Literacy Design Collaborative

Energy Resources

★ TASK ★ LADDER

by Kari Kinder and Christina M. Taylor

Our energy needs are met using a variety of energy resources. Students will learn that some energy resources are renewable; some are nonrenewable, as well as the impacts using these energy resources has on our environment. Students will then choose one resource to focus on, spend time researching that resource, and describe the environmental effects. During writing instruction students have learned to write informational/explanatory pieces, but this will be their first experience researching. Therefore, we selected several websites students could choose from to conduct their research. Students will write articles describing the resource they chose and explain the environmental effects.

GRADES	DISCIPLINE	COURSE	PACING
4	Science	Any	N/A

Section 1: What Task?

Teaching Task

Task Template 4-5.11 - Informational or Explanatory

After researching informational texts on various types of energy resources, write an article in which you describe a renewable or nonrenewable energy resource and explain the environmental effects of the energy resource you chose. Support your response with evidence from your research.

Standards

Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects

RI.4.1

Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

RI.4.3

Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

RI.4.9

Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.

W.4.2

Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

W.4.7

Conduct short research projects that build knowledge through investigation of different aspects of a topic.

W.4.8

Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.

Next Generation Science Standards

4-ESS3-1 Focus

Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

Texts

No texts specified

Student Work Rubric - Informational or Explanatory Task - Grades 4-5

	Emerging	Approaches Expectations	Meets Expectations	Advanced
	1	2	3	4
Topic / Main Idea	Introduces the topic and an unclear main idea.	Introduces the topic and a **clear** main idea with an **inconsistent focus** on the main idea.	Introduces the topic and a clear main idea with a **consistent focus** on the main idea.	Introduces the topic and a clear and **specific** main idea with a consistent focus on the main idea.
Use of Sources	Includes **few** relevant details from sources.	**Summarizes, paraphrases, or quotes relevant** details from sources with **minor inaccurate or incomplete elements**. Includes a list of sources.	Summarizes, paraphrases, or quotes relevant details from sources. Includes a list of sources.	Summarizes, paraphrases, or quotes **well-chosen** details from sources. Includes a complete list of sources.
Development	Includes **minimal** facts, definitions, details, and/or quotations related to the main idea, or that are loosely related to the main idea.	Includes **relevant** facts, definitions, concrete details, and/or quotations (as well as illustrations or multimedia when appropriate).	Includes relevant facts, definitions, concrete details, and/or quotations (as well as illustrations or multimedia when appropriate) **that help develop the main idea**.	**Explains** facts, definitions, concrete details, and/or quotations (as well as illustrations or multimedia when appropriate) that develop the main idea.
Organization	Sequence of sentences or sections lacks a logical order or an evident beginning, middle, and end.	Sequences sentences and groups related information in paragraphs or sections, **with a clear beginning, middle and end**. **Uses transitions (e.g., another, for example, also, because) to connect information**.	Sequences sentences and groups related information **logically** in paragraphs or sections that introduce and develop the main idea, and provide a conclusion. Uses transitions (e.g., another, for example, also, because, in contrast, especially) to connect **or compare** information.	Sequences sentences and groups related information logically in paragraphs or sections that introduce and develop the main idea, and provide a **unifying** conclusion. **Consistently and precisely** uses transitions (e.g., another, for example, also, because, in contrast, especially) to connect or compare information
Conventions	Major errors in standard English conventions appropriate to the grade level interfere with the clarity of the writing. Language use is inappropriate	Errors in standard English conventions appropriate to the grade level **sometimes** interfere with the clarity of the writing. Uses language and domain-specific vocabulary **with minor errors**.	**Consistently applies** standard English conventions appropriate to the grade level. **Minor errors**, while noticeable, **do not interfere** with the clarity of the writing.	Consistently applies standard English conventions appropriate to the grade level, **with few errors**. **Attempts to use untaught conventions, appropriate to grade level**.
Content Understanding (Generic)	Attempts to include disciplinary content in explanation or argument 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.

Background for Students

Could we live without energy? You probably do not have to think about that very long before you answer - NO! Energy is important. We are going to explore the different kinds of energy we use. Some of these are renewable, and some are nonrenewable. We are also going to explore how the environment is affected when we use these energy resources.

Extension

Not provided

Section 2: What Skills?

Preparing for the Task

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

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

Reading Process

ACTIVE READING > ESSENTIAL VOCABULARY: Ability to identify and master terms essential to understanding a text.

ACADEMIC INTEGRITY: Ability to use and credit sources appropriately.

ACTIVE READING > NOTE-TAKING: Ability to select important facts and passages for use in one's own writing.

Transition to Writing

BRIDGING CONVERSATION > IDENTIFYING SIGNIFICANT ELEMENTS: Ability to begin linking reading results to writing task.

Writing Process

DEVELOPMENT > INTRODUCTORY PARAGRAPH: Ability to establish a controlling idea and consolidate information relevant to task.

PLANNING > PLANNING THE WRITING: Ability to develop a line of thought and text structure appropriate to an informational/explanatory task.

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

REVISION, EDITING, AND COMPLETION > EDITING: Ability to proofread and format a piece to make it more effective.

REVISION, EDITING, AND COMPLETION > FINAL DRAFT: Ability to submit final piece that meets expectations.

Section 3: What Instruction?

PACING	SKILL AND DEFINITION	PRODUCT AND PROMPT	SCORING GUIDE	INSTRUCTIONAL STRATEGIES
Preparing for the Task				
30 mins	**BRIDGING CONVERSATION > TASK ENGAGEMENT**: Ability to connect the task and new content to existing knowledge, skills, experiences, interests, and concerns.	**CHALK TALK ON LIFE WITHOUT ENERGY** After watching Imagine the World without Electricity, do a quick Chalk Talk on your reaction to the video.	Participation	• Show YouTube video. • Give each table a piece of chart paper and markers. • Have a bubble in the center of each paper that states, "What are your ideas, thoughts, and questions on life without electricity." • Give each student a different color marker to record their thoughts on chart paper. Give students the option of drawing pictures or using words. • Come back together as a whole group and discuss the responses on each sheet.
	Additional Attachments: **Imagine the World Without Electricity**			
50 mins	**TASK AND RUBRIC ANALYSIS > TASK ANALYSIS**: Ability to understand and explain the task's prompt and rubric.	**ANCHOR CHART** Looking at the task, rubric and characteristics of an article, the class will make an anchor chart of important parts of each to include in the article on energy resources.	Students will create anchor chart in their notebooks listing key features of the task, level 3 of the rubric and an article.	• Create an anchor chart with three columns: task, rubric and characteristics of an article. • Students will draw this anchor chart in their notebooks. • Students talk with a partner or small group about the task and jot down in their notebooks what they think it means. • Discuss as a class and begin adding their thoughts to the anchor chart. • Partners or small groups look at level three on the rubric and list the key words in their notebooks. • Discuss the characteristics of an article with partners or small group making notes in their journal. • Discuss as a class to complete the final column of the anchor chart. • *This LDC unit was planned for the end of the school year, so the discussion of an article is a review.
	Additional Attachments: **Taylor anchor chart for analyzing task rubric article for energy LDC.JPG** **Kinder rubric task anchor chart.JPG**			
Reading Process				
45 mins	**ACTIVE READING > ESSENTIAL VOCABULARY**: Ability to identify and master terms essential to understanding a text.	**VOCABULARY LIST** In your notebook, list words and phrases essential to the texts. Add definitions, and (if appropriate) notes on connotation in this	• Lists appropriate phrases. • Provides accurate definitions.	• Students will create word cards or a flip book that include definitions and/or a picture. • Students work in groups to find the definitions of these words in their notebooks. • As a whole group, go over and discuss vocabulary words. • Encourage students to record any other words in

		context.		their research they feel are important to writing their article.
	Additional Attachments: **Energy Resource Vocabulary.docx** **vocab flipbook.JPG**			
15 mins	**ACADEMIC INTEGRITY**: Ability to use and credit sources appropriately.	**DEFINE PLAGIARISM AND CITE SOURCES** • Define plagiarism. • Understand how to cite your sources.	• Provides accurate definition. • Lists several appropriate strategies.	• Introduce lesson with I can statement: I can tell what plagiarism is and ways to avoid it. • Have students work as a group to define the word plagiarism. Share thoughts with the whole group and discuss the meaning. • Introduce the signal phrases mentioned in teacher's notes. • Discuss how to properly cite sources of information for 4th grade. • Show students where they will write down their sources on their note-taking pages.
	Additional Attachments: **grade-appropriate_documentation_of_sources20150319-3-1t4oxxk.pdf**			
50 mins	**ACTIVE READING > NOTE-TAKING**: Ability to select important facts and passages for use in one's own writing.	**HUMAN ENERGY USES** Take notes in Energy and Natural Resource packet on how humans use energy. Complete the Classwork and Homework section on Human Energy Use. Complete exit ticket.	Students answer 4 out of 5 of the questions correctly on the exit ticket.	• Start lesson with introduction of I can statement: I can identify sources of energy and how humans use these energies in everyday life. • Copy pages 1-5 of the Energy-Natural Resources Student Notebook for each student. • Use Lesson Day 1 Human Energy Use from the web site slides 1-18. Slides work best with a Smartboard but may still be viewed using PDF. • Discuss how humans use energy and where energy comes from. • List the different sources of energy. • Rank energies by usage in the United States. • Students will complete Classwork and Homework sections on Human Energy Use. • Students will complete exit ticket.
	Additional Attachments: **New Jersey Center for Teaching and Learning** **human energy exit ticket.docx** **energy-natural-resources Student Notebook-2014-11-14.docx** **Energy Natural Resources Student Notebook.pdf**			
50 mins	**ACTIVE READING > NOTE-TAKING**: Ability to select important facts and passages for use in one's own writing.	**RENEWABLE ENERGY** Take notes in Energy and Natural Resource packet on renewable energy. Complete the Classwork and Homework section on Renewable Energy. Complete exit ticket.	Students can answer 4 out of 5 questions correctly on the exit ticket.	• Start lesson with introduction of I can statement: I can describe renewable energy and list two resources. • Use lesson day 2 renewable energy from web site slides 19-28. • In small groups have students discuss what is renewable energy. • Identify renewable energy sources. • Have students take notes using their student notebook. • Have students complete exit ticket.

	Additional Attachments: **New Jersey Center for Teaching and Learning** **renewable energy exit ticket.docx** **Energy Natural Resources Student Notebook.pdf**			
50 mins	**ACTIVE READING > NOTE-TAKING**: Ability to select important facts and passages for use in one's own writing.	**NON-RENEWABLE ENERGY** Take notes in Energy and Natural Resource packet on non-renewable energy. Complete the Classwork and Homework section on Non-renewable Energy. Complete exit ticket.	Students will answer 5 out of 6 questions correctly on exit ticket.	• Start lesson with the I can statement: I can describe a non-renewable resource. • Use Day 4 from the web site on Non-Renewable Energy slides 39-53. • Have students discuss what non-renewable energy is and sources of it. • Have students take notes in the Student Notebooks. • Create a class anchor chart listing the Renewable and Non-resources discussed during instruction. • Complete exit ticket.
	Additional Attachments: **New Jersey Center for Teaching and Learning** **non-renewable energy exit ticket.docx** **Taylor_energy_resources_anchor_chart_for_energy_LDC20150421-3-1o495hj.jpg** **Kinder_energy_anchor_chart20150423-3-fwjcbu.jpg** **Energy Natural Resources Student Notebook.pdf**			
1 hr and 30 mins	**ACTIVE READING > NOTE-TAKING**: Ability to select important facts and passages for use in one's own writing.	**ENVIRONMENTAL IMPACTS** Take notes in Energy and Natural Resource packet on environmental impacts. Complete the Classwork and Homework section on Environmental Impacts. Complete exit ticket.	Students can answer 4 out of 5 questions correctly on exit ticket.	• Start the lesson with the I can statement: I can think of different ways human energy use might impact the environment. • Use Day 11 from the web site slides 57-72. • Have students work in groups and complete a Jig Saw activity. Pass out one of the environmental slides to each group and have them review the information and create a presentation to teach the class about their slide. • Have students take notes in their Science Notebooks. • Introduce Environmental Impact Stations which will be located in various spots in the classroom. Students will have the opportunity to visit these stations and record observations of impacts demonstrated in their notebooks. See Teacher Resources for possible stations for students to observe. • Students will complete exit ticket.
	Additional Attachments: **New Jersey Center for Teaching and Learning** **environmental impact exit ticket.docx** **Taylor environmental effects anchor chart for energy LDC.JPG** **acid rain radish.pdf** **disappearing-statues.pdf** **AirPollutionExperiment.pdf** **Energy Natural Resources Student Notebook.pdf**			

50 mins	**ACTIVE READING > NOTE-TAKING**: Ability to select important facts and passages for use in one's own writing.	**INTRODUCE RESEARCH PROJECT AND RESEARCH** Pick your energy resource and begin researching using your Energy Research Project.	Student completes note-taking research packet on his/her choice of energy resources.	• Introduce I can statement at beginning of lesson: I can research an energy resource to describe if it is renewable or non-renewable and how it effects the environment. • Pass out Energy Research Project packet from the web site. • Once students make their choice of which energy source to research from the EIA Energy Kids web site (http://www.eia.gov/kids/energy.cfm?page=2), they will research this source. • Students will complete Energy Research Project packet by answering questions on their resource. The information found will be used in their article. • Allow students up to 5 - 50 minute periods to gather information on their energy resource. • At the end of each research session, allow students to meet with other students in their energy resource to share information gathered.
	Additional Attachments: **EIA Energy Kids** **Energy_research-project-2014-11-14__2_20150309-3-1oc7bnu.docx** **Energy Sources Web Site** **Energy Articles based on resource** **energy_resources_5-6_nf_book_mid.pdf** **Taylor taking notes for energy LDC.JPG** **Taylor student notetaker for energy LDC.JPG** **energy resource packet.JPG** **Energy Sources**			
Transition to Writing				
50 mins	**BRIDGING CONVERSATION > IDENTIFYING SIGNIFICANT ELEMENTS**: Ability to begin linking reading results to writing task.	**GROUP WORK BASED ON ENERGY SOURCE** Continuing on going work with groups on their same energy resource group. Make sure to include if your energy source is renewable or non-renewable and the environmental impacts in your presentation. Present your energy source presentation to class.	Students should include if resource is non-renewable or renewable and the environmental impacts in presentation.	• Begin lesson with I can statement: I can work with a group to identify the important notes on my energy source with other students who have the same energy source. • Group students together who chose the same energy resource and have them compare their notes EIA Energy Kids web site. Students should have their notes written down on the research packet pages. • Have students use large white boards/poster board to create a presentation about their energy source. • Groups present their energy source to the class. • This should not be a drawn out process but should be a chance for kids to talk about their findings.
Writing Process				
30 mins	**DEVELOPMENT > INTRODUCTORY PARAGRAPH**: Ability to establish a controlling idea and consolidate information relevant to task.	**CONTROLLING IDEA AND INTRODUCTION PARAGRAPH** Write an opening paragraph that includes a controlling idea and sequences the key points	• Writes a concise summary statement or draft opening. • Provides direct answer to main	• Using organizer, model writing a controlling idea and introductory paragraph. • Offer several examples of opening paragraphs. (The Steps to Great Writing handout has several examples.) • Ask class to discuss what makes them strong or weak.

		you plan to make in your informational article.	prompt requirements. • Establishes a controlling idea. • Identifies key points that support development of the controlling idea.	• Review the anchor chart to check that students are on target to meet expectations.
	Additional Attachments: **intro paragraph.JPG**			
50 mins	**PLANNING > PLANNING THE WRITING**: Ability to develop a line of thought and text structure appropriate to an informational/explanatory task.	**OUTLINE/ORGANIZER** Create an outline based on your notes and reading in which you state your controlling idea, sequence your points, and note your supporting evidence. Use the information in the Steps to Great Writing handout as you plan.	• Creates an outline or organizer. • Supports controlling idea. • Uses evidence from texts read earlier.	• Review the information in the Steps to Great Writing handout about planning. • Provide and teach one or more examples of outlines or organizers. See teacher resources for an example of one that could be used for this module. • Other article organizers can be used for this module based on teacher or student preference.
	Additional Attachments: **student organizer 1.JPG** **Steps to Great Writing for energy resources.docx** **student organizer 2.JPG**			
50 mins	**DEVELOPMENT > BODY PARAGRAPHS**: Ability to construct an initial draft with an emerging line of thought and structure.	**INITIAL DRAFT** Write an initial draft complete with opening, development, and closing; insert and cite textual evidence.	• Provides complete draft with all parts. • Supports the opening in the later sections with evidence and citations.	• Model for students the process of creating a draft by using information gathered in their outline/organizer. • Remind students they can use the information in the Steps to Great Writing handout. • Remind students to cite their sources as they complete the draft. • Provide students with multiple days for completing draft. • Encourage students to re-read prompt partway through writing, to check that they are on track.
	Additional Attachments: **draft organizer.JPG** **draft paragraph 1.JPG**			
50 mins	**REVISION, EDITING, AND COMPLETION > EDITING**: Ability to proofread and format a piece to make it more effective.	**CORRECT DRAFT** Revise draft to have sound spelling, capitalization, punctuation, and grammar. Adjust formatting as needed to provide clear, appealing text.	• Provides draft free from distracting surface errors. • Uses format that supports purpose.	• Briefly review selected skills that many students need to improve. Use the checklist provided in the "Steps to Great Writing" to ensure students are reaching expectations and know what to look for in peer writing. • Assign students to proofread each other's texts a second time. • Allow students multiple days to conference with peers or teacher. • Review LDC rubric to ensure the student writing is

				meeting expectations.
	Additional Attachments: **Steps_to_Great_Writing_for_energy_resources20150526-3-c20omg.doc**			
50 mins	**REVISION, EDITING, AND COMPLETION > FINAL DRAFT**: Ability to submit final piece that meets expectations.	**FINAL PIECE** Turn in your the final version of your piece.	• Fits the "Meets Expectations" category in the rubric for the teaching task.	• Review the anchor chart created previously for the task and rubric. • Model how to score a writing piece using the LDC informational rubric. • Give each student a copy of the LDC informational rubric. • Ask students to score their own piece using the rubric. • Students submit their final writing piece and rubric of scoring of their own piece.
	Additional Attachments: **informational explanatory rubric for content classes (1).pdf**			

Instructional Resources

No resources specified

Section 4: What Results?

Student Work Samples

Approaches Expectations

- Kinder Duckwall student 1.pdf
- Kinder Duckwall student 4.pdf
- Taylor student 2.pdf
- Taylor student 1.pdf

Meets Expectations

- Kinder Duckwall student 2.pdf
- Kinder Duckwall student 3.pdf
- Taylor student 4.pdf
- Taylor student 3.pdf

Teacher Reflection

Not provided

All Attachments

- **Kinder Duckwall student 1.pdf : https://s.ldc.org/u/an83bnn89zg6kviaw6go4iigg**
- **Kinder Duckwall student 2.pdf : https://s.ldc.org/u/7ucaezm12qvlb58d635ul3m1x**
- **Kinder Duckwall student 4.pdf : https://s.ldc.org/u/asyqg007kpljytgzoh5ha49jo**
- **Kinder Duckwall student 3.pdf : https://s.ldc.org/u/d7ypip7ydfw2jxd1c16rqc5qn**
- **Taylor student 4.pdf : https://s.ldc.org/u/38fph224icjnrsmo836r50e5m**
- **Taylor student 3.pdf : https://s.ldc.org/u/cg0cynrp73vljuiy8n7tfhauc**
- **Taylor student 2.pdf : https://s.ldc.org/u/8uhdk781rfv55s9bqsdu4mkec**
- **Taylor student 1.pdf : https://s.ldc.org/u/8v2ee2ir50t8rghv38qeazygm**