

Overview

Overview | PBL: Bridge Building Project



PBL: Bridge Building Project

by Dr. John Antinora

Students will participate in a inquiry-based experiment in which they will design and construct a wooden bridge that can support 11.33 kg (25lbs) given size constraints. A reading self-assessment will be given to students prior to module implementation. The data gained from the assessment was use to assign "literacy partners" for the purpose of reading and understanding a journal article later in the module. A copy of the assessment can be found under the uploaded resources.

The process requires them to work in teams to define the purpose, develop a hypothesis, design the experimental procedure, collect and analyze data, and make conclusions. They will write a formal lab report that is analogous to a peer-reviewed journal article in terms of format. Throughout the module, students will perform 2 web quests, decipher and analyze a peer-reviewed journal article and analyze its contents, respond to a video, perform a hands-on engineering activity, collaborate with a team of peers, and write a high level laboratory report. Students will refer to the teaching task when completing daily mini-tasks. The Common Core Learning Standards require that students work in small groups for some time during the class period. It may be advantageous for teachers to consider making a shift toward incorporating cooperative learning teams into the classroom for the completion of this module.

Grades: 11 12

Discipline: Science

Teaching Task: Task Template 17 (Informational or Explanatory and Procedural-Sequential)

Course: Physics

Author Information: John Antinora (New York City)

Section 1: What Task?

TEACHING TASK

Task Template 17 — [1 Level]

Informational & Procedural

L1: After researching forces on the structure and function of bridges by reading informational texts , developing a hypothesis, and conducting an experiment examining live load forces on bridge stability , write a laboratory report that explains your procedures and results and confirms or rejects your hypothesis. What conclusions can you draw?

STUDENT BACKGROUND

Before module implementation we learned about types of forces, force equations, gravity, and the normal force through direct instruction. You will use what you have learned about forces to conduct an investigation. In order to conduct the investigation, you will perform research about the structure and function of bridges and how various forces affect them. You and your design team will design a bridge that can support as much weight as possible with construction constraints that will be given to you. After collecting your data, you and your team will compose a formal laboratory report. Each design team will be given 50 pieces of $\frac{3}{32} \times \frac{3}{32} \times 36$ " Basswood to construct their bridge. Each design must stay within the following constraints: mass: 25g; span: 300mm; length: 400mm; width: 80mm; height: 200mm. The only materials you will have are a scapel, T pins, working surfaces, ruler, wood, and glue. The objective is to build the lightest bridge that is stronger than the bridges of the other teams.

EXTENSION

Students will study the Brooklyn Bridge that exists between Brooklyn and Queens for structural analysis. We will discuss the politics involved in maintaining the bridge properly and how it impacts NYC.

Rubric

Scoring Elements	Not Yet		Approaches Expectations		Meets Expectations		Advanced
	1	1.5	2	2.5	3	3.5	4
Focus	Attempts to address prompt, but lacks focus or is off-task.		Addresses prompt appropriately, but with a weak or uneven focus.		Addresses prompt appropriately and maintains a clear, steady focus.		Addresses all aspects of prompt appropriately and maintains a strongly developed focus.
Controlling Idea	Attempts to establish a controlling idea, but lacks a clear purpose.		Establishes a controlling idea with a general purpose.		Establishes a controlling idea with a clear purpose maintained throughout the response.		Establishes a strong controlling idea with a clear purpose maintained throughout the response.
Reading/Research	Attempts to present information in response to the prompt, but lacks connections or relevance to the purpose of the prompt. (L2) Does not address the credibility of sources as prompted.		Presents information from reading materials relevant to the purpose of the prompt with minor lapses in accuracy or completeness. (L2) Begins to address the credibility of sources when prompted.		Presents information from reading materials relevant to the prompt with accuracy and sufficient detail. (L2) Addresses the credibility of sources when prompted.		Accurately presents information relevant to all parts of the prompt with effective selection of sources and details from reading materials. (L2) Addresses the credibility of sources and identifies salient sources when prompted.
Development	Attempts to provide details in response to the prompt, including retelling, but lacks sufficient development or relevancy. (L2) Implication is missing, irrelevant, or illogical. (L3) Gap/unanswered question is missing or irrelevant.		Presents appropriate details to support the focus and controlling idea. (L2) Briefly notes a relevant implication or (L3) a relevant gap/unanswered question.		Presents appropriate and sufficient details to support the focus and controlling idea. (L2) Explains relevant and plausible implications, and (L3) a relevant gap/unanswered question.		Presents thorough and detailed information to strongly support the focus and controlling idea. (L2) Thoroughly discusses relevant and salient implications or consequences, and (L3) one or more significant gaps/unanswered questions.
Organization	Attempts to organize ideas, but lacks control of structure.		Uses an appropriate organizational structure to address the specific requirements of the prompt, with some lapses in coherence or awkward use of the organizational structure.		Maintains an appropriate organizational structure to address the specific requirements of the prompt.		Maintains an organizational structure that intentionally and effectively enhances the presentation of information as required by the specific prompt.
	Attempts to demonstrate standard English		Demonstrates an uneven command of standard English conventions and		Demonstrates a command of standard English conventions and cohesion, with few errors. Response includes language		Demonstrates and maintains a well-developed command of standard English conventions and cohesion, with few errors. Response

Conventions	conventions, but lacks cohesion and control of grammar, usage, and mechanics. Sources are used without citation.		cohesion. Uses language and tone with some inaccurate, inappropriate, or uneven features. Inconsistently cites sources.		and tone appropriate to the audience, purpose, and specific requirements of the prompt. Cites sources using an appropriate format with only minor errors.		includes language and tone consistently appropriate to the audience, purpose, and specific requirements of the prompt. Consistently cites sources using appropriate format.
Content Understanding	Attempts to include disciplinary content in explanations, but understanding of content is weak; content is irrelevant, inappropriate, or inaccurate.		Briefly notes disciplinary content relevant to the prompt; shows basic or uneven understanding of content; minor errors in explanation.		Accurately presents disciplinary content relevant to the prompt with sufficient explanations that demonstrate understanding.		Integrates relevant and accurate disciplinary content with thorough explanations that demonstrate in-depth understanding.

STANDARDS

Common Core Anchor Standards — Reading

R.CCR.1: Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

R.CCR.2: Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

R.CCR.4: Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

R.CCR.6: Assess how point of view or purpose shapes the content and style of a text.

R.CCR.10: Read and comprehend complex literary and informational texts independently and proficiently.

Common Core Anchor Standards — Writing

W.CCR.2: Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

W.CCR.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

W.CCR.5: Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

W.CCR.9: Draw evidence from literary or informational texts to support analysis, reflection, and research.

W.CCR.10: Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Common Core Anchor Standards — Language

L.CCR.1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

L.CCR.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

L.CCR.3: Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

L.CCR.4: Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

Common Core Anchor Standards — Speaking and Listening

SL.CCR.1: Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

SL.CCR.2: Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

SL.CCR.4: Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

Custom Standards

NYS PHYSICS CORE CURRICULUM: This Physical Setting/Physics Core Curriculum is intended to be a catalyst for significant change in the teaching of high school physics. The primary focus of the classroom experience should be on the development of higher order process skills. The content becomes the context and the vehicle for the teaching of these skills rather than an end in itself.

NYS PHYSICS STANDARD 1.KI 1. T1.1: Engineering design is an iterative process involving modeling and optimization (finding the best solution within given constraints) which is used to develop technological solutions to problems within given constraints. (Note: The design process could apply to activities from simple investigations to long-term projects.)

Section 2: What Skills?

Selected Skills

Preparing for the Task

TASK ENGAGEMENT: Ability to connect the task and new content to existing knowledge, skills, experiences, interests, and concerns

TASK ANALYSIS: Ability to understand and explain the task's prompt and rubric.

Reading Process

ACTIVE READING: Ability to identify the central point and main supporting elements of a text.

ACTIVE READING THROUGH RESEARCH: Ability to research information needed to complete the task. Will be performed by completing two web quests, a hands-on activity, and by viewing a video.

Transition to Writing

BRIDGING: Ability to begin linking reading results to writing task. Ability to link information and data gained from the experiment to begin constructing the formal lab report.

Writing Process

CONTROLLING IDEA: Ability to establish a controlling idea and consolidate information relevant to task.

DEVELOPMENT: Ability to construct an initial draft with an emerging line of thought and structure.

REVISION: Ability to refine text, including line of thought, language usage, and tone as appropriate to audience and purpose.

EDITING: Ability to proofread and format a piece to make it more effective.

COMPLETION: Ability to submit final piece that meets expectations.

Section 3: What Instruction?

MiniTasks

Preparing for the Task

TASK ENGAGEMENT: Ability to connect the task and new content to existing knowledge, skills, experiences, interests, and concerns

SHORT CONSTRUCTED RESPONSE

1 class period

SHORT CONSTRUCTED RESPONSE

Generate a list of things that you already know about forces. Include what you know about bridges and the weight they they support.

Scoring Guide (Work Meets Expectations If):

Response contains about 5 ideas written in complete sentences. It is acceptable for students to say what they want to learn about forces and bridges.

Instructional Strategies:

Done as an individual assignment. Engage the students in a class discussion about what they have written. Encourage the sharing of ideas, especially if students have written what they would like to know about bridges and support forces.

Accommodations and Interventions:

Accommodations: extended time, assign peer tutor, remove distractions from work area, read task aloud

TASK ANALYSIS: Ability to understand and explain the task's prompt and rubric.

NOTES

2 class periods

Students are exposed to the task prompt. Volunteers assist teacher in creating a poster that vividly displays the task prompt.

To students: Respond to the the following questions and record your answers in the writer's notebook:

- 1.What are you going to write about?
 - 2.How are you going to get the information?
 - 3.What is the final product that you will turn in to your teacher?
 - 4.What do you want to ask your teacher about the task?
 - 5.Re-write the prompt in your own words.
 - 6.What reading and writing skills will you need in order to complete this teaching task?
- Participate in a class discussion and question and answer session (students ask questions about the upcoming module and teacher answers questions).

Scoring Guide (Work Meets Expectations If):

Students respond to questions within the time given. Students willingly participate in an open format class discussion. They are able to ask relevant questions about the teaching task and their upcoming responsibilities.

Instructional Strategies:

Students complete the task analysis in teams of 4 (the same teams that will construct the bridges together.) Kagan Cooperative learning strategy Round Table is used for task completion. Students rotate one task analysis sheet until it is completely filled out. They then meet with the teacher for information verification before copying the information into their own writer's notebooks. Pacing time includes time for poster creation and display.

Notes:

Encourage cooperation and teamwork. Be open to hearing student ideas during discussions.

Accommodations and Interventions:

Accommodations: extended time, assign peer tutor, remove distractions from work area, read task aloud

Reading Process

ACTIVE READING: Ability to identify the central point and main supporting elements of a text.

SHORT CONSTRUCTED RESPONSE**1 class period**

Read "Coupled Safety Assessment of Cable Stay Bridges," a peer-reviewed journal article. Complete the questionnaire on your class Engrade web page.

The questions:

1. Identify 5 words that are of interest to you. These will be future vocabulary words.
2. How does this study support or relate to your experiment?
3. What are the main results of the study? Summarize the findings. Evaluate the validity of the researchers' conclusions.
4. Using information from the text, what is the difference between a case study and an experiment?
5. What is the author's purpose in writing the article? Provide evidence from the article supporting how you recognize his purpose.
6. What does this article contribute to the knowledge base?
7. Write the reference citation for this article. It will appear in the reference list of your formal lab report. **Teacher will have to show students how to cite an article in a reference in APA format. Refer to <http://owl.english.purdue.edu/owl/section/2/> for

APA format.

Scoring Guide (Work Meets Expectations If):

Responses are submitted correctly and students participate in the whole-class discussion that follows.

Instructional Strategies:

The teacher uses the results of a reading self-assessment that was administered prior to beginning the module. The data from the assessment is used to pair students up with a "literacy partner". Students read the article in pairs with their literacy partner.

They complete the questions on a google form that is found on their class Engrade web page. The teacher has access to the spreadsheet that displays all of the responses. The teacher engages the students in a class discussion as we view the responses on the smart board. The vocabulary words are scrambled and redistributed to pairs for the purpose of defining the words. The complete list of vocabulary words is distributed to the whole class.

Notes:

A journal summary can be assigned to the students if the teacher desires.

By answering the questions associated with this article, the students have essentially written a journal critique.

Accommodations and Interventions:

Accommodation: teacher can provide guiding questions for each component of the article for students in need of more intensive instruction.

ACTIVE READING THROUGH RESEARCH: Ability to research information needed to complete the task. Will be performed by completing two web quests, a hands-on activity, and by viewing a video.

LONG CONSTRUCTED RESPONSE

4 class periods

You will use the internet to perform 2 web quests. Web quests are like a scavenger hunt for information using web sites. The sites provided to you are reliable and enjoyable. Complete both web quests and fill in appropriate information in your science notebook. Teacher explicitly tells students that the information gathered from the web quests provides an insight into how structure impacts function.

Scoring Guide (Work Meets Expectations If):

Web quest responses are complete and correct. Responses include structural information about each type of bridge, materials, reinforcements, and whatever each individual deems significant enough for consideration. Responses are subjective in nature, so they will vary from student to student. This is purposely left as a subjective activity because of the

variety that will exist in their preferences as to how their bridges will be built. Students should make a connection between the information gathered during the web quests and the final product. (info. gathered here provides students with how structure impacts function-the teacher needs to iterate the significance of the information and relate that significance through direct communication with the students.)

Instructional Strategies:

Task completed in computer labs or library workstations. May be done individually or in cooperative teams.

Notes:

Students can be taken to a computer lab for the completion of this activity. Personal electronic devices (such as ipods) can be used if not a violation of the district's electronic use policy.

SHORT CONSTRUCTED RESPONSE

1 day

Complete the engineering hands-on activity in teams of 4. Adhere to expectations and be willing to present your findings to the class. Include descriptions, facts, details, examples and alternative perspectives. Use appropriate eye contact and volume, and clear pronunciation during your presentation.

Scoring Guide (Work Meets Expectations If):

Expectations are met and student engagement is at maximum. Expectations are as follows:

Rule 1: Postpone and withhold your judgment of ideas

Rule 2: Encourage wild and exaggerated ideas(think outside box!)

Rule 3: Quantity counts at this stage, not quality

Rule 4: Build on the ideas put forward by others

Rule 5: Every person and every idea has equal worth

Successful adherence to these expectations will be assessed by teacher observation and by questioning students from each group directly.

Instructional Strategies:

Teacher presents power point about engineering and structures to the class. Class is divided into cooperative teams. Each team gets the following materials: 10 sheets of paper, 20 drinking straws, 20 paperclips, tape, and scissors. Each team has 15 minutes to build a structure that can support the weight of at least one 23 Newton textbook at least 1.5 inches off the surface. Teams get 3 minutes to plan before construction. Upon conclusion, each team discusses why their structure failed or succeeded with the class. Students make a connection between this activity and the teaching task.

Notes:

If time permits, allow teams to create another structure.

Accommodations and Interventions:

Extended time, directions read aloud, preferential group assignment, and instructions on the design process: find the need, define the problem, come up with ideas, select the most promising design, plan and manage the project, and build the design.

NOTES**1 class period**

Watch the video "Modern Marvels: The Golden Gate Bridge." Respond to the following questions in your writer's notebook:

1. Evaluate the effectiveness of the bridge. Was the purpose achieved? How? Provide specific examples.
 2. Identify at least two safety concerns that arose during bridge construction.
 3. Evaluate the effectiveness of improvements and updates made to the bridge to date. Did they changes make the bridge stronger? Safer? Provide specific examples.
 4. What concerns about safety and maintenance arose from deciding on the color of the Golden Gate Bridge? What external organization had a big say in determining the color?
 5. Do you feel as though building the Golden Gate bridge had a significant economic impact on the communities surrounding it?
 6. What information from the video will assist you in building your bridge? Provide at least 3 examples.
-

Scoring Guide (Work Meets Expectations If):

Responses are in direct reference to the video. No outside sources are used to answer the questions. Expectations are met if students are able make a connection between the content in the video and the teaching task. The importance of structure on function is emphasized.

Instructional Strategies:

Can be completed as a Kagan Round Table activity in teams of 4 or as an individual activity.

Notes:

Video was streamed online through the teacher's netflix account. The DVD is available to order through the PBS website or on sites such as Amazon.com or ebay.

Transition to Writing

BRIDGING: Ability to begin linking reading results to writing task. Ability to link information and

data gained from the experiment to begin constructing the formal lab report.

LONG CONSTRUCTED RESPONSE

3 class periods

Each team will be given 50 pieces of 3/32 x 3/32 x 36" Basswood to construct their bridge. Each design must stay within the following constraints: mass: 25g; span: 300mm; length: 400mm; width: 80mm; height: 200mm. The only materials you will have are a scapel, T pins, working surfaces, ruler, wood, and glue. The objective is to build the lightest bridge that is stronger than the bridges of the other teams.

TITLE

Consult with your group and decide on a title for your report.

Purpose

Consult with your group and decide on the purpose of this activity.

Hypothesis

What information will you need before you can formulate a hypothesis? How will you find this information?

Write the hypothesis for your inquisition in the space below. The hypothesis must include the type of bridge you are building and the relevant terms that you learned from doing the web quest. An example of a hypothesis would be "After researching the types of bridges and the forces that they can support, a truss type bridge will support the most weight given the dimensional constraints of construction provided by the teacher. " (do not copy this hypothesis as it is written)

Experimental Procedure

How are you going to test your hypothesis? Write out the step-by- step procedure that you will use. Make sure that someone would be able to replicate your procedure using only your directions.

Scoring Guide (Work Meets Expectations If):

Teacher must approve of hypothesis and experimental procedure before bridge construction can begin

Instructional Strategies:

Completed in teams of 4. Teacher acts as a facilitator as the bridges are being built. The time necessary for building ranges from 3-5 days, depending on class size and time available. At the midpoint of building, the teacher allows time (at least 20 minutes) for each team to reflect on what is working and what can be improved in the structures. Weight will be suspended from the base of each bridge. The maximum weight that the bridge can support before breaking will be recorded. Bridge building specifications sheet provides greater detail about bridge constraints.

Notes:

Pacing time can be adjusted if necessary. Class size and schedule type will affect timing. Under the "methodology" section, the teacher can encourage students to include pictures of their steps as they build.

LONG CONSTRUCTED RESPONSE**2 class periods**

Analyze your data, create a data table/chart (your choice), and write a thorough conclusion for your lab report. Remember to discuss the hypothesis that was made prior to the experiment. Address whether or not the hypothesis was supported by the data. Include any revisions that you would make to the experiment.

Scoring Guide (Work Meets Expectations If):

Data chart clearly displays information gathered during the investigation. Conclusion is thorough and addresses the teaching task and the hypothesis.

Instructional Strategies:

The teacher will present students with 2 examples of conclusions (called "discussions" in journal articles) from published journal articles. Students will identify the following on team whiteboards (or posters):

1. How the results were summarized; evidence that the data supported or failed to support the hypothesis
 2. Relation of results to previous research
 3. Weaknesses in the study
 4. Implication of the study or ideas for future research
 5. Significance of the study
-

Notes:

Whiteboards can be purchased inexpensively from Lowes or Home Depot. The sales associates can cut white the boards to any size.

This is the last part of the report that will be written in the science notebook. For the next task, provide students with the "template for writing a formal lab report in APA."

Teachers may choose to have students write in MLA format. The students will use what they have written in their notebooks to write the initial draft using the template.

Accommodations and Interventions:

Extended time, template and or outline provided to guide students in writing. Immediate feedback is given to students.

Writing Process

CONTROLLING IDEA: Ability to establish a controlling idea and consolidate information relevant to task.

LONG CONSTRUCTED RESPONSE**1 class period**

Write an abstract for your lab report. An abstract is a concise version of your lab report. It is meant to draw in the reader and give them a brief overview of the report.

Scoring Guide (Work Meets Expectations If):

Abstract is scientific in nature and structure and is written using clear language. The following is required of the abstract:

- The abstract is the second page of your lab report.
 - It is a very concise summary of the whole report that is normally written after the paper is complete.
 - The abstract should indicate the purpose of the study and summarize the main findings.
 - You should try to have something about each section (Introduction, Method, Results, and Discussion) in your abstract.
 - The first line of this page should say, "Abstract" and should be centered.
 - This abstract should be no longer than 120 words.
 - The abstract is not indented.
 - All numbers reported in the abstract (even those less than 10) should appear in numeral form.
-

Instructional Strategies:

Students will view and critique abstracts written by published scientists. They will identify the parts of the abstract and construct an idea of what is to be included in the abstract.

Notes:

Iterate the importance of having a good abstract. Remind students that when researchers look for previous studies, they read the abstract of other articles.

DEVELOPMENT: Ability to construct an initial draft with an emerging line of thought and structure.

LONG CONSTRUCTED RESPONSE

1-2 class periods, depending on need

Write an initial draft complete with opening, development, and closing; insert and cite textual evidence and evidence from the web quests, hands on activity, and the film. Use the template provided to you on the class Engrade web page to assist you in writing the initial draft. You may type directly in to the template. Back up your work and don't forget to save your work frequently.

Scoring Guide (Work Meets Expectations If):

- Provides complete draft with all components.
 - Writing adheres to the rubric
 - Supports the writing with evidence and citations.
 - Completed within the allotted time period
-

Instructional Strategies:

- Encourage students to re-read prompt partway through writing, to check that they are on track.

Teacher provides a detailed template embedded with outlined notes for each component of the lab report.

Notes:

If the teacher does not provide students with a format for writing (template), then they will invent their own! Teacher should be specific in detailing what is expected. On the template, each section contains a mini outline for students to follow as they enter information.

Accommodations if needed: Read assignment aloud, allow extended

REVISION: Ability to refine text, including line of thought, language usage, and tone as appropriate to audience and purpose.

LONG CONSTRUCTED RESPONSE

1 class period

Pair up with your literacy partner and complete the peer-review checklist. Be sure to sign off on each others checklist as evidence of task completion. Refine composition's analysis, logic, and organization of ideas/points. Use textual evidence carefully, with accurate citations. Decide what to include and what not to include.

Scoring Guide (Work Meets Expectations If):

- Provides complete draft with all parts.
- Supports the opening in the later sections with evidence and citations.
- Improves earlier edition.

Completes peer-editing checklist for his or her literacy partner.

Instructional Strategies:

Provide each student with a copy of the peer-review checklist. Have a list handy of who their literacy partner is in case they have forgotten. Alternatively, allow students to choose partners in their proximity. Select a few students that are willing to share corrections that they will make as a result of the peer review. Be sure to thank those students for providing a learning opportunity to the class. After the sharing of corrections, remind students that they are responsible for implementing the changes into their reports.

- Sample useful feedback that balances support for strengths and clarity about weaknesses.
 - Allow students to work in pairs to provide feedback to each other. Pairs can be assigned or students can choose their own.
-

Notes:

Encourage students to be kind and respectful with their corrections. Some students may

be apprehensive to share their writing with others. Remind students that the purpose of having someone else read their work is that someone else will see mistakes faster than the writer him or herself. The writer's brain automatically fills in missing or incorrect information; another person's brain will not and the mistake will be immediately noticed.

Accommodations and Interventions:

Extended time, checklist read aloud, preferential partnering, individual instruction from teacher.

EDITING: Ability to proofread and format a piece to make it more effective.

LONG CONSTRUCTED RESPONSE

Revise draft to have sound spelling, capitalization, punctuation, and grammar. Adjust formatting as needed to provide clear, appealing text.

Scoring Guide (Work Meets Expectations If):

- Provides draft free from distracting surface errors.
 - Uses format that supports purpose.
-

Instructional Strategies:

- Briefly review selected skills that many students need to improve.
 - Teach a short list of proofreading marks.
 - Assign students to proofread each other's texts a second time.
-

LONG CONSTRUCTED RESPONSE

1 class period

Pair up with a classmate. Read his or her final draft and proofread for grammar errors (be considerate and respectful). Sign the draft and return it to your partner. Revise draft to have sound spelling, capitalization, punctuation, and grammar. Adjust formatting as needed to provide clear, appealing text.

Scoring Guide (Work Meets Expectations If):

- Provides draft free from distracting surface errors.
 - Uses format that supports purpose.
-

Instructional Strategies:

As the students are working together, set up a "teacher workstation" where they can elect to receive individual instruction from the teacher.

- Briefly review selected skills that many students need to improve.
- Teach a short list of proofreading marks.

- Assign students to proofread each other's texts a second time.

Accommodations and Interventions:

Extended time, individual instruction, preferential partnering, directions read aloud

COMPLETION: Ability to submit final piece that meets expectations.

LONG CONSTRUCTED RESPONSE

Turn in your complete set of drafts, plus the final version of your piece

Scoring Guide (Work Meets Expectations If):

- Fits the "Meets Expectations" category in the rubric for the teaching task.
-

Instructional Strategies:

LONG CONSTRUCTED RESPONSE

1 class period

Turn in your complete set of drafts, plus the final version of your piece.

Scoring Guide (Work Meets Expectations If):

- Fits the "Meets Expectations" category in the rubric for the teaching task.
-

Instructional Strategies:

Teacher can choose to have students submit the final draft electronically by email, sharing on Google drive, or transfer from flash drive. This facilitates storing of exemplar papers.

Resources

Uploaded Files



[Bridge Building Specifications.docx](http://literacybytechnology.s3.amazonaws.com/teacherresourceuploads/36146/1063984311_Jan_13_2014_182055581.docx)

(http://literacybytechnology.s3.amazonaws.com/teacherresourceuploads/36146/1063984311_Jan_13_2014_182055581.docx)

Bridge Building Specifications



[Cable Stay Bridges.pdf](http://literacybytechnology.s3.amazonaws.com/teacherresourceuploads/36146/1181788822_Jan_13_2014_18214867.pdf)

(http://literacybytechnology.s3.amazonaws.com/teacherresourceuploads/36146/1181788822_Jan_13_2014_18214867.pdf)

Cable Stay Bridges Reading Assignment



[Reading Self Assessment.pdf](http://literacybytechnology.s3.amazonaws.com/teacherresourceuploads/36146/587624294_Jan_13_2014_182241880.pdf)

(http://literacybytechnology.s3.amazonaws.com/teacherresourceuploads/36146/587624294_Jan_13_2014_182241880.pdf)

Reading Self Assessment



[Building Bridges Writer's Notebook.docx](http://literacybytechnology.s3.amazonaws.com/teacherresourceuploads/36146/2085809484_Jan_13_2014_182320219.docx)

(http://literacybytechnology.s3.amazonaws.com/teacherresourceuploads/36146/2085809484_Jan_13_2014_182320219.docx)

Bridge Building Student Note Pack



[Team Roles.docx](http://literacybytechnology.s3.amazonaws.com/teacherresourceuploads/36146/581306252_Jan_13_2014_182349880.docx)

(http://literacybytechnology.s3.amazonaws.com/teacherresourceuploads/36146/581306252_Jan_13_2014_182349880.docx)

Bridge Building Team Roles



[You the Engineer.pptx](http://literacybytechnology.s3.amazonaws.com/teacherresourceuploads/36146/1209748787_Jan_13_2014_182431151.pptx)

(http://literacybytechnology.s3.amazonaws.com/teacherresourceuploads/36146/1209748787_Jan_13_2014_182431151.pptx)

You, the Engineer

Keywords

*Links**

* These Lexile measures were computed automatically and did not undergo human review. They are not certified measures and should not be published or recorded in any way.

Other Resources

Section 4: What Results?

Classroom Assessment Rubric

Not Yet	
Focus	Attempts to address prompt but lacks focus or is off-task.
Reading/Research	Attempts to present information relevant to prompt.
Controlling Idea	Controlling idea is weak and does not establish a purpose and/or address a research question.
Development	Tends to retell rather than present information in order to answer questions, solve problems; lacks details to develop topic. *L2 Implications are weak or not relevant to topic. L3 Does not identifies a relevant gap or unanswered question.
Organization	Applies an ineffective structure; composition does not address requirements of the prompt.
Conventions	Demonstrates a weak command of standard English conventions; lacks cohesion; language and tone are inappropriate to audience and purpose.
Meets Expectations	
Focus	Addresses prompt with a focused response.
Reading/Research	Presents and applies relevant information with general accuracy.
Controlling Idea	Establishes a controlling idea that states the main purpose and/or question for the tasks. L2 Addresses the credibility of sources.
Development	Presents sufficient information in order to examine or convey topics or issues, answer questions, solve problems; identifies salient themes or features; explains key information with sufficient detail. *L2 Discusses relevant implications to topic. L3 Identifies a gap or unanswered question.
Organization	Applies a generally effective structure to address specific requirements of the prompt.
Conventions	Demonstrates a command of standard English conventions and cohesion; employs language and tone appropriate to audience and purpose.

Classroom Assessment Task

No Classroom Assessment Task for this module

Exemplar Work

Uploaded Files

Comments

Author Notes

Other Comments