**Project-based Learning Plan for 7th Grade Science Beach Project**

**Teacher/Professor: Lauran Guerra and Jerrad Gray**

**Course: 7th Grade Science**

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**Global contact’s name, title, contact information:**

N/A

**TAMUCC Graduate Student Team Members in group:**

1. Lauran Guerra

2. Jerrad Gray

**Project Implementation Dates: January 1st, 2014**

**Learner target Age/Audience: 7th Grade Math Students in Texas**

**Service site age / audience: Corpus Christi and Seminole, Tx 7th Grade students**

**Subject Areas Included: Science and to a lesser extent Math**

**Project Idea:**

*Brainstorm your topic...what do you plan to use this project to accomplish?*

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| **What is the main issue, challenge, investigation, scenario, or problem?** | Students will investigate will recognize temporal and spatial change of the shape of the beach using the CHRGIS tool. The students will analyze wave refractions that affect the beach’s shape and see how coastal structures limit waves’ impacts on beaches. |
| **What are possible community service outlet ideas that can benefit from the target audience’s project?** | Our vision of this project is to educate students on the factors that affect their state’s beaches and encourage them to find opportunities to teach other students and be proactive in protecting Texas’ beaches through that teaching. |
| **How could you involve global contacts into this project? Where do you plan on looking for these contacts?**  (see global contact resources further in this template) |  |

**Driving Questions**

Now that you have your “big idea” or “theme”, put it into the form of a problem or question that is not easily answered.

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| 1. 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! |

**Content Standards:**

*What content criteria are you referencing in your project?*

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| List the standards to be taught and assessed, including full text and any numerical references ([TEKS](http://www.tea.state.tx.us/index2.aspx?id=6148) citations needed, if working with Texas public schools). | * **§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**

*What other skills will you emphasize in your project?*

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| 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. |

**Major Products & Performances**

Who is the project for? Are there different products for different audiences?

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| Group:  The group will be given a beginning overview of the project and then a guiding document filled with inquiry questions to complete. The group will com back together at the finale of the project to discuss and justify their findings. | Audience: 7th Grade Students   |  | | --- | | Class: Science | | School: Middle School | | Community: Corpus Christi and Seminole | |
| Individual:  The individual student will be asked to explore the CHRGIS web tool and answer the questions on the Google Doc document. | Audience: 7th Grade students   |  | | --- | | Experts: Diedre Williams | | Web: | | Other | |

**Entry Event**

*How will you get the participants into your lesson?*

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| What will launch entry or engage participants? | The participants will be introduced to the lesson by their junior high science teachers with the use of the CHRGIS website and the engaging lesson that we create. The driving question or statement, “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!”, should spark interest and intrigue in our audience members. |

**Learning Objectives:**

1. Students will learn to recognize temporal and spatial change as they compare aerial photographs. Students will identify change in beach shape and the development of new features using the CHRGIS tool. In addition, wave refraction can be identified in the aerial photographs allowing students to see the force driving the changes in the shape of the beach. Finally, students can see how building coastal structures can stabilize a beach and change how wave energy impacts a beach.
2. The student will:
   1. Explore University Beach shoreline shape using the CHRGIS tool with 100% accuracy.
   2. Using a Google doc with inquiry questions about the University beach, the students will identify the changes in the beach’s shape and answer these questions with a minimum of 70% accuracy.
   3. After all students are finished with their inquiry questions, a class discussion on the reasons the students found for the change in the beach shape and the impact of wave energy and humans on the shoreline will take place

[**Assessments**](http://www.cmu.edu/teaching/assessment/basics/formative-summative.html)

*How will you test the participant’s knowledge?*

Note: You can edit the example types of assessments given. Key in the numbered learning objective(s) (above) within each matched assessment below.

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| [Formative Assessments](http://www.ascd.org/publications/books/111005.aspx)  (during project) | **Indicate all that apply**   |  |  |  |  | | --- | --- | --- | --- | | Journal/Learning Log |  | Practice Presentations |  | | Preliminary Plans/Outlines/Prototypes |  | Notes |  | | Rough Draft |  | Checklists | ✓ | | Online Quizzes/Tests |  | Concept Maps |  | | Written products w/ rubric |  | Other: |  | |
| [Authentic](http://jfmueller.faculty.noctrl.edu/toolbox/tasks.htm)/Performance Assessments  (end of project) | **Indicate all that apply**   |  |  |  |  | | --- | --- | --- | --- | | Oral Presentation w/ rubric |  | Other Products/Performances |  | | Multiple Choice/Short Answer Test | ✓ | Peer Evaluation |  | | Essay Test |  | Self-Evaluation |  | | Other: Group |  | Other: |  | |

**Resources**

*What will participants in your project need in order to get the tasks accomplished?*

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| On-site people/facilities: | Science Teacher |
| Equipment: | 1:1 laptop or computer capabilities, projector |
| Materials | Updated Microsoft Silverlight, Google Chrome, Safari, or Firefox browser |
| Local Community Resources   * What and/or who can support your project? | Local technology integrator, local creator contact (Jerrad & Lauran) |
| Online Community Resources   * What resources exist for use? | Online [CHRGIS website](http://www.cbi.tamucc.edu/CHRGIS/) |
| Global Contact Resources  [[**21st Century Schools Resources**](http://www.21stcenturyschools.com/global_collaborative_projects.htm)**,** Facebook query, [ThinkQuest](http://www.thinkquest.org/en/), [Peace Corps Alternative](http://www.crossculturalsolutions.org/peace-corps-alternative?siteID=Google_Grants_peace_corps_projects&gclid=CMiO6PnclbQCFWGnPAodaxEA7A), [Global School Net](http://www.globalschoolnet.org/index.cfm), etc]   * How will you find your contact? |  |

**Reflection Methods**

*How will the participants reflect on what they have accomplished?*

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| Individual, Group, and/or Whole Class  *(check one or more items from the list)*  The class will engage in a whole group discussion/reflection at the end of the lesson. | |  |  | | --- | --- | | Whole Class | ✓ | | Survey |  | | Focus Group |  | | Fishbowl Discussion |  | | Other |  | |