**Project Design Template**

**Project Title: Investigation of Texas Beaches with GIS Tools.**

**Author: Jerrad Gray and Lauran Guerra**

**Project Idea:** Investigation of the coastal changes of Texas’ beaches using University Beach as the main focus.

**Entry Event:**

Step 1) Show students the initial aerial shot of University Beach on August 26th, 2001.

Step 2) Ask students to draw on a piece of paper what they think the shoreline will look like in 10 years time.

Step 3) Show the students the aerial shot of University Beach on NAIP (August) 2012.

Step 4) Ask the students why they think this happened to the beach. This leads into the driving question.

**Content Standards & Objectives:**

* **§112.19. Science, Grade 7**
  + (4) The strands for Grade 7 include:
  + (A) Scientific investigation and reasoning.
  + (i) To develop a rich knowledge of science and the natural world, students must become familiar with different modes of scientific inquiry, rules of evidence,
  + (2) Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:
    - (E) analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.
* **§126.15. Technology Applications, Grade 7**
  + (3) Research and information fluency. The student acquires, analyzes, and manages content from digital resources. The student is expected to:
    - (D) process data and communicate results.
  + (6) Technology operations and concepts. The student demonstrates a thorough understanding of technology concepts, systems, and operations. The student is expected to:
    - (D) understand and use software applications, including selecting and using software for a defined task;

**21st Century Skills:** Identify the Learning Skills and Technology Tools Standards that students will practice in this project.

|  |  |
| --- | --- |
| Core Subjects: 7th Grade Science | Learning/Innovation 4Cs:  This project asks the students to think critically about the changing shape of the beaches, communicate with their classmates and other students about their findings, collaborate with students not only in their schools but all across Texas, and think of creative and innovative ways to remedy the problems they encounter. |
| Info, Media, Tech Skills:  The students will use a web-based research tool called CHRGIS to gain knowledge of the beach.  The students will become more efficient with the use of Google Docs and share their findings through their Google Drive. | Life & Career Skills:  The students will monitor, define, prioritize and complete tasks without direct oversight.  The students will gain leadership and responsibility as they act responsibly with the interest of the larger community in mind.  The students will use interpersonal and problem-solving skills to influence and guide others towards a goal. |

**Performance Objectives:** What must all students know and be able to do as a result of this PBL experience?

**Know/Do:** Scientific investigation and reasoning, analyze data and formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.

**Driving Question:** Texas’ beaches are a great place for family fun and discovery, but some of the beaches are getting drastically smaller. Let us explore the driving factors and possible solutions to keeping Texas’ beaches right where they are!

**Assessment Plan:**

* In groups of 3-4 the student will complete a [Mindomo mind map](https://docs.google.com/document/d/1aunlm4A8TSAsmEt8mrc20pL_qQe008bdQHd4ADxl970/edit?usp=sharing).

**Assessment and Reflection:**

**Mindomo Check-bric:**

|  |  |  |
| --- | --- | --- |
| Criteria | Met | Not Met |
| 1. I presented my original ideas to the group and entered them into the group’s shared mindmap. |  |  |
| 2. I reviewed all members’ ideas and added new concepts or ideas to at least 2 others’ leg of the mind map. |  |  |
| 3. I reviewed all new idea submissions to my own leg of the mindmap and commented about the new ideas. |  |  |
| 4. I wrote a short summary of my final idea and how others’ comments or ideas may have shaped my new idea. |  |  |

**Map the Project:** Examine one major product for the project and analyze the tasks necessary to develop a high-quality product. What do students need to know and be able to do to complete the tasks successfully? How and when will they learn the necessary knowledge and skills? Do the products and tasks give all students the opportunity to demonstrate what they have learned?

**Day 1**:

Part I. Entry Event.

Part II. (Mini-webquest) Students will go to [(Coastal Process Vocabulary Link)](http://www.cbi.tamucc.edu/CHRGIS/CHRGIS-Physical-Processes/) and review the material with their groups. They will answer questions ([link to google doc](https://docs.google.com/document/d/1u-ZERZLHrFwdLTXLYsi6Qha6cT8Y2VzKHLbeMjW5VdM/edit?usp=sharing)) regarding the beach and coastal processes.

**Day 2:**

Part I. How to use the CHRGIS tool. ([Tutorial presentation found here](https://docs.google.com/presentation/d/1UOGCUvzmqm4fuXTjTo-l0U04xTIfm7Bf-Dmlg9CdYxo/edit?usp=sharing))

Part ll. Project launch. Divide into groups. Start using [CHRGIS tool](http://cartogram.tamucc.edu/chrgis/maps/).

Part III. Begin working on Mindomo mind map.

**Day 3:**

Finishing the Mindomo project. ([Jigsaw Activity found here](https://docs.google.com/document/d/1_yt4ySr7Ue-0bOMDlbf32yozflJO4duCgdt0gA8CWIM/edit?usp=sharing))

**Day 4:**

Class discussion/ project share. (Presentation)

**Resources:**

**Technology:**

* [**http://cartogram.tamucc.edu/chrgis/maps/**](http://cartogram.tamucc.edu/chrgis/maps/)
* [**http://www.cbi.tamucc.edu/CHRGIS/CHRGIS-Physical-Processes/**](http://www.cbi.tamucc.edu/CHRGIS/CHRGIS-Physical-Processes/)
* [**http://www.mindomo.com/**](http://www.mindomo.com/)
* **Google Docs**

**Community:**

Diedre Williams

Research Specialist

[Deidre.Williams@tamucc.edu](mailto:Deidre.Williams@tamucc.edu)

361-825-2714

**Materials:**

* **Paper and pencils for the entry event drawing.**
* **Desktop or laptop computers with Microsoft Silverlight installed.**
* **Teacher computer connected to a projector for group share activity.**

**Project Evaluation:** Post-Project Survey.

Virginia Department of Education. (n.d.). Template. *Template*. Retrieved November 16, 2013, from http://wvde.state.wv.us/instruction/pbltemplate.html