

QSM SAMPLE PROPOSAL – Grade 1 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?

25

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 1st 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.

- | | |
|---|---|
| <input type="checkbox"/> Louisiana Student Standards for Mathematics | <input checked="" type="checkbox"/> Louisiana Student Standards for Science |
| <input type="checkbox"/> Louisiana's Birth to Five Early Learning Development Standards | <input type="checkbox"/> Computer Science Teaching Association Standards |
| <input type="checkbox"/> Standards for Technological and Engineering Literacy | <input type="checkbox"/> International Society for Technology in Education |
| <input type="checkbox"/> Advanced Placement | <input type="checkbox"/> Common Core Standards for Mathematics |
| <input type="checkbox"/> Other | |

Standards Outline

Provide the following information for each standard.

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

Standard 1

- 1-PS1-4- Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.*
- Students will explore instruments and common materials to determine that instruments make sound by vibrating and those objects make sound by vibrating. Next, the students will gather evidence through investigations which determine the effects sound has on objects.*
- Completed logbook recording sheets will be evaluated. A lesson pre-test and post-test will be administered.*

Standard 2

- 1-PS4-4- Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.*
- Students will apply the engineering design process to create a device that helps a teacher communicate with students over a long distance.*
- Completed engineering challenge recording sheet and class presentation will be evaluated using rubric. A lesson pre-test and post-test will be administered.*

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)

Students will use the requested sound kits to interact with musical instruments and common objects to determine that sound is caused by vibrating objects. These materials will increase students' understanding of wave properties and information technologies by engaging them in activities focused on data collection and analysis as well as engineering design solutions.

II. Rationale (6 points)

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)

This project is important to implement with my students because we are currently administering a new curriculum that is aligned with the Louisiana Student Standards for Science. This curriculum features a unit on sound waves that includes activities where students are collecting data about vibrating traditional musical instruments to better understand what causes sound. Students also investigate common objects to determine that some common objects make sounds by vibrating. In addition to this, students also participate in an engineering design challenge where they create a device from common objects that helps a teacher communicate with students over a long distance. With these requested hands-on components, students will have more opportunities to gain a deeper understanding of the first-grade science standards required at this grade level.

These activities are identified based on past observational data. Student engagement increases dramatically when elements of engineering design are introduced. This project is designed to leverage student choice of materials to meet students' need for tactile exploration to better understand sound waves and how sound can assist us in communicating over a distance. Having traditional musical instruments for students to engage with will assist them in observing and feeling the vibration patterns that can occur when sound waves are being transferred. These experiences will lay the foundation for students who revisit wave properties in 4th and 6th grade.

III. Project Description (23 pts)

Timeline

Provide a timeline of project implementation.

This project will be implemented in the spring semester. Students will have 3 weeks out of an 8 week unit to complete the activities. Students will spend 1.5 weeks on collecting qualitative data about traditional musical instruments and common objects. During this time, they will also compare their observations with peers and participate in class consensus discussions. Students will spend the next week and a half focusing on learning and applying the engineering design process to help a teacher communicate with students at recess. Students will be presented a problem, devise a solution, and identify how they will know if the solution is successful. After examining the materials, they will plan, create, and test out their communication device. Data that is collected will be analyzed and presented to the class for feedback and device improvement.

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)

The beginning unit focus question is: How does the Recycled Orchestra make music? Students will use their initial class model and driving question board developed at the beginning of the unit as foundational pieces while they interact with traditional musical instruments through stations. In groups of 4, students will rotate to 6 different musical instruments and record qualitative data in their logbook. Then, students will work with a partner to share the evidence gathered during stations while I look and listen for evidence of all students supporting the claim that all instruments make sound by vibrating. (1-PS1-4)

Over the next two class periods, student groups rotate through a second set of stations which contain common objects. Students investigate these objects and record qualitative data in their logbooks. While students are interacting with the items, I am looking and listening for evidence of students demonstrating their understanding of the concept that objects make sound by vibrating. Then, students will work in pairs to share new evidence gathered during these new stations. During this activity, I will be looking and listening for evidence that all students used the materials correctly to conclude that vibrating objects with similar properties can make similar sounds and that sound is caused by vibrating objects. (1-PS1-4)

The end of unit culminating activity features an engineering design challenge. The goal of the challenge is to help a teacher whose megaphone has broken communicate with students at recess. First, as a class, students review the engineering design process and brainstorm ideas about how they might solve the teacher's problem by using common objects to build a communication device. Next, students work in pairs to test various materials to discover which objects make loud sounds and use their observations to choose materials for their device. After designing their device, students create and test their device. During the device test, students record data on their engineering challenge recording sheet. I will be looking for evidence that students can identify and provide evidence of how the device's parts produce different sounds. I will also be listening for students to articulate how they will know if their design is successful. (1-PS4-4) Once all students have tested their device, they present their device to their peers, are given feedback and are given the opportunity to make changes or improve their design for a retest. During the class presentation, students are evaluated using a rubric.

IV. Evaluation (9 points)

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

Baseline data will be collected through a pre-assessment of students' prior knowledge of sound. Specifically, can students provide evidence that vibrating materials can make sound and that sound can make materials vibrate. In addition to this, students will be pre-assessed on their ability to demonstrate understanding of how tools or materials could be used to communicate messages over a distance.

During the project, I will determine student growth by anecdotal notes (taken before, during and after project implementation) as well as student responses on the logbook and the engineering design challenge recording sheets. I will be looking for evidence of students' understanding that vibrating materials can make sound and that sound can make materials vibrate. In addition to this, I will use a rubric to score students during the presentation of their device. This rubric will be aligned with state standards. Throughout the project, students will be monitored to informally assess student learning.

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)

My target outcome is students scoring an 85% or higher on the post-test focused on the standards 1-PS1-4 and 1-PS4-4. Upon conclusion of the project a post-test will be administered. These scores will be compared to the pre-assessment scores to determine mastery of the standards.

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-3 proposals and \$1,500 for 4-12 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 Item Link
Eligible	PhD Science Sound Kit (vendor provided cost quote)	1	\$550	Great Minds	Link
Ineligible	Jumbo Craft. Sticks, Pack of 100	1	\$6.95	Amazon	Link
Ineligible	Aluminum Foil, 1 Box	1	\$4.68	Amazon	Link
Ineligible	Plastic Wrap, 1 box	1	\$3.38	Amazon	Link
Eligible	Clipboard	24	\$1.54	Nasco	Link
Ineligible	Rubber bands, Pack of 100	1	\$5.10	Amazon	Link
Ineligible	Straws, Pack of 100	1	\$6.99	Amazon	Link
Ineligible	Manilla Folders, Pack of 36	1	\$9.49	Amazon	Link
Ineligible	Masking Tape, Pack of 12	1	\$9.59	Amazon	Link

QSM Eligible Items Total: \$ 586.96

QSM Ineligible Items Total: \$46.18

QSM BUDGET TOTAL: \$633.14

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 any overage for 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

