**Chapter 11 Project Based Learning (PBL)**

**-promotes higher-level thinking in problem-oriented situations**

**-poses problems, ask questions, facilitate investigations, and supportive framework than enhances inquiry and intellectual growth**

**-cannot occur unless teachers create classroom environments in which an open and honest exchanges of ideas can occur**

**Overview of Problem-Based Learning**

**-the essence of problem-based learning consists of presenting students with authentic and meaningful problem situations that can serve as springboards for investigations and inquiry**

**Special features of problem-based learning**

**1.driving questions or problems-organize instruction around questions and problems that are both socially important and personally meaningful to students**

**2.interdisciplinary focus-the actual problem under investigation is chosen because its solution requires students to delve into many subjects**

**3.authentic investigation-students pursue authentic investigations that seek real solutions to real problems**

**4.productions of artifacts and exhibits-explain or represent their solutions and could include a mock debate, physical model, video**

**5.collaboration-students working with one another, most often in pairs or groups which provides motivation for sustained involvement in complex tasks and enhances opportunities for shared inquiry and dialogue, and for the development of social skills**

**PBL was designed primarily to help students develop their thinking, problem-solving, and intellectual skills, learn adult roles by experiencing them through real or simulated situations, and become independent autonomous learners**

**Three Major Goals**

**1.thinking and problem solving skills**

**2.adult role modeling-aims at helping student perform in real-life situations and learn important adult roles**

**3.independent learning and self-regulators**

**Theoretical and empirical support**

**-draws on cognitive psychology meaning that the focus on what students are thinking instead of what students are doing**

**Dewey-Problem Oriented Classroom**

**-said schools should mirror the larger society and classrooms would be laboratories for real-life inquiry and problem solving**

**-his pedagogy encouraged teachers to engage students in problem-oriented projects and help them inquire into important social and intellectual problems**

**Piaget**

**-confirmed that children are innately curious and are constantly striving to understand the world around them**

**-cognitive-constructivist perspective-basis for problem solving and said learners of any age are actively involved in the process of acquiring information and constructing their own knowledge as knowledge is not static**

**Vygotsky**

**-believed that the intellect develops as individuals confront new and puzzling experiences and as they strive to resolve discrepancies posed by these experiences**

**-in the quest for understanding, individuals link new knowledge to prior knowledge and construct new meaning**

**-zone of proximal development-zone between the learner’s actual level of development and the level of potential devolvement that occurs**

**-learning occurs through social interactions with teachers and peers students will move forward into this zone**

**Bruner**

**-discovery learning-model of teaching that emphasized the importance of helping students understand the structure or key ideas of a discipline, the need for active students involvement in the learning process, and a belief that true learning comes through personal discovery**

**Effective?**

**Helps to train for clinical work but may be lacking in basic knowledge**

**Planning for PBL lessons**

**1.Decide on goals and objective**

**2.Design appropriate problem situations**

**-based on premise that puzzling and ill-defined problem situations will arouse students’ curiously and thus engage them in inquiry**

**Need for five important criteria for problem:**

**A.it should be authentic so anchored in students’ real-world experiences rather than in principles of particular academic disciplines**

**B.should be somewhat ill defined and pose a sense of mystery**

**C.should be meaningful to students and appropriate for their level of intellectual development**

**D.should be sufficiently broad to allow for teachers to accomplish their instructional goals yet sufficiently confined to make lessons feasible within time space, and resource limitations**

**E.should benefit from group effort and not hindered by it**

**3.organize resources and plan logistics**

**Conducting PBL Lessons**

**1.orient student to the problem-communicate clearly the aims of the lesson, establish positive attitude toward the lesson, and describe what students are expected to do**

**2.organize students for study**

**A.study teams-organizing students into cooperative learning groups**

**B.cooperative planning-teachers and students must spend considerable time defining specific subtopics, investigative tasks, and time lines**

**3.assist independent group investigations**

**A.data gathering and experimentation-teacher encourages students to gather data and conduct mental or actual experiments until they fully understand the dimensions of the problem situation**

**B.hypothesizing, explaining, and providing solutions-teachers continue to pose questions that make students think about the adequacy of their hypotheses and solutions and about the quality of the information they have collected**

**C.develop and present artifacts and exhibits**

**-artifacts-they can include such things as videotapes that show the problem situation and proposed solutions, and computer programs and multimedia presentations**

**-exhibit-can be traditional science fairs, web sites ect…**

**5.analyze and evaluate the problem solving process**

**-helps students analyze and evaluate their own thinking processes as well as the investigative and intellectual skills they use**

**-teachers ask students to reconstruct their thinking and activity during the various phases of the lessons**

**Managing the Learning Environment**

**1.Dealing with multitask situations**

**-students must be taught to work both independently and together**

**-use cuing systems to alert students and to assist them with the transition form one type of learning task to another**

**-clear rules are necessary to tell students when they are expected to talk with one another and when they are expected to listen**

**2.adjusting to differing finishing rates**

**-rules, procedures, and downtime activities are needed for students who finish early and have time on their hands**

**-could include high-interest activities, reading materials, games ect…**

**3.monitoring and managing student work**

**A.work requirements for all students must be clear**

**B.students work must be monitored and feedback provided on work progress**

**C.records must be maintained**

**Assessments**

**1.assess understanding-USE RUBRICS**

**2.use checklists and rating scales**

**3.assess adult roles and situation**

**4.assess learning potential**

**5.assess group effort**

**Unit Summary**  
Students learn about community businesses and service organizations, and choose one to help by producing informational brochures. As a public relations "agency," students assess the needs of their client and produce a brochure that heralds an upcoming event or publicizes the organization’s contribution to the community. Students collaborate with publishing experts and learn how to apply design elements to meet the purpose of a client.   
  
**Curriculum-Framing Questions**

* **Essential Question**  
  How can we help our community?
* **Unit Questions**  
  How do organizations communicate with people?   
  What role does public relations play?  
  How can we help an organization communicate a message?
* **Content Questions**  
  How can we use the basic elements of design to address the purpose of a brochure?  
  What are the steps for designing and drafting a publication?

**Assessment Processes**  
View how a variety of student-centered [assessments](http://educate.intel.com/en/ProjectDesign/UnitPlanIndex/CreativeKidsGoPro/creative_assessment_plan.htm) are used in the Creative Kids Go Pro Unit Plan. These assessments help students and teachers set goals; monitor student progress; provide feedback; assess thinking, processes, performances, and products; and reflect on learning throughout the learning cycle.  
  
**Instructional Procedures  
Prior to Instruction**If you are not familiar with desktop publishing and photo-editing programs, begin by taking a course or seeking assistance from other teachers, parents, or students.   
  
At least one month in advance:

* Identify local businesses or community organizations that could benefit from having a brochure that publicizes their organization or promotes an upcoming event.
* Collect sample brochures that represent a variety of purposes, approaches, and uses of color, imagery, and design elements.

**Setting the Stage**Begin the unit by asking the Essential Question, *How can we help our community?* Ask students to think individually about the question and then discuss their responses with each other. Ask for volunteers to share their responses with the whole class.   
  
Introduce the project by telling the students that they will be forming a public relations “agency” to help a local business or community organization. Ask the Unit Question, *How do organizations communicate with people?* Have students talk in their groups and then record their ideas in their journals. Ask the groups to share their thinking with the entire class. Explain to students that they will be exploring this question throughout the project.   
  
Identify several local businesses or organizations that could use help with their public relations. If possible, invite them to the class to give short presentations about their organization and its needs. To prepare for this, ask students how they will determine which organizations to help. Together, develop a set of student-generated criteria for deciding which organization to support. In doing so, discuss the decision-making process that they plan to use to evaluate the organizations.   
  
Have each student complete an evaluation of each organization using student-generated [criteria](http://educate.intel.com/en/ProjectDesign/UnitPlanIndex/CreativeKidsGoPro/creative_presentation_criteria.htm). After all the presentations, review the results and discuss.   
  
As students are choosing which organization to help, they can schedule visits to the organization, read publications about the organization or topics related to the work of the organization, and conduct other fact-finding research to help them in their decision-making process. The whole class can choose the same organization or small groups can work with different organizations.   
  
**Gathering Information**Once the students have identified the businesses or organizations to help, ask the students to consider the Unit Question, *How can we help an organization communicate a message?* Tell students that in order to provide the best product, they will need to discuss details of the product with the client. For example, they should discuss the following details about the project:

* Purpose
* Information to impart
* Design ideas
* Timeline
* Printing options

Organize small groups of students into a public relations agency, assigning roles such as graphic designer, account manager, writer/editor, and photographer. Have them brainstorm questions they would ask the client based on the preceding criteria. For example, *What is the purpose of this communication piece?* Each group should write down their final questions and hand them in for review. Explain that each account manager will go with the teacher to meet with the client and ask their questions.   
  
With student representatives, meet with the client and discuss the details of the project, identifying what the final product will be and scheduling future meetings to review drafts. If the final product is printed professionally, collaborate with the client to select a printing company, and schedule a time for a class representative to meet with the client and printer.   
  
After the account managers return to their groups, have each group go through a process of deciding what information they need to present and how best to present it. As they do so, have them complete the [project plan](http://educate.intel.com/en/ProjectDesign/UnitPlanIndex/CreativeKidsGoPro/creative_project_plan.htm) to help them. The project plan guides them through the decision making process and provides a document to track progress for the group, teacher, and client. The plan also gives insight into the students’ metacongitive processes.   
  
The directions presented in this Unit Plan assume that the final product is a brochure. Ask students to gather brochures from their homes and community.   
  
**Organizing the Information**  
When you and the class have collected a broad set of brochures, have students meet in their public relations groups to discuss the purpose and basic design features of each brochure. For example, when they examine a brochure for a preschool, they might note the use of primary colors, playful fonts, and children’s drawings. A banking brochure might be a more somber tone with its use of neutral tones and conservative fonts. Conduct a class discussion to share students’ observations. Have students analyze the brochures and discuss the purpose of each, the approach, and the use of color, imagery, and design elements.   
  
Have each group gather the necessary information from their client(s). This might include information from meetings with the manager/director or employees, interviews with customers/clients, information from literature about the organization or issue, photos, and other images that will be included.   
  
**Designing the Product**  
Discuss elements and principles of design. Bryan Peterson’s book *Using Design Basics to Get Creative Results* provides good samples and descriptions of the four basic elements: line, type, shape, and texture. The book also discusses the primary design principles: balance, contrast, unity, color, and value. The resource section of this unit plan lists additional design guides. After students are aware of the basic design features, have them identify how graphic design elements and principles are presented in the brochure collection they just reviewed.   
  
Revisit the Unit Question, *What role does public relations play?* Review students’ project plans and their timelines. Discuss intermediate steps with the students and add details to their timelines.   
  
In their groups, have students brainstorm ideas for their brochures. Remind students that text, imagery, and design elements all contribute to the message in a brochure. They need to take all of these into account as they design their brochures.   
  
Have students sketch and then mock-up their brochures on computers, identifying possible fonts, layouts, and elements. Be sure to have the graphic designers take the lead on this.   
  
Ask each group to share their ideas with the whole class and gather feedback from peers. If doing one class brochure, lead a class discussion and choose design ideas to include in the brochure. Select fonts, elements, color, and other design features from the different groups’ efforts. Try to include some thematic elements that run through the entire piece. For instance, students creating a holiday brochure for a hotel client might choose a reindeer theme and draw reindeer eating in the hotel’s restaurants, dancing in the ballroom, and sleeping in a hotel bed.   
  
**Creating the Product***Note: Include the client in the drafting process. Meet with a representative early on and again when the project is nearly complete.*   
  
Use desktop publishing software to create a page template. Set margins, fonts for headlines, picture placeholders, and text fields for required features.   
  
Have the writer/editor create the content for the brochure while the graphic designer and photographer work on the art, which may include drawings and photographs. [Scan student artwork](http://educate.intel.com/en/ProjectDesign/UnitPlanIndex/CreativeKidsGoPro/Creative_sample_art.htm) and use photo-editing software to work with photos.   
  
Guide students as they design and revise the brochure text and art, and collect elements for the page. Share the [project scoring guide](http://educate.intel.com/en/ProjectDesign/UnitPlanIndex/CreativeKidsGoPro/creative_project_scoring_guide.htm) to help guide student work.   
  
**Presenting the Product**Meet with the client and print company to review a draft of the brochure and associated files. Incorporate feedback into the final draft and submit files to the printer for publishing. Be sure to give the students credit on the brochure.   
  
Plan a final meeting with the client or invite the client to the class to present the final brochures. See a [sample letter](http://educate.intel.com/en/ProjectDesign/UnitPlanIndex/CreativeKidsGoPro/creative_sample_letter.htm) for ideas. If possible, have a party with the client!   
  
Celebrate your success with the school community. Display the brochure in the classroom, and write about it in the school newsletter, Web site, and yearbook. Send brochures home to parents with a letter.   
  
Assess the final product with the [project scoring guide](http://educate.intel.com/en/ProjectDesign/UnitPlanIndex/CreativeKidsGoPro/creative_project_scoring_guide.htm). Have students reflect on their work. For ideas, look at [sample reflection questions](http://educate.intel.com/en/ProjectDesign/UnitPlanIndex/CreativeKidsGoPro/creative_sample_reflection.htm). Invite students to share their thoughts with the class. Discuss the following questions:

* *How did we help our community?*
* *How did our publication help the organization?*
* *How did asking the right questions lead to satisfactory results?*
* *How did we use the basic elements of design to address the purpose of the brochure?*
* *What are the steps for designing and drafting a publication?*

**Prerequisite Skills**

* Desktop publishing skills, including copying, pasting, inserting, and modifying images
* Photo-editing skills

**Differentiated Instruction  
Resource Student**

* Provide extra support, using teaching assistants, parent aides, and student helpers
* Modify the amount of work required
* Create teams that support all learners
* Reduce reading and writing requirements, and provide more visual aids and work samples
* Let students act as specialists in areas such as photography and art

**Gifted Student**

* Involve students in meetings and other correspondence with the partner organization and printer
* Have students serve as specialists

**English Language Learner**

* Create brochures student's first language
* Modify work requirements
* Use visual aids
* Pair the student, if possible, with a more proficient bilingual student

**Credits**Karrie Deitz participated in the Intel® Teach Program, which resulted in this idea for a classroom project. A team of teachers expanded the plan into the example you see here.