Nuclear Sustainability: Argumentation

Information Sheet for Teaching Task

Module title:	Nuclear Sustainability
Module description (overview):	In this Project Based Learning (PBL) unit, students are asked to answer the question: Is nuclear energy sustainable? First, students are introduced to their task through an entry event in which they are given a brief introduction to the nuclear energy controversy and are told they will be writing an op-ed piece arguing for or against nuclear power based on their knowledge of the atom, nuclear chemistry, and nuclear power. They are also tasked with creating a public service announcement to persuade others of their views. After identifying what they know and want to learn about nuclear chemistry and nuclear power, they research the topics, complete labs and activities about atomic structure, read a number of different opinion pieces, and hear a presentation from an activist. They work collaboratively in groups for much of the process. Then they write the op-ed individually and complete the public service announcements in groups. The project concludes with presentations of their editorials and public service announcements to the class and community activists.
Template task (include number, type, level):	Task 2: Argumentation/Analysis, L1, 2, 3 [Insert question] After reading _____ (literature or informational texts), write a/an _____ (essay or substitute) that addresses the question and support your position with evidence from the text(s). L2 Be sure to acknowledge competing views. L3 Give examples from past or current events or issues to illustrate and clarify your position.
Teaching task:	Is nuclear energy sustainable? After reading articles and your chemistry textbook, write an op-ed piece that addresses the question and support your position with evidence from the texts. Be sure to acknowledge competing views. Give examples from past and current events or issues to illustrate and clarify your position.
Grade/Level:	11th Grade
Discipline: (e.g., ELA, science, history, other?)	Science and English
Course	Integrated chemistry and English
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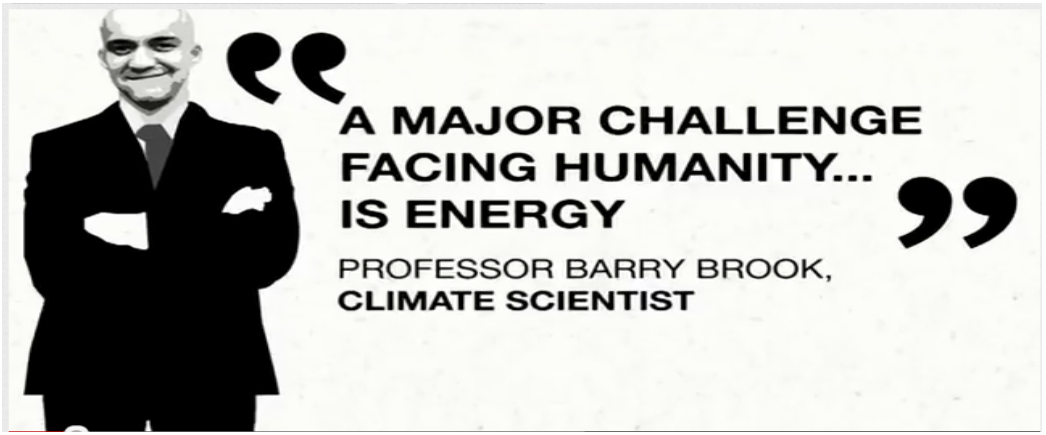
Section 1: What Task?

Background to share with students:	In the wake of Japan's 2011 nuclear power plant disaster, the growing amount of nuclear waste worldwide, and the ever increasing need for clean energy, people all over the world are asking: Is nuclear energy sustainable? Is it worth the price? For this project, you will be answering these questions. Entry Event  Image from Brook, B. (2011, June 27). *Sustainable energy choices for the 21st century* [Video file]. Retrieved from http://www.youtube.com/watch?v=98frSed0F5s Make sure you have your KWLS (Know-Want to Learn-Learned-Still Need to Learn) chart! Keeping the question "Is nuclear energy sustainable?" in mind, review the following resources and update your chart. We will be discussing this as a group, so be ready to share! YouTube videos TheVideoProject2009. (2011, May 12). *Into eternity* [Video file]. Retrieved from http://youtu.be/GmWadizC8AQ Brook, B. (2011, June 27). *Sustainable energy choices for the 21st century* [Video file]. Retrieved from http://www.youtube.com/watch?v=98frSed0F5s Articles (pick one)

	http://www.nytimes.com/roomfordebate/2011/03/13/japans-nuclear-crisis-lessons-for-the-us/the-price-of-fission-power http://www.csmonitor.com/USA/2011/0315/Meltdown-101-What-are-spent-fuel-pools-and-why-are-they-a-threat http://www.lbl.gov/abc/Basic.html http://science.howstuffworks.com/nuclear-bomb2.htm And be sure to look at the RUBRIC!
Teaching task:	Is nuclear energy sustainable? After reading articles and your chemistry textbook, write an op-ed piece that addresses the question and support your position with evidence from the texts. Be sure to acknowledge competing views. Give examples from past and current events or issues to illustrate and clarify your position.
Reading texts:	• See texts.
Extension	In your groups, create an ad campaign for a real audience (the format and audience is your group's choice) that explains the chemistry of nuclear energy and promotes a particular point of view regarding whether or not nuclear energy is a sustainable way to generate electricity.

TEXTS/OTHER USED IN TEACHING TASK

Texts/Other	Citations	Comments
Chemistry: Matter and Change	Glencoe/ McGraw Hill. (textbook) http://www.thisamericanlife.org/radio-archives/episode/431/see-no-evil?act=2	
"Faust and Fission Power"	Michio Kaku. *The New York Times.* (article) http://www.nytimes.com/roomfordebate/2011/03/13/japans-nuclear-crisis-lessons-for-the-us/the-price-of-fission-power	
"Meltdown 101: What Are Spent Fuel Pools, and Why Are They a Threat?"	Pete Spotts. *The Christian Science Monitor* (article) http://www.csmonitor.com/USA/2011/0315/Meltdown-101-What-are-spent-fuel-pools-and-why-are-they-a-threat	
"Is Nuclear Energy Safe?"	Tracy Staedter. *Discovery News* (article)	
"ABC's of Nuclear Science"	From the Lawrence Berkeley National Laboratory. (article) http://www.lbl.gov/abc/Basic.html	

"How Nuclear Bombs Work"	William Harris, Craig Freudenrich, and John Fuller. *How Stuff Works* (article) http://www.howstuffworks.com/nuclear-bomb.htm	
"The Great Sustainability Debates – Nuclear Energy"	From *The Natural Edge Project*. (website) http://www.naturaledgeproject.net/TheGreatSustainabilityDebates-NuclearPower.aspx	
"Denying the Invisible"	Act 2 of "See No Evil." *This American Life (*radio broadcast) http://www.thisamericanlife.org/radio-archives/episode/431/see-no-evil	Act 2 of the *This American Life* episode focuses on Chernobyl.
Into Eternity	(YouTube movie trailer) http://www.youtube.com/watch?v=GmWadizC8AQ&feature=youtu.be	This is a movie trailer for a documentary on a nuclear storage facility being built in Finland.
"Sustainable Energy Choices for the 21st Century"	From Brave New Climate. (YouTube video) http://www.youtube.com/watch?v=98frSed0F5s	Brave New Climate is an organization dedicated to promoting nuclear energy.
"Does the World Need Nuclear Energy?"	*TED Talk* (video). http://www.ted.com/talks/debate_does_the_world_need_nuclear_energy.html	
"Chernobyl Accident 1986"	From the World Nuclear Association. (website) http://www.world-nuclear.org/info/chernobyl/inf07.html	
"Fukushima – It's Much Worse Than You Think"	Dahr Jamail. *Aljazeera* English language web service. (article) http://www.aljazeera.com/indepth/features/2011/06/201161664828302638.html	
Citizens' Environmental Coalition	(website) http://www.cectoxic.org/	Environmental health organization website.
"Nuclear Safety"	Christine Dobbins of Citizens Environmental Coalition (presentation). http://www.cectoxic.org/aboutus.html	Christine Dobbins is a member of an environmental health organization.
Rutherford Scattering Simulation	Interactive simulation from the University of Colorado at Boulder. (Web) http://phet.colorado.edu/en/simulation/rutherford-scattering	
Isotopes of "Pennium" Lab	Paul Laurence Dunbar. *Virtual Chemistry Classroom*. http://staff.fcps.net/jswango/unit2/atomic_structure/pennium%20lab.pdf	
Half-Life of Pennyium Activity	From the Global Teacher's Academy at the Berkeley Center for Cosmological Physics.	

COMMON CORE STATE STANDARDS

READING STANDARDS FOR ARGUMENTATION	
"Built-in" Reading Standards	"When Appropriate" Reading Standards
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. 11th grade: Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.	6. Assess how point of view or purpose shapes the content and style of a text. 11th grade: Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas. 11th grade: Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.	7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words. 11th grade: Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
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. 11th grade: Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).	
10. Read and comprehend complex literary and informational texts independently and proficiently. 11th grade: By the end of grade 11, read and comprehend literary	

nonfiction in the grade 11 CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.	
WRITING STANDARDS FOR ARGUMENTATION	
"Built-in" Writing Standards	"When Appropriate" Writing Standards
1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. 11th grade: Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases. c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from and supports the argument presented.	6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others. 11th grade: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
4. Produce clear and coherent writing in which the development,	7. Conduct short as well as more sustained research projects based

organization, and style are appropriate to task, purpose, and audience. 11th grade: same as above	on focused questions, demonstrating understanding of the subject under investigation. 11th grade: Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. 11th grade: Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism. 11th grade: Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
9. Draw evidence from literary or informational texts to support analysis, reflection, and research. 11th grade: a. Draw evidence from literary or informational texts to support analysis, reflection, and research. b. Apply grades 11–12 Reading standards to literary nonfiction.	
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. 11th grade: same as above	

CONTENT STANDARDS FROM STATE OR DISTRICT

Standards source:	New York State Science Standards: http://www.p12.nysed.gov/ciai/mst
NUMBER	CONTENT STANDARDS

Standard 4, Key Idea 3	4: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science. 3: Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.

TEACHING TASK RUBRIC (ARGUMENTATION)

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 and establishes a position, but focus is uneven.		Addresses prompt appropriately and maintains a clear, steady focus. Provides a generally convincing position.		Addresses all aspects of prompt appropriately with a consistently strong focus and convincing position.
Controlling Idea	Attempts to establish a claim, but lacks a clear purpose. (L2) Makes no mention of counter claims.		Establishes a claim. (L2) Makes note of counter claims.		Establishes a credible claim. (L2) Develops claim and counter claims fairly.		Establishes and maintains a substantive and credible claim or proposal. (L2) Develops claims and counter claims fairly and thoroughly.
Reading/ Research	Attempts to reference reading materials to develop response, but lacks connections or relevance to the purpose of the prompt.		Presents information from reading materials relevant to the purpose of the prompt with minor lapses in accuracy or completeness.		Accurately presents details from reading materials relevant to the purpose of the prompt to develop argument or claim.		Accurately and effectively presents important details from reading materials to develop argument or claim.
Development	Attempts to provide details in response to the prompt, but lacks sufficient development or relevance to the purpose of the prompt. (L3) Makes no connections or a connection that is irrelevant to argument or claim.		Presents appropriate details to support and develop the focus, controlling idea, or claim, with minor lapses in the reasoning, examples, or explanations. (L3) Makes a connection with a weak or unclear relationship to argument or claim.		Presents appropriate and sufficient details to support and develop the focus, controlling idea, or claim. (L3) Makes a relevant connection to clarify argument or claim.		Presents thorough and detailed information to effectively support and develop the focus, controlling idea, or claim. (L3) Makes a clarifying connection(s) that illuminates argument and adds depth to reasoning.
Organization	Attempts to organize ideas, but lacks control of structure.		Uses an appropriate organizational structure for development of reasoning and logic, with minor lapses in structure and/or coherence.		Maintains an appropriate organizational structure to address specific requirements of the prompt. Structure reveals the reasoning and logic of the argument.		Maintains an organizational structure that intentionally and effectively enhances the presentation of information as required by the specific prompt. Structure enhances development of the reasoning and logic of the argument.
Conventions	Attempts to demonstrate standard English conventions, but lacks		Demonstrates an uneven command of standard English conventions and		Demonstrates a command of standard English conventions and cohesion, with few errors.		Demonstrates and maintains a well-developed command of standard English conventions and

	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.		Response includes language and tone appropriate to the audience, purpose, and specific requirements of the prompt. Cites sources using appropriate format with only minor errors.		cohesion, with few errors. Response 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 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.

EXTENSION TASK RUBRIC

KEY

Mastering	Demonstrates exceptional performance. The work is complete, correct, and high quality.	85–100%
Developing	Meets the minimum criteria. The work is partially complete, partially correct, or of mediocre quality.	65–84%
Emerging	Below performance standards. The work is missing or entirely incorrect.	0–64%

Learning Outcome	MASTERING (High Performance)
Chemistry Content **100 points**	Your product should clearly demonstrate or explain: • The advancement of the atomic theory including the Dalton, Thompson, Rutherford, and Bohr atomic models as well as the current wave theory model. Include key characteristics of each model. • The subatomic particles, their location within the atom, their charges, and relative mass. • Atomic mass, mass number and isotopes of atoms. • How fission works. • The main types of nuclear reactions. • Which of the nuclear reaction types are dangerous and why. • What half-life is and how it is calculated. • The relevance of half-life to the sustainability of nuclear power. Use examples from your research. • Why some elements are radioactive and others are stable, using both a description of the nucleus and the "band of stability." • Generally, how a nuclear reactor works to create electricity. • What nuclear waste is generated and what happens to it. • What can be done with the spent fuel rods.
Score (%)	0 - - 25 - - 50 - - 60 - - 65 - - 70 - - 75 - - 80 - - 85 - - 90 - - 95 - - 100
Comments	
English Content **100 points**	• Cite strong and thorough textual evidence to support analysis of what the texts say explicitly as well as inferences drawn from the texts, including determining where the texts leave matters uncertain. • Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

Score (%)	0 - - 25 - - 50 - - 60 - - 65 - - 70 - - 75 - - 80 - - 85 - - 90 - - 95 - - 100
Comments	
Communication	• Ideas must be communicated to a real audience.
Score (%)	0 - - 25 - - 50 - - 60 - - 65 - - 70 - - 75 - - 80 - - 85 - - 90 - - 95 - - 100
Comments	
Group collaboration (50 pts) **Individual collaboration (50 pts)**	• Group's digital folder has almost daily postings of work in progress. • Project is on time and complete. • Group communication form with amendments and task list are complete and thoughtful. • Team members share information and learning. • Group members are knowledgeable about the work of other members in that group. • Pacing chart is followed; deadlines are met. • Daily action plans are developed and team members are held accountable. • 2–3 weekly team meetings are held with evidence kept as a log in pacing chart. • Benchmarks are complete to the satisfaction of the group and on time.
Score (%)	0 - - 25 - - 50 - - 60 - - 65 - - 70 - - 75 - - 80 - - 85 - - 90 - - 95 - - 100
Comments	
Information Literacy 100 points	• Cite all sources used in the correct format. • If written text warrants, use parenthetical citations.
Score (%)	0 - - 25 - - 50 - - 60 - - 65 - - 70 - - 75 - - 80 - - 85 - - 90 - - 95 - - 100
Comments	

Section 2: What Skills?

Content Literacy Skills

Skill	Definition
Preparing for the Project	
Identifying "knows" and "need to knows"	Ability to identify what is already known and what needs to be learned and done in order to complete the task, as outlined in the entry document, background information sources, and rubrics
Gathering Information	
Research skills	Ability to evaluate and synthesize information from a variety of sources
Reading skills	Ability to draw inferences from text
Note taking	Ability to identify important information and use appropriate note-taking strategies
Other Content Skills	
Atomic models	Ability to describe the advancement of atomic models
Subatomic particles	Ability to describe the kinds and characteristics of subatomic particles
Characteristics of atoms	Ability to describe the characteristics of atoms, including their atomic mass, mass number, and isotopes
Nuclear reactions	.Ability to describe how fission works, the main types of nuclear reactions, and which types are dangerous and why
Radioactivity	Ability to explain why some elements are radioactive and others are not
Half-life	Ability to define half-life, describe how it is calculated, and explain its relationship to nuclear reactors and waste
Nuclear reactors	Ability to describe how a nuclear reactor works, including the waste it generates
Transition to Creating Final Product(s)	

Brainstorming	Ability to write quickly, brainstorming about an initial opinion
Creating Final Product(s)	
Writing an Opening	Ability to write an introduction with a thesis
Development	Ability to use textual evidence to support argument
Revising and Editing	Ability to revise and edit for spelling, grammar, usage, format, and clarity errors

Learning Outcome Skills

Skill	Definition
Communication	
Audience	Ability to choose and communicate to an authentic audience
Information Literacy	
Avoiding plagiarism	Ability to correctly cite sources
Collaboration	
Delegation and task division	Ability to use various strategies to delegate and divide tasks among group members
Task completion	Ability to complete tasks in a timely fashion according to pacing chart
Communication	Ability to communicate effectively with team

Section 3: What Instruction?

Mini-task	Group	Complete a Know/Want to Know/Learned/Still Need to Know chart based on the entry document, rubrics, and background sources, listing your prior knowledge and the questions you need to answer in order to complete the project.	
	Skill(s) Assessed	Ability to identify what is already known and what needs to be learned and done in order to complete the task, as outlined in the entry document, background information sources, and rubrics	
	Criteria for Success	"Knows" and "need to knows" are clearly reflective of information in rubric, background information sources, and entry document.	
		Instructional Strategies	• **K**now, **W**ant to Know, **L**earned, **S**till Need to Know chart graphic organizer (KWLS) • Group share and discussion of items from chart • Revisit KWLS chart periodically throughout project
Mini-task	Individual	Read the textbook chapters on the atom and nuclear chemistry, completing Cornell notes as you do so.	
	Skill(s) Assessed	Ability to describe the advancement of atomic models Ability to describe the kinds and characteristics of subatomic particles Ability to describe the characteristics of atoms, including their atomic mass, mass number, and isotopes .Ability to describe how fission works, the main types of nuclear reactions, and which types are dangerous and why Ability to explain why some elements are radioactive and others are not Ability to define half-life, describe how it is calculated, and explain its relationship to nuclear reactors and waste Ability to describe how a nuclear reactor works, including the waste it generates	
	Criteria for Success	Cornell notes include notes in students' own words regarding above topics, with appropriate summaries and questions.	
		Instructional Strategies (flexible, depending on students' needs)	• Workshop on Cornell notes • Cornell notes template • "Textbook circles" or small groups meeting to discuss and reflect on reading • Workshop (small group) on atomic models • Workshop (small group) on subatomic particles

Mini-task	Individual	Write a description of the nucleus of an atom and Rutherford's scattering experiment that proved that atoms had a small "core."	
	Skill(s) Assessed	Ability to describe the advancement of atomic models	
	Criteria for Success	Description compares and contrasts "plum pudding" vs. charged nucleus theories of atom and explains how Rutherford's experiment disproves the "plum pudding" model.	
		Instructional Strategies (flexible, depending on student need)	• Rutherford Scattering Simulation for CU Boulder • Sentence frames to support academic writing
Mini-task	Individual	Describe how the 'pennium/pennyium' labs simulated the isotopes, atomic mass, and half-life of an element.	
	Skill(s) Assessed	Ability to describe the characteristics of atoms, including their atomic mass, mass number, and isotopes Ability to define half-life and describe how it is calculated	
	Criteria for Success	Description is detailed and correctly identifies the penny isotopes, atomic mass, and half-life.	
		Instructional Strategies (flexible, depending on student need)	• "Isotopes of Pennium" lab • "Half-Life of Pennyium" lab • Sentence frames for scientific language
Mini-task	Individual	Gather additional information from research and class presentations, annotating or completing Cornell notes of important evidence that supports your position as well as counterclaims against your position.	
	Skill(s) Assessed	Ability to evaluate and synthesize information from a variety of sources Ability to draw inferences from text Ability to identify important information and use appropriate note-taking strategies Ability to use textual evidence to support argument	
	Criteria for Success	Annotations and Cornell notes highlight important information from articles that could be used to support op-ed argument, as well as which counterclaims to address.	

		Instructional Strategies (flexible, depending on student need)	• Workshop on using purpose to find important information • Guided reading in small groups of "Fukushima – It's Worse Than You Think" and "Chernobyl Accident – 1986" • Cornell notes from presentation by representative from Citizens Environmental Coalition, with group debrief
Mini-task	Individual	Brainstorm and write a rough draft of your op-ed on nuclear sustainability that has an introduction with a thesis, evidence, and citations.	
	Skill(s) Assessed	Ability to write an introduction with a thesis Ability to use textual evidence to support argument Ability to write quickly, brainstorming about an initial opinion Ability to correctly cite sources	
	Criteria for Success	Rough draft includes an introduction with a thesis and evidence to support argument.	
		Instructional Strategies (flexible, depending on student need)	• Workshop on introductions with thesis statements • Analysis of pro and con sides of debate • Quick-write on initial opinion • Analysis of persuasive elements of Citizens Environmental Coalition website • Workshop (small group) on persuasion using resources from http://www.hhs.helena.k12.mt.us/Teacherlinks/Oconnorj/persuasion.html
Mini-task	Individual	Revise your rough draft and write a final draft of your op-ed.	
	Skill(s) Assessed	Ability to revise and edit for spelling, grammar, usage, format, and clarity errors	
	Criteria for Success	Final draft is almost error free	
		Instructional Strategies (flexible, depending on student	• Peer revision and editing, looking at spelling, grammar, usage, and format

		need)	
Mini-task	Group	Complete your public service campaign and deliver it to an authentic audience.	
	Skill(s) Assessed	Ability to choose and communicate to an authentic audience Ability to describe how a nuclear reactor works, including the waste it generates Ability to use textual evidence to support argument	
	Criteria for Success	Public service campaign includes a clear position with appropriate evidence and is directed at an authentic audience.	
		Instructional Strategies (flexible, based on student needs)	• Analyze models of other public service campaigns • Analysis of Citizens Environmental Coalition website • Evaluation according to project rubric • Workshop (small group) on persuasion using resources from http://www.hhs.helena.k12.mt.us/Teacherlinks/Oconnorj/persuasion.html
Mini-task	Group	Complete a group folder (a collection in Google Docs) that includes your group contract, task list, and notes from group meetings.	
	Skill(s) Assessed	Ability to use various strategies to delegate and divide tasks among group members and check for completion Ability to complete tasks in a timely fashion according to pacing chart Ability to communicate effectively with team	
	Criteria for Success	Group contract includes series of steps to use in order to hold group members accountable, with evidence of use of steps in notes. Task list divides tasks fairly and includes notes on completion and timeliness.	
		Instructional Strategies (flexible, depending on student need)	• Team-building sessions • Pacing chart with list of benchmarks • Peer-collaboration assessments using collaboration rubric • Group meetings with teacher to review contract and notes • Group role divisions, with one member tasked with maintaining group folder • Structured, teacher-provided task lists for struggling groups