QSM SAMPLE PROPOSAL – 6TH GRADE SCIENCE

The following sample proposal should be used to gain a better understanding of the grant application questions and components. Copying or including any part of this sample in your proposal will be considered plagiarism and your proposal will be disqualified.

I. Project Overview (9 points)

What is the approximate number of students that will be directly impacted by your project?

24

Which grade band levels will your project impact?

□ PK-3 ☒ 4-8 □ 9-12

Which subject does your project fall under?

□ Mathematics ☒ Science □ STEM

What class(es) will your project impact?

One 6th grade science class

Standards Sources

Identify source of the standards. Louisiana Student Standards should be given priority over national standards. National standards can be used if Louisiana State Standards are not available (e.g., upper level subjects). If other is selected, identify the source of the standards.

- □Louisiana Student Standards for Mathematics
- ☒Louisiana Student Standards for Science
- □Louisiana's Birth to Five Early Learning Development Standards
- □Computer Science Teaching Association Standards
- □Standards for Technological and Engineering Literacy
- □International Society for Technology in Education
- □Advanced Placement
- □Common Core Standards for Mathematics
- □Other

Standards Outline

Provide the following information for each standard.

a. Provide a standard (by code and text) addressed by this project.
b. List students' actions associated with the standard.
c. List evaluation methods associated with the standard.

Standard 1

1a. *6-MS-ESS3-4. Performance expectation: Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. Disciplinary Core Idea: BIOGEOLOGY Living organisms interact with Earth materials resulting in changes of the Earth. (MS.ESS2E.a); RESOURCE MANAGEMENT FOR LOUISIANA: Responsible management of Louisiana's natural resources promotes economic growth, a healthy environment, and vibrant productive ecosystems. (MS.EVS1B.a) Crosscutting Concepts: CAUSE AND EFFECT Cause and effect relationships may be used to predict phenomena in natural or designed systems.*

1b. *The students will investigate saltwater intrusion along Louisiana's coast. Students will connect saltwater intrusion and the other factors of Louisiana coastal erosion to the use of resources caused by population growth.*

1c. *Students will take a pre-assessment to determine prior background knowledge. During the project, the teacher will monitor student understanding using formative assessment techniques (questioning, data collection, and exit tickets). After the project, students will connect salt-water intrusion and other factors to human activity and increases in the human population to be assessed in a summative assessment*

Standard 2

2a. *6-MS-LS2-1. Performance Expectation: Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. Science & Engineering Practices: ANALYZING & INTERPRETING DATA Analyzing data in 6-8 builds on K-5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis. Analyze and interpret data to provide evidence for phenomena. Disciplinary Core Ideas: INTERDEPENDENT RELATIONSHIPS IN ECOSYSTEMS Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors. (MS.LS2A.a). Cross Cutting Concepts: CAUSE AND EFFECT Cause and effect relationships may be used to predict phenomena in natural or designed systems.*

2b. *The students will investigate and provide evidence of how the lack of freshwater affects flora along the coast.*

2c. *Students will take a pre-assessment to determine prior background knowledge. During the project, the teacher will monitor student understanding using formative assessment techniques (questioning, data collection, and exit tickets). After the project, students will identify how the lack of freshwater affects plant life in a summative assessment.*

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Project Summary

Provide a brief summary of the project that addresses the items being requested and how this project will increase students' content knowledge, skills, and/or practices of the listed standards. (50-120 words)

The goal of the activities associated with this project is to give students first-hand experience on how saltwater intrusion affects the Louisiana coast. Students will determine the effects of salt-water intrusion by conducting investigations using hydroponic systems containing fresh water and salt water. The students will present the findings of the investigation to community officials. The investigation will aid in explaining the reasons for Louisiana coastal erosion. This investigation meets requirements presented in Louisiana State Standard 6-MS-ESS3-4. This standard states that the student will construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

II. Rationale

State the primary motivating factor in proposing this project for the students (e.g., students' weakness, new curriculum, innovative project, challenges as a result of demographics, etc.). Include evidence supporting the motivating factor (e.g., student data, past experience, observation, education literature citations, etc.). (150-250 words)

Louisiana's coast is the fastest eroding area in the United States. This is due to a number of interrelated factors. One such factor is salt-water intrusion. When salt-water is introduced to plants, it has negative effects often resulting in the death of the plant. This causes increased rates of erosion. Due to the location within the state, many of the students in the area have no concept of coastal erosion. A poll conducted with one class of students, who would be impacted, shows that not one student is aware of the rapid rate of erosion at Louisiana's coast. This information is imperative for citizens of Louisiana. Louisiana's economy is directly related to resources found along its coastal regions. This project will enhance the student's knowledge of Louisiana's coastal erosion. This project may also aid students in raising awareness of this problem concerning our state.

III. Project Description

Timeline

Provide a timeline of project implementation.

*Grass will be grown in a hydroponics system for a period of **6 weeks**. The investigation will take place over a **two-week period**. Students will analyze and present data for **a week** following the investigation for a **total of nine weeks**.*

Description

Describe the project's instructional plan and classroom activities that will be used to improve content knowledge, skills and/or practices of your students. The items requested in your budget should be included here. (350-600 words)

All students in one 6th grade class will place grass into the hydroponics system four weeks prior to lesson to ensure the health of the grass and the establishment of roots.

The teacher will introduce the concept of Louisiana Coastal Erosion to the students. The students will predict what may happen to plants if they become inundated with salt-water instead of freshwater. The teacher will then introduce the project to the students. The grass will receive identical amounts of water, nutrients, and light for the duration of two weeks. Using the rulers, the students will work in small groups to monitor growth by recording the length of the grass on a daily basis. After the two-week period, salt will be added to one hydroponic solution. Two hydroponic systems will continue to be freshwater to act as the control group. Two more hydroponic systems will receive enough salt to equal the salinity of 4.5 ppt. The students will adjust the salinity in the final two hydroponic systems to equal 8.5 ppt., a measurement often found in marshlands. The salinity will be measured using a refractometer. The plants will be monitored for two weeks. The learner will then form a conclusion based on the plant's overall height grown. With teacher guidance, the student will connect saltwater's progression north with other factors affecting erosion along Louisiana's coast, including canals and land subsidence. The student will connect the concept of saltwater intrusion to other factors that contribute to Louisiana's eroding coast. The student will investigate how the rate of erosion increased due to human consumption of resources. The students will infer what will occur if the rate of erosion increases. The students will identify information through a post-assessment. The student will prepare a report and present findings to local officials.

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IV. Evaluation

List and describe the evaluation method(s) that will be used to determine student growth during the implementation of your project. (150-300 words)

In order to evaluate student progress, several assessment methods will be used. Students will take a pre-assessment to determine prior knowledge. This pre-assessment will be administered prior to discussions related to Louisiana coastal erosion. Students will complete the investigation using materials acquired by the grant. The teacher will gauge the growth of student knowledge during the investigation using formative assessment techniques. These techniques include, but are not limited to, questioning, checklists, and investigation plans. Student success will be assessed using a rubric. The student will also complete a summative post test to determine the project's success. Students will write an essay describing how salt water intrusion affects the coastal area of Louisiana. Students will present the information gained to local officials to raise awareness of Louisiana's coastal erosion.

Identify the target outcome(s) for student success. Indicate and describe the criteria for determining success at achieving the target outcome(s). (50-150 words)

Students will increase their knowledge of saltwater intrusion. Eighty percent of the students in the class will increase their knowledge of saltwater intrusion from the pretest to the posttest.

V. Budget (8 points)

Budget items includes equipment and materials that will be used for quality instruction to increase knowledge, skills, or practices in Math, Science, and STEM classes. The maximum award is $1,000 for PK-2 proposals, $1,500 for 3-5 proposals and $2,000 for 6-12 proposals.

The budget should include all QSM eligible items and QSM ineligible items that need to be purchased to successfully implement your project. If your budget includes QSM ineligible items and/or the total of QSM eligible items exceeds the award limitations, an explanation of how these items will be funded is required.

Click "+ New Item" to add a new budget item. For each item, specify if it is QSM eligible or QSM ineligible and fill in the Item Name/Description, Quantity, and Cost/Item. For QSM eligible items, the Vendor Name and Vendor Link is required.

QSM Eligible/Ineligible	Item Name/Description	Quantity	Cost/Item	Vendor Name	Vendor Link
Eligible	*HTG Supply Bubble Brothers 6-Site DWC Hydroponic System*	*4*	*$109.99*	*Amazon*	link
Eligible	*Grow Light Plant Lights for Indoor Plants LED Lamp Bulbs Full Spectrum*	*5*	*$27.99*	*Amazon*	link
Eligible	*Amazon Shipping Costs*	*1*	*$29.89*	*Amazon*	
Eligible	*Fisherbrand™ Handheld Analog Clinical Refractometer*	*2*	*$112.01*	*Fisher Scientific*	link
Eligible	*Fisherbrand™ 6 in. (150mm) Ruler (Pack of 10)*	*1*	*$95.00*	*Fisher Scientific*	link
Eligible	*Fisher Scientific Shipping Costs*	*1*	*$49.79*	*Fisher Scientific*	

QSM Eligible Items Total: *$978.61*
QSM Ineligible Items Total: *$0.00*
QSM BUDGET TOTAL: *$978.61*

Please indicate who will fund any overage for QSM Eligible items if needed. Select all that apply.

□ School Funded
□ District Funded
□ PTA
□ Private Company
□ Non-profit organization
☒ Not Needed- QSM Eligible Items within Total Limitations
□ Other

Please indicate who will fund the QSM Ineligible items if needed. Select all that apply.

□ School Funded
□ District Funded
□ PTA
□ Private Company
□ Non-profit organization
☒ Not Needed- Budget does not have QSM Ineligible Items
□ Other