**: The foundational knowledge and skills that are essential for students to succeed in higher education and the workforce.
- **Characteristics of Authentic Learning Activities**: A list of characteristics that define authentic learning activities.
- **Project Based Learning Guide**: A guide for designing project-based learning activities.
- **Assessment Tools - Grading Rubrics**: Examples of grading rubrics for project-based learning.
- **PBL Planning Resources**: Resources for planning project-based learning.

### 21st Century Student Outcomes

- **Cognitive Skills**
- **Foundations of Learning and Knowing**
- **Understanding and Using**

**Learning and Transdisciplinary Skills**

- **Collaboration and Communication Skills**
- **Critical Thinking and Problem Solving**
- **Informational Technology Skills**
- **Interdisciplinary Knowledge and Skills**

**Learning and Instructional Skills**

- **Assessment and Evaluation**
- **Cooperative Learning and Problem Solving**
- **Critical Thinking and Problem Solving**
- **Informational Technology Skills**
- **Interdisciplinary Knowledge and Skills**

**Learning and Instructional Strategies**

- **Cooperative Learning and Problem Solving**
- **Critical Thinking and Problem Solving**
- **Informational Technology Skills**
- **Interdisciplinary Knowledge and Skills**

**Learning and Assessment Tools**

- **Rubrics**
- **Assessment Instruments**
- **Technology Tools**

**Learning and Instructional Resources**

- **Textbooks and Monographs**
- **Journals and Periodicals**
- **Online Resources**
- **Software and Hardware**

**Learning and Instructional Strategies**

- **Cooperative Learning and Problem Solving**
- **Critical Thinking and Problem Solving**
- **Informational Technology Skills**
- **Interdisciplinary Knowledge and Skills**
1st critical feature in successful project-based instruction in K-12 classrooms.

Help students develop a "driving question" that is anchored in a real-world problem and ideally uses multiple content areas:

- ELA- writing, grammar use …
- Math-problem solving, applied math …
- Science-scientific method …
- Social Studies-historic, economic, societal …
- Career-interest, survey, research …
2nd critical feature in successful project-based instruction in K-12 classrooms.

Provide opportunities for students to make active investigations that enable them to:

• learn concepts
• apply information, and
• represent their knowledge in creative ways.
3rd critical feature in successful project-based instruction in K-12 classrooms.

Encourage collaboration among students, teachers, and others in the community so that knowledge can be shared and distributed between the members of the "learning community".

- Cooperative work
- Work with mentors
- Interviews
- Display projects
- Presentations on projects
Encourage the use of cognitive tools in learning environments that support students in the representation of their ideas:

- Use of computer-based laboratories, hypermedia, telecommunications
- Researching
- Graphing applications
- Communication skill development
PBL encourages the development of a Culminating Products

A **culminating product** is due at the end of the project and often represents a blend of content knowledge and skills that give students an opportunity to demonstrate learning across a variety of topics and skills. Culminating products are often presented during significant, high-stakes occasions involving audiences beyond the classroom, thus encouraging students to go beyond "show-and-tell" and to demonstrate in-depth learning. Examples of culminating products include:
**Research Papers:** A culminating product can be a traditional essay or research paper.

**Reports:** Students investigating a major issue in a project may conduct an analysis or do research on an important societal or community question. This can culminate in a report to the community or to the school.

**Multimedia Presentations:** Using digital media, students can create an electronic presentation that can be included in an on-line portfolio or shown at an exhibition.

**Presentations Within the School:** Presentations or demonstrations to school-wide assemblies or other classrooms are effective environments for increasing the quality of student performances. If it is possible, you should avoid having students present only to members of their own class.

**Exhibitions Outside of School:** Presentations to parents and community members can consist of oral presentations or presentation of an art or media project. Learn more about exhibitions here.
Traditional Tri-fold

CHEMICAL REACTIONS

Hypothesis

Chemicals Used

Procedures
Step 1: xxxxxxxxxxxxxxxxx
Step 2: xxxxxxxxxxxxxxxxx
Step 3: xxxxxxxxxxxxxxxxx
Step 4: xxxxxxxxxxxxxxxxx

Paper on Chemical Reactions
By Johnny Garcia

17
History in A Box Project

Find a creative way to display the information that is not expensive or takes up a lot of space.
Career in a Can Project

My Career as a Firefighter
by Johnny Garcia
Decorative Thematic Book with Creative Short Story or Poem in Art Covered Frame

Monkeys in My Tree
A Short Story by Mary Smith

I love Monkeys
A Poem by Johnny Garcia
Binder with Information

Binder is decorated to support theme of project

PICTURES
RESEARCH PAPER ON TOPIC
JOURNAL
POEMS
SHORT STORIES
A Prime Number is a positive integer divisible by no integers other than unity and itself.

Example: 2, 3, 5, 7, 11, etc.

Twin Primes

A pair of prime numbers that differ by 2 (successive odd numbers that are both Prime numbers).

Examples: (3,5), (5,7), (11,13), ...

It is not known whether the set of twin prime numbers ends or not.

Co-primes or Relatively prime numbers

A pair of numbers not having any common factors other than 1 or -1. (Or alternatively their greatest common factor is 1 or -1)

Example: 15 and 28 are co-prime, because the factors of 15 (1,3,5,15), and the factors of 28 (1,2,4,7,14,28) are not in common (except for 1).
La Villa ISD

Conducted Best Practice in October and developed a district-wide calendar of events:

- College & Career Project– Nov. 23rd
- Writing Skills w/Artwork Project- Dec. 14th
- Math Project – Jan. 18th
- Social Studies Project– Feb. 15th
- Science Project- April 12th
- Best of Show Academic Fair – May 27th

Raised money for student scholarships that were distributed at the Best of Show Academic Fair.
PBL Scholarships

$1000 total was distributed to the top winners

1\textsuperscript{st} Place - $100.00
2\textsuperscript{nd} Place - $75.00
3\textsuperscript{rd} Place - $25.00
La Villa ISD
Kinder- 12th Grade
C&C Scholar Guidebook
2010-11
This K-12th grade guidebook identifies all activities and projects students must complete at each grade level to be considered College & Career Scholars.

**Cross Disciplinary Activities:**
Opportunities for developing reading skills, leadership skills, and college prep skills will be provided at all appropriate grade levels. Resources for student use will be made available and teachers will provide guidance for students to develop the critical skills that will lead to successful transition into college and a career.

**Readiness Standard Activities:**
Students will have the opportunities to apply career interests, reading, writing, math, science, and social studies concepts in relevant and applicable projects that emphasize the need for this knowledge in future college and career.

**Parental Support Activities:**
Parents will also have the opportunity to attend educational workshops that focus on their roles and responsibilities in preparing their children for college and future employment.

**Special Recognition:**
Students that successfully accomplish the grade level standards will be recognized annually as College & Career Scholars.

80 pts = College & Career Scholar
100 pts = College & Career Gold Scholar

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**Kinder College & Career Readiness Guidebook**

**Cross Disciplinary Activities: (30 pts)**
- **Accelerated Reading** (30 AR pts = 10 Scholars pts)
- **Leadership** – ACE, Club (10 pts)
- **Career/College Day - Presentation** (10 pts)

**Readiness Standard Activities: (50 pts)**
Completed project as assigned by teacher
- **Career- Project Based Learning** (10 pts)
- **ELA Project Base Learning** (10 pts)
- **Math Project Based Learning** (10 pts)
- **Science Project Based Learning** (10 pts)
- **Social Studies- Project Based Learning** (10 pts)

**Parental Support Activities: (20 pts)**
- **Parent(s) attended Workshop (Date) ____________(10 pts)
- **Parent(s) attend Workshop (Date) __________(10 pts)

Total Points Earned
80 pts = College & Career Scholar
100 pts = College & Career Gold Scholar
Parental Involvement is critical!

La Villa Independent School District
Parent / Student College Summit
October 16, 2010

Planting the Seeds for College Success

Program Agenda

Parent Involvement = Student Success

Why Get Involved?
Research reveals many benefits when parents are involved in their child's education, including:

- Higher grades and test scores;
- Better attitudes and behavior;
- Better school attendance;
- More homework completed;
- Less chance of placement in special education;
- Greater likelihood of graduating from high school, and
- Better chance of enrolling in postsecondary education.

Showing an interest in your child's education, setting high expectations for achievement and letting your child know you believe in his or her abilities sets a positive context for growth and achievement.

How Do I Get Involved?
Make school important!

You can reinforce the importance of school if you:

- Speak positively about your child’s teachers and counselors.
- Talk to your child about the benefits of education.
- Make sure your child gets to school on time.
- Attend open houses and parent-teacher conferences.
- Answer notes and calls from your child’s teacher.

Encourage reading and writing

You can help your child perform better at school if you:

- Keep books, magazines and newspapers in your home.
- Take your child to the library.
- Discuss what your child reads.
- Read with your child.
- Encourage your child to write notes to grandparents and other relatives.
- Suggest that your child keep a journal.

What Can I Do at Home?

Home environment
You can foster school success at home if you:

WHY?

WHAT CAN I DO?

IS IT REALLY A BIG DEAL?
“I’m going to grow up to be a ____?____. Will you teach me everything I need to know to be successful?”
References

Buck Institute for Education
Online Project Design
http://pbl-online.org

Partnership for 21st Century
http://www.p21.org

Texas College and Career Readiness Standards
ccrs@thecb.state.tx.us

La Villa ISD
http://www.lavillaisd.org