The Gary and Jerri-Ann Jacobs

HTH ®

HIGH TECH HIGH

Project-Based Learning and Integrated Curriculum

A Planning Workshop for
High Tech High Learning Sites

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What Is Project-Based Learning?

- A structure that transforms teaching from "teachers telling" to "students doing." More specifically, project-based learning can be defined as:

- Engaging learning experiences that involve students in complex, real-world projects through which they develop and apply skills and knowledge

- A strategy that recognizes that significant learning taps students' inherent drive to learn, capability to do work, and need to be taken seriously

- Learning in which curricular outcomes can be identified up-front, but in which the outcomes of the student's learning process are neither predetermined nor fully predictable

- Learning that requires students to draw from many information sources and disciplines in order to solve problems

- Experiences through which students learn to manage and allocate resources such as time and materials

* Definition from Autodesk Foundation

Workshop Goals

- Review and understand elements of successful project design

- Design, implement, and experience a project-based learning activity

- Gather practical and creative ideas for applying project-based learning at NBGLCS

- Initiate the process of developing integrated curriculum units (ICU's)

- Begin to build curricular coherence and team support

Elements of Successful Projects

- Arise from a meaningful question

- Take time

- Require investigation

- Are semi-structured, requiring substantial student input

- Follow a timeline with articulated milestones to be reached along the way

- Require a tangible end product

- Include presentation for a real audience

- Include moments of reflection

- Blur subject area boundaries—emphasize issues, skills, concepts

- Blur the line between "slow" and "fast" learners

- Create a culture of accomplishment in the classroom

- Connect students with adult mentors

- Conceive of teachers as "coaches/facilitators" and students as "workers".

The Six A's of Designing Projects

- **Academic Rigor.** Projects address key learning standards identified by the school or district and helps students develop habits of mind and work associated with academic and professional disciplines.

- **Authenticity.** Projects use a real world context (e.g., community and workplace problems) and address issues that matter to the students

- **Applied Learning.** Projects engage students in solving semi-structured problems calling for competencies expected in high-performance work organizations (e.g., teamwork, problem-solving, communication, etc.)

- **Active Exploration.** Projects extend beyond the classroom and connect to work internships, field-based investigations, and community explorations.

- **Adult Connections.** Projects connect students with adult mentors and coaches from the wider community.

- **Assessment Practices.** Projects involve students in regular exhibitions and assessments of their work in light of personal, school and real-world standards of performance.

Project Outline

Title and description of project:

Content
What questions/issues does the project address? How are they of real interest to the students and the larger community?

What will students learn (academic content and knowledge, HTH Learning Areas and Habits of Mind)

Dimensions and Logistics
How long will the project take, what adults will be involved, and what milestones will students reach along the way?

Note: Questions adapted from the Six A's, ⓒ Jobs For The Future, 1996

What resources will students use for their investigation?

Process
What kind of ongoing support and feedback will students receive?

What are the explicit expectations and criteria for success?

How will students exhibit and present their project and what they have learned?

Reflecting on Significant Learning

This is a one-hour reflection and discussion exercise.

Journal Warm-Up (10 minutes)

Write a brief journal entry describing a significant learning experience from your high school days, either in school, or outside school.

Discuss (30 minutes)

•Break into groups of four to six persons.

•Share your significant learning experiences with the group.

Group task: during each description, listen for attributes of each learning experience.

•Who was there?

•Where did the experiences take place?

•What made these experiences significant?

Group questions, after everyone has shared:

•What characterizes the learning experiences in school?

• Out of school?

•Are there any significant differences?

•What can we say about the characteristics of a significant learning experience?

•What are the implications for our teaching?

Report (20 minutes)

Each group reports its findings.

Developing Projects from Interests and Hobbies

Discuss (30 minutes)
In groups of four to six, each participant describes an interest or hobby. In each case, discuss: what skills are developed and employed in pursuit of this interest?

Plan (20 minutes)
Group task: develop a plan for a project-based curriculum unit that would incorporate the hobbies of each member of the group.

Prepare (10 minutes)
Using newsprint and any other means available, prepare a presentation of your project-based unit to the larger group.

   Criteria:
   - Each member of the group must participate in the presentation.
   - Presentation time limit: one minute for each group.

Present (15 minutes)
Observe the criteria for participation; appoint a time-keeper. Enjoy!

Reflect and Discuss (15 minutes)
Do a quick journal writing, share in small groups, and report out.
   - What happened in this exercise?
   - What moments stand out?
   - What surprised you?
   - What, if anything, did you learn?
   - What are the implications of this activity for your work with students?

Key points for discovery
1. Powerful teaching and learning can occur when teachers pursue their interests.

2. In interest-based projects, it is always possible to find connections to the academic and technical disciplines.

Designing Projects: Getting Under Way

Some things to attend to:

- Task parameters
- Criteria for success
- Group roles and skills
- Group ground rules
- Ongoing reflection
- Presentation parameters
- Authentic assessment

Presentation Parameters

- Two minutes
- Everyone participates
- Include:
    - exhibition
    - group process goal
    - group name/motto/slogan
    - resume of skills/understandings

Group Inventory

- Introduce yourself
- A skill/strength you can contribute
- Something to watch out for"
- Agree on a signal
- A group process goal
- Criteria for Success
  (to be determined by team)

Journal Entry

- What moment stands out?
- Task success...
- Group/Team Work, Process Goal
- Surprises?
- Blocks?
- Lessons, if any?

Presentation Parameters II

- 7 minutes maximum
- Everyone participates
- Include:

> exhibition
> group process goal
> group name/motto/slogan
> resume of skills/understandings

Real World Applications: SCANS

Through real world inquiry and applications, students develop the skills and intellectual capacities needed for success in the workplace, in civic life, and in personal affairs. Many projects involve experts from the wider community, including local agencies, businesses, and institutions of higher education. Interaction with such professionals gives students exposure to careers of possible interest.

The Secretary's (of Labor) Commission on Achieving Necessary Skills (SCANS) identifies the basic skills, thinking skills, and personal qualities needed to meet the heightened demand for intellectual competence in the emerging economy. See the following pages to review the Five SCANS Competencies and the SCANS Foundation Skills.

The Five SCANS Competencies

According to the 1991 SCANS Report, a high performance workplace requires employees to possess the following competencies: the ability to manage resources, work well with others, acquire and use information, master complex systems, and work with a variety of technologies. These competencies are outlined below.

1. Resources: Identifies, organizes, plans, and allocates resources

Time: selects goal-relevant activities, ranks them, allocates time, and prepares and follows schedules

Money: uses or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives

Materials and Facilities: acquires, stores, allocates, and uses materials or space efficiently

Human Resources: assesses skills and distributes work accordingly, evaluates performance and provides feedback

2. Interpersonal: Works with others

Participates as a member of a team: contributes to group effort

Teaches others new skills

Serves clients/customers: works to satisfy customer's expectations

Exercises leadership: communicates ideas to justify position, persuades and convinces others, responsibly challenges existing procedures and policies

Negotiates: works towards agreements involving exchange of resources, resolves divergent interests

Works with diversity: works well with men and women from diverse backgrounds

Human Resources: assesses skills and distributes work accordingly, evaluates performance and provides feedback

3. Information: Acquires and uses information

Acquires and evaluates information

Organizes and maintains information

Interprets and communicates information

Uses computers to process information

4. Systems: Understands complex inter-relationships

Understands systems: knows how social, organizational, and technological systems work and operates effectively with them

Monitors and corrects performance: distinguishes trends, predicts impacts on system operations, diagnoses deviations in systems' performance and corrects malfunctions

Improves and designs systems: suggests modifications to existing systems and develops new or alternative systems to improve performance

5. Technology: Works with a variety of technologies

Selects technology: chooses procedures, tools, or equipment including computers and related technologies

Applies technology to task: understands overall intent and proper procedures for setup and operation of equipment

Maintains and troubleshoots equipment: prevents, identifies, or solves problems with equipment, including computers and other technologies

The SCANS Foundation Skills

1. Basic skills: reads, writes, performs arithmetic and mathematical operations, speaks and listens

2. Thinking skills: thinks creatively, makes decisions, solves problems, visualizes, knows how to learn and reason

3. Personal Qualities: displays individual responsibility, self-esteem, sociability, self-management, and integrity and honesty