Lesson Plan: Problem-Based Learning

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Integrating Technology Across the Content Areas (EDUC – 6713-D-2)

July 29, 2010

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Problem-Based Learning (PBL) is a strategy that integrates content standards, technology, and real-world scenarios in order to learn the content. This has students demonstrate not only content knowledge, but “knowledge going beyond that to an understanding of technology and capability to hands-on skill development and utilization of technology” (Engstrom, 2005, p. 30). A benefit is the ability to integrate technology into PBL projects because it “attends to students’ diverse interests, talents, and needs for knowledge” (Cennamo, Ross, & Ertmer, 2009, p. 167).

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| ***Daily Lesson Game Plan*** | | | |
| **Lesson Title:** I’m Gonna do What? Embalm?  **Grade Level:** 6th Social Studies Ancient Civilizations | | **Related Lessons:** You’re the Gladiator (Ancient Rome)  **Unit:** The Nile River Valley | |
| ***GOALS*** | | | |
| **Content Standards (NCSS Thematic Strand):**  **•** Culture  **•** Time  **•** Individual Development and Identity  **•** Science, Technology, and Society  **ISTE NETS-S**  **x** Creativity **x** Critical thinking, problem solving, and decision making  **x** Communication and collaboration **⁭**  Digital citizenship  **x** Research and information fluency **x** Technology operations and concepts  **Instructional Objective(s):**  **•** Students will be able to understand:  1. What mummies were;  2. When mummies were made;  3. Who was made into a mummy;  4. Where mummies were made; and  5. Why/How mummies were made. | | | |
| ***ACTION*** | | | |
| **Before-Class Preparation:** The teacher will practice and analyze the Mummy Maker website (<http://www.bbc.co.uk/history/ancient/egyptians/launch_gms_mummy_maker.shtml>). This is the site that used for the Problem-Based Learning activity. The teacher plays the Mummy Maker to ensure the game is possible and at an acceptable level to be completed by the sixth grade students. Also, the teacher creates a “hint list” of websites for research if the students struggle using Google and internet search skills to find the necessary information to complete the Mummy Maker.  The teacher needs to set-up a mini-lesson review of how to use Google effectively. The class reviews proper search topics and focuses, validity of websites, reliability of websites, and how to cite properly. The students complete a quick “practice” as a class on a topic to be selected by the students.  The teacher creates the PBL activity and scenario. The scenario is the guiding aspects for students to complete the PBL activity. The scenario is as follows:  Living during 1500 BCE, the pharaoh’s chief embalmer has passed away due to  unknown causes. The pharaoh is very old and fears he will not be properly  mummified for his afterlife. He has selected you to be his new chief embalmer.  However, you must first prove yourself to him. The pharaoh has given you one  year (or two class periods) to properly mummify a member of his staff, one whom  he will sacrifice. It is your job to learn how to correctly mummify a body and  demonstrate this to the pharaoh’s. Use the Mummy Maker Website to prove  you know how to mummify a body!  The teacher will create pairings based on student ability level (homogeneously). The teacher will provide support and extension activities to be described in detail later. | | | |
| ***During Class*** | | | |
| **Time** | **Instructional Activities** | | **Materials and Resources** |
| ***Day 1:***  6-7 minutes  32-33 minutes  ***Day 2:***  2-3 minutes  26-27 minutes  9-10 minutes | Students review how to use Google to search for information. They review topic and focus search terms, validity, reliability, and citing. Students will practice, a topic of their choosing, as a class.  Students view the Mummy Maker website. They will try to mummify a body to discover what questions they need to ask, research, and answer. Also, the students use Google to search for reliable websites. They “tweet” sites they find useful to their classmates and create a list of the top three sites to take notes on mummification. They look to discover specific details on the mummification process, answers to the questions they asked, and data to help them complete the Mummy Maker website game.  Students review their notes as a class from yesterday. They ask each other questions they created but could not find the answers to. They answer one another’s questions to complete the research component of the PBL activity.  Students work in their pairs to complete the Mummy Maker activity. They have as many opportunities as they need to correctly mummify a body to prove to the pharaoh they are acceptable embalmers. They record their steps in Microsoft Word in order to correct mistake they made and repeat accurate steps they took. Students will show the teacher their final steps and completed mummy!  Students type their final response to the writing prompt on their personal wiki page (linked to the class wiki page). The prompt is: How, why, who, when, where, and what are the aspects of the mummification process (1 paragraph)? | | Tablet and internet connection  Computer Lab, 1 per pair |
| **Notes:** The teacher has be sure to check that the twitter accounts, wiki pages, internet, and Mummy Maker websites are working on all computers and have 3-4 backup computers ready for use. | | | |
| ***MONITOR*** | | | |
| **Ongoing Assessment(s):** The teacher uses informal observations on Day 1 of the PBL activity. This assessment is beneficial because students will need assistant searching Google and staying on task. Also, the teacher has a formative assessment of the question and answer component at the beginning of Day 2, the Mummy Maker steps, and completed product. The summative assessment will be the final writing prompt on the wiki pages.  **Accommodations and Extensions:** Students with learning disabilities will be given extended time as needed. Also, the teacher will provide a website (<http://www.ancientegypt.co.uk/mummies/story/main.html>) to students who cannot effectively search Google for information. In addition, students who have a difficult time staying focused or taking notes, the teacher will provide an outline for the steps to complete the Mummy Maker activity with a few steps filled in for guidance.  As an extension activity, for students who complete the activity early, students will publish their “findings” by writing a report or making a very short video clip on IMovie and posting it to YouTube. The report or video clip must include the following: 1. The PBL scenario; 2. Steps taken to complete the PBL; and 3. The results or findings of the PBL activity.  **Back-up Plan:** If the computers were to fail, shut-down, or lose internet connection would use the Tablet PC in the classroom to complete the online internet research component. Students work in groups of four to create questions. Then, the class creates a master list of questions to research. Students take turns coming up to use the Tablet PC, which projectors all images onto the whiteboard, to answer one or more of the questions. This alternative activity would take much more time, so the Mummy Maker and the steps would have to be completed at home. | | | |
| ***EVALUATION*** | | | |
| **Lesson Reflections and Notes:** Students reflect on their process by asking questions, answering the, and revising or asking more questions. Also, students reflect on the Mummy Maker process by taking step-by-step notes and referring back to them on the next attempt to mummify the body. | | | |

The Mummy Maker activity meets two goals of PBL: “1. to promote deep understanding of the subject matter; and 2. Develop students’ higher-order-thinking” (Ertmer & Simons, 2006, p. 40). The Google research achieves the both goals by using critical thinking skills to acquire the subject matter. Mummy Maker deepens the students’ understanding of the content be incorporating it into a real-world scenario.

The diversity of students is met in the lesson plan. The “Digital divide” (Cennamo, Ross, & Ertmer, 2009, p. 171) is a non-issue because all students have equal access to computers and internet to complete the PBL activity. Also, the “teaching modeling, peer interactions, and reflection” (Cennamo, Ross, & Ertmer, 209, pp. 167-168) occur as the class reviews Google search strategies, pairings for research and application, and the step-by-step notes for reflection assist students will diverse learning styles. Finally, the teacher can use “assistant technology” (Laureate, 2009). Students can make web-text larger, copy and paste links for citing, and use Dictionary.com to look up vocabulary terms.

This PBL lesson requires students to “clarify the problem, collect, analyze, and organize data” (Laureate, 2009). The students collaborate with their partners to interpret the scenario. Then, the pairs use Google to collect and analyze the data. Finally, the students organize their information before and while completing the Mummy Maker activity in the step-by-step instructions posted on the Wiki page.

The main benefit of this PBL lesson is the “technology enriches the system after the objective is set” (Laureate, 2009). There are many other ways to learn about mummification, such as reading the textbook or watching of video clip. However, the PBL activity on mummification engages students, keeps their interest, and requires them to develop many other technology and higher-level thinking skills while meeting the content standards. Prensky writes “the reality is that students are, for the most part, bored” (Prensky, 2008, p. 43). PBL avoids the “boredom.”

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