

🕇 TASK

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This module is situated towards the end of the second semester and serves as an application of covalent bonding. The goal is for students to leave this module with a better foundational knowledge of the properties of covalent bonds and how those bonds are important to their lives.

Prior to beginning this module, students should have been introduced to ionic and covalent bonding in unit 2 and then explored it more in unit 5 along with intermolecular forces. At this point the topic should be familiar, so the module should give another opportunity for students to grapple with the information and solidify views and understanding on the subject matter. Additionally, Unit 6 introduces the breakdown of bonds, so this module serves as a bridge into this subject.

Students will look at a variety of different texts, videos, and infographics, to come to a conclusion regarding BPA use in plastics. Included in this list is a primary research article. Special attention has been given to the supports required for students to understand this article. The reading level is collegiate, and it carefully exposes students to the type of reading they will do as college science majors if they choose that path.

After reading for content learning, students evaluate textual evidence and use it to develop a written argument about the level of regulation the US government should impose upon the use of BPA in plastics.



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## Section 1: What Task?

## Teaching Task

#### Task Template A9 - Argumentation

After reading informational texts and scientific research on the breakdown of chemical bonds and the use of BPAs in food and drink containers, write a scientific article for a health magazine in which you discuss the chemical composition, bonding, and breakdown of polycarbonate plastics and evaluate the extent to which the US should regulate the use of BPA in plastics, based on available research. Support your position with evidence from the text/s. Be sure to acknowledge competing views. Identify any gaps or unanswered questions. Include (charts, tables, illustrations, and/or stylistic devices) to help convey your message to your readers.

#### Standards

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

## CCR.L.1

Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

## RST.11-12.1

Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

## WHST.11-12.1

Write arguments focused on discipline-specific content.

## SL.11-12.1

Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacherled) with diverse partners on grades 11—12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

## L.11-12.6

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

## RI.11-12.10

By the end of grade 11, read and comprehend literary nonfiction in the grades 11—CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.

By the end of grade 12, read and comprehend literary nonfiction at the high end of the grades 11—CCR text complexity band independently and proficiently.

#### Colorado Academic Standards for Science

## 1.4.

Atoms bond in different ways to form molecules and compounds that have definite properties

## Texts

Focus

Focus

Focus

Focus

Focus

- % Video: Ionic, Covalent, and Metallic Bonding Preparing for the Task
- % A Closer Look at Bisphenol A- Reading Process
- % BPA: Friend or Foe?- Reading Process
- % What is BPA?- Reading Process
- Effect of detergents in the release of bisphenol A from polycarbonate baby bottles- Reading Process
- % In Feast of Data on BPA Plastic, No Final Answer- Reading Process
- % Study: Most Plastics Leach Hormone-Like Chemicals- Reading Process
- % What does US Government Research tell us about BPA?- Reading Process
- % Plastic (Not) Fantastic: Food Containers Leach Potentially Harmful Chemical- Reading Process
- % Endocrine System and Disruptors- Pre-Module
- % Optional Text: Ionic and Covalent Bonding

## Student Work Rubric - Argumentation Task - Grades 9-12

	Emerging	Approaches Expectations	Meets Expectations	Advanced
	1	2	3	4
Controlling Idea	Makes a general claim with an unclear focus.	Establishes a <b>clear</b> claim <b>that</b> addresses the prompt, with an uneven focus.	Establishes and maintains a clear, specific, and credible claim that addresses all aspects of the prompt.	Establishes and maintains a <b>precise</b> , <b>substantive</b> claim that addresses all aspects of the prompt. <b>Acknowledges limitations and/or</b> the complexity of the issue or topic.
Selection & Citation of Evidence	Includes minimal details from sources. Sources are used without citation.	Includes details, examples, and/or quotations from sources that are relevant to the claim. Inconsistently cites sources.	Includes details, examples, and/or quotations from sources that <b>support</b> the claim and <b>supporting ideas</b> . <b>Consistently</b> cites sources with <b>minor formatting errors</b> .	Includes <b>well-chosen</b> details, examples, and/or quotations from sources that <b>fully support</b> the claim and supporting ideas. Consistently cites sources <b>using</b> <b>appropriate format</b> .
Development / Explanation of Sources	Explanation of ideas and source material is irrelevant, incomplete, or inaccurate.	Explains ideas and source material to support the argument, with some incomplete reasoning or explanations.	Accurately explains ideas and source material and how they support the argument.	Thoroughly and accurately explains ideas and source material, using logical reasoning to support and develop the argument.
Organization	Lacks an evident structure. Makes unclear connections among claims, reasons, and/or evidence.	Groups ideas and uses transitions to develop the argument, with some lapses in coherence or organization.	Groups and sequences ideas to develop a cohesive argument. Uses transitions to clarify the relationships among claim(s), reasons, and evidence.	Groups and sequences ideas in a logical progression in which ideas build to create a unified whole. Uses varied transitions to clarify the precise relationships among claim(s), reasons, and evidence.
Conventions	Major errors in standard English conventions interfere with the clarity of the writing. Language or tone is inappropriate.	Errors in standard English conventions <b>sometimes interfere</b> with the clarity of the writing. Uses language and tone that are <b>sometimes inappropriate</b> for the audience and purpose.	<b>Consistently applies</b> standard English conventions; <b>minor errors</b> , while noticeable, <b>do not interfere</b> with the clarity of the writing. Uses language and tone <b>appropriate</b> <b>to the audience and purpose</b> .	Consistently applies standard English conventions, with few errors. Demonstrates varied syntax and precise word choice. Consistently uses language and tone appropriate to the audience and purpose.
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**

During the course of this module, you will apply your knowledge about bonding to the current research around BPA regulation in plastics. You will read current research and understand current regulation in order to determine what you believe to be the best course of action for the United States to take on this matter. You will examine and discuss primary research on the topic. Once you have completed your reading and discussions, you will write to the following prompt:

Write a scientific article for a health magazine in which you discuss the chemical composition, bonding, and breakdown of polycarbonate plastics and evaluate the extent of the impact of BPA breakdown-release on human health, based on available research. Be sure to acknowledge competing views.

#### Extension

Design an experiment that would build upon the research you have read about in this module and further inform the recommendations around BPAs in plastic.

OR Research BPS and compare the two chemicals

OR Write a letter to moms of newborns explaining the dangers of BPA

## Section 2: What Skills?

## Preparing for the Task

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

PRE-MODULE REVIEW: Make a connection between previously studied materials and the module.

ACTIVATING PRIOR KNOWLEDGE>CONNECTING TO YEAR-LONG LEARNING: Ability to connect to prior learning and year-long learning goals

TASK ANALYSIS>UNDERSTAND AND EXPLAIN THE TASK PROMPT: Ability to understand and explain the demands of the task prompt

**READING OF THE RUBRIC>BREAKING DOWN THE EXPECTATIONS IN THE RUBRIC**: Ability to analyze and paraphrase the expectations and scoring elements identified in rubric components **ANALYZING FORMATS**: Ability to examine text features of a health magazine

#### **Reading Process**

ACTIVE READING> NOTE-TAKING: Ability to note, review, and summarize key information POST-READING>ESSENTIAL VOCABULARY: Ability to define key academic vocabulary in context POST-READING>CATEGORIZING EVIDENCE: Ability to evaluate and record evidence ACTIVE READING>NOTE-TAKING: Ability to identify and record cause and effect POST-READING>ESSENTIAL VOCABULARY: ability to define key terms in context POST-READING>CATEGORIZING EVIDENCE: Ability to evaluate, categorize, and cite evidence ACTIVE READING>ANNOTATING: Ability to analyze science and technical texts POST-READING>ESSENTIAL VOCABULARY: Ability to define key terms in context POST-READING>CATEGORIZING EVIDENCE: Ability to evaluate, categorize, and cite evidence ACTIVE READING>QUESTIONING: Ability to analyze scientific and technical texts POST-READING>ESSENTIAL VOCABULARY: Ability to define key terms in context POST-READING>CATEGORIZING EVIDENCE: Ability to evaluate, categorize, and cite evidence ACTIVE READING>EVIDENCE REFLECTION: Ability to identify, record, and reflect upon textual evidence POST-READING>ESSENTIAL VOCABULARY: Ability to define key academic terms in context POST- READING>CATEGORIZING EVIDENCE: Ability to evaluate, categorize, and cite evidence ACTIVE READING>CONTENT COMPREHENSION: Ability to explain the relationships between text features and content information in an infographic POST-READING>ESSENTIAL VOCABULARY: Ability to define key academic terms in context

POST-READING>CATEGORIZING EVIDENCE: Ability to evaluate, categorize, and cite textual evidence

### Transition to Writing

**PREPARING FOR WRITING**: Ability to begin linking reading results to writing task. **DEBATE**: Ability to challenge ideas and conclusions

#### Writing Process

**CRITIQUE OF A TEXT**: ability to analyze and critique elements of a science text intended for a popular audience **PLANNING THE WRITING>ESTABLISHING A CONTROLLING IDEA**: Ability to develop and strengthen the writing of the thesis statement and introductory paragraph by planning.

PLANNING THE WRITING>REVIEWING CONTENT LEARNING: ability to synthesize new content learning PLANNING THE WRITING>OUTLINING: Ability to structure and organize an argument

DEVELOPING THE WRITING>INITIAL DRAFT: ability to draft an argumentative essay responding to the prompt

**INTRODUCTORY PARAGRAPH:** Ability to write an introductory paragraph

BODY PARAGRAPHS: Ability to Write a Body Paragraph

CONCLUDING PARAGRAPH: Ability to write a concluding paragraph

**DEVELOPING THE WRITING>REVISION:** ability to make changes to writing based upon feedback

**DEVELOPING THE WRITING>CITATIONS**: Ability to cite sources, using the appropriate format as dictated by a style guide.

**FINALIZING THE WRITING>FINAL DRAFT**: Ability to develop and strengthen writing as needed by revising, editing, rewriting, or trying a new approach.

## Section 3: What Instruction?

PACING	SKILL AND DEFINITION	PRODUCT AND PROMPT	SCORING GUIDE	INSTRUCTIONAL STRATEGIES
Prepariı	ng for the Task			
30 mins	TASK ENGAGEMENT: Ability to connect the task and new content to existing knowledge, skills, experiences, interests, and concerns.	HANDOUT ON MONOMERS AND POLYMERS SWBAT explain, in writing, the composition and breakdown of polymeric bonds using content language (polymer, monomer, covalent bond, hydrolysis, and condensation).	<ul> <li>Meets expectations if:</li> <li>Students participate in group conversation on how to solve the problems</li> <li>Students each draw out the bond formation and bond breakdown</li> <li>Students answer the comprehension questions regarding the bond formation and breakdown</li> </ul>	<ul> <li>This is a quick activity for students to review the creation and break down of covalent bonds. This activity should not take more than 30 minutes, and it will be used throughout the readings to give students a visual of chemical structures.</li> <li>Prior to doing any activity or watching any video, students should read the paragraph of instructions at the top of the activity. This introduces the two main vocabulary words: monomer and polymer. These words will also be described in the video.</li> <li>After reading, students watch the following video:</li> <li>http://www.uic.edu/classes/bios/bios100/lectures/polymer.htm</li> <li>This video shows students examples of condensation reactions and hydrolysis reactions. These are two very basic examples of making and breaking bonds, and they should be used to provide a visual for students to see the process that is occurring at a microscopic level in the release of BPA.</li> <li>Once students watch the video they should complete the handout in the student materials. This handout gives example problems for them to solve, and then asks comprehension questions to practice into the module and prepare the students for the reading and writing ahead.</li> <li>The handout can be completed in partners with each person writing the answer in his or her own student portfolio.</li> <li>Comprehension questions that are in the student guide are: <ol> <li>In addition to water, what other compounds or forces can break bonds? You may look this question up.</li> </ol> </li> <li>Knowing what you know about the use of plastic, what would be the most likely cause of broken bonds (from the answer in question 1).</li> </ul>
	Standards: <b>1.4.C.</b> : Use characteristic physic covalent Additional Attachments:	cal and chemical properties to dev	elop predictions and support	ing claims about compounds' classification as ionic, polar or
	<sup></sup>	3		
1 hr	<b>TASK ENGAGEMENT</b> : Ability to connect the task and new content to existing knowledge, skills, experiences, interests, and concerns.	POLYMER LAB WITH LAB QUESTIONS SWBAT explain, in writing, the breakdown of bonds in polymers through the addition of water to two different types of packing peanuts using content language (polymer, monomer, hydrolysis, covalent bond, and ionic bond).	<ul> <li>Meets expectations if student:</li> <li>Completes the pre and post lab questions with accurate answers when compared to a scoring guide</li> <li>Fully participates in the lab experience</li> <li>Acts responsibly in regards to lab supplies.</li> </ul>	Lab Set Up: Divide students into groups of 3-4 depending on the size of the classroom. Prior to students entering the classroom, separate out materials into groups so that each one can send one person to the front of the room to collect materials and expedite the process. Students can complete the prelab questions for homework to again decrease the time required for the lab. When students come in they should already be familiar with the lab protocol. The actual experiment should not take much time, and the benefit to students in regards to the module will come in the postlab questions.

				In this activity, students are given two different types of packing peanuts. They mix both types of peanuts with water and with acetone. The goal is for students to observe the breakdown of covalent bonds in polymers and gain a visual for the readings to come.
				Pre Lab Questions:
				1. What are covalent bonds? How are they created?
				2. How do covalent bonds differ from ionic bonds?
				3. What is the definition of a polymer?
				Post Lab Questions:
				1. Did this lab break down covalent or ionic bonds? How did you know?
				2. Which bond did water break down?
				3. Why can water break down compounds that use covalent bonds?
				4. What other methods can break covalent bonds similar to the water water broke the bonds?
				5. How can this relate to bonding in plastics?
				Students should record observations during the lab and be able to write down the procedure of their actions and the results.
				This lab can be done as a demonstration to save time in class. This lab is often used to study polar and nonpolar compounds, but in this case the focus remains on the breakdown of bonds. Students do not need to understand polar and nonpolar compounds in order to complete the lab.
	Standards:			
	<b>1.4.C.</b> : Use characteristic phys covalent	ical and chemical properties to dev	elop predictions and support	ing claims about compounds' classification as ionic, polar or
	<b>1.4.</b> : Atoms bond in different w	ays to form molecules and compou	nds that have definite proper	ties
	Additional Attachments:			
	Packing Peanuts Lab door			
50 mins	<b>PRE-MODULE REVIEW:</b> Make a connection between previously studied materials and the module.	ALTERNATIVE POLYMER ACTIVITY SWBAT explain, in writing, the relationship between monomer and polymers and how they form plastics, using content language/monomer, polymer, plastic).	<ul> <li>Meets expectations if:</li> <li>Students actively participate in the activity</li> <li>Students answer the comprehension questions at the end of the activity</li> </ul>	In this activity, students will complete activity 8 in Chapter 5, Ideal Toy. This activity gives an introduction of plastics and polymers. All materials needed for the activity are in the Active Chemistry kit. This is meant to give a lens into polymers and plastics so that students have a basic understanding of these two concepts moving into the module.
	Standards:			
	<b>1.4.D.</b> : Describe the role electr	ons play in atomic bonding	nde thet here definite energy	
	1.4. Atoms bond in different W	ays to torm molecules and compou	nus mai nave delinite proper	
	PRE-MODULE REVIEW:	I-CHART	Meets expectations if	The purpose of this task engagement mini-task is to provoke student thinking about plastics in their world and the
20 mins	Make a connection between previously studied materials and the module.	manner, orally and in writing, about everyday plastic items in their world using the language of experimentation (experiment, cause, effect,	<ul> <li>chart is complete</li> <li>questions are thoughtful</li> <li>observations reflect scientific thinking</li> </ul>	properties and uses of those plastics. The attached I-chart structures and provokes that thinking. Observations may be designed in a number of ways: 1) Assign as homework: have students go through their

		affect, hypothesize, predict, and result).		<ul> <li>chart as they encounter those items in their life</li> <li>2) Gather a collection of plastic items and bring them into the classroom, organizing observations in stations</li> <li>3) Project images of plastics, like the attached google slides, and prompt thinking about the images</li> <li>THEN, facilitate small or large group discussions digging deeper into the observations/inquiry, using questions such as</li> <li>Why did the engineer or manufacturer choose this plastic for this purpose?</li> <li>What might the chemistry behind these objects be?</li> <li>How is the item maintained (cleaned, stored, repaired)? What chemistry might be involved in that process?</li> <li>What happens after the object is no longer used for its intended purpose? What chemistry might be involved in that process?</li> <li>THEN, connect the observation and inquiry to the task, saying something like "We will be examining one type of plastic, its chemical composition, bonding, and the breakdown and how that chemistry affects our lives. We will do this by reading informational materials and writing an argument about the regulation of this particular type of plastic."</li> </ul>
	Additional Attachments: % plastic images slides Plastics I-chart.docx			
30 mins	ACTIVATING PRIOR KNOWLEDGE>CONNECTING TO YEAR-LONG LEARNING: Ability to connect to prior learning and year-long learning goals	KWL CHART SWBAT explain, in writing, prior knowledge relating to the breakdown of bonds and plastics, using content language (covalent bonds, ionic bonds, electrons, BPA, plastic, and intermolecular forces).	<ul> <li>Work Meets Expectations If:</li> <li>Student lists a minimum of 10 items in the "K" and "W" columns collectively.</li> <li>Meets expectations on the classroom assessment rubric.</li> </ul>	This activity should determine what students come to the table understanding. The chart can be split into the three sections: The top section can answer what students know and want to know in regards to plastics, the middle section can answer what students know and want to know in regards to BPA, and the lowest section can answer what students know and want to know in regards to bonding. NOTES: This mini-task can be taught or given as a homework assessment.
	Additional Attachments:			
30 mins	TASK ANALYSIS>UNDERSTAND AND EXPLAIN THE TASK PROMPT: Ability to understand and explain the demands of the task prompt	ANNOTATED TEACHING TASK SWBAT analyze the teaching task prompt, annotating by underlining key points, circling words they do not understand and writing questions, using clarifying language for questions (why would I, what is an example of, and in order to accomplish).	<ul> <li>Meets Expectations</li> <li>Students identify important words and phrases in the teaching task.</li> <li>Students circle unknown words and phrases in the teaching task.</li> <li>Students write questions they have around the teaching task.</li> <li>Students work collaboratively to properly answer their questions and accurately define all unknown vocabulary.</li> <li>Students reflect on their understanding</li> </ul>	<ul> <li>Ask students to annotate the teaching task by</li> <li>underlining what they think are the most important words and phrases</li> <li>circling the words they do not know</li> <li>writing questions about the task</li> <li>Ask students to trade with a partner and try to</li> <li>define all the key words/phrases identified</li> <li>answer all questions posed</li> <li>I DO</li> <li>Model your thinking aloud for students using the essential question from the task.</li> <li>"What are the positive and negative scientific and societal impacts of nuclear power?"</li> <li>WE DO</li> <li>2) Ask students to identify words/phrases that they think are most important.</li> </ul>

			of the task and expectations.	3) Ask students to identify words/phrases that they do not know.
				4) Ask students to pose questions they might want answers to about this question.
				(For 2-4, if students don't generate adequate responses, teacher can model for them.)
				5) Ask students to provide definitions/explanations of the key words/phrases identified (optionally use dictionaries/ online resources- computes/phones).
				6) Ask students to provide answers to the questions posed.
				(For 5-6, teacher can model definitions/answers for students).
				YOU DO
				1) Have students complete steps 2-4 individually on the attached handout for this modules task.
				<ol> <li>Have students work collaboratively with a partner for steps</li> <li>5-6. Students should record their thinking directly on their handout. Ask students to use a different color pen to highlight their collaborative work.</li> </ol>
				**Teacher should be circulating the room facilitating students through this process.
				Wrap up
				1) Highlight common student responses for important words/phrases and questions. Ask students to share out their findings, defined words and answers to questions.
				<ol> <li>Ask students to share any words/phrases they could not define or questions that are unanswered.</li> </ol>
				3) Ask the rest of class to pose definitions/answers.
				Capure this thinking on chart paper or a Google doc so that you can refer back to the task throughout the module.
				4) Ask students to reflect on their understanding of the teaching task and circle on their paper one of the thumbs (up, sideways or down) pictures. Meet with students that need additional support.
	Ctandarda			
	SL.11-12.1 : Initiate and particip 11—12 topics, texts, and issues, RST.11-12.4 : Determine the me technical context relevant to grad	ate effectively in a range of collabo building on others' ideas and expr eaning of symbols, key terms, and des 11—12 texts and topics.	prative discussions (one-on-c essing their own clearly and other domain-specific words	one, in groups, and teacher-led) with diverse partners on grades persuasively. and phrases as they are used in a specific scientific or
	Additional Attachments:			
	% Annotating the Teaching Ta	sk		
10 mins	READING OF THE RUBRIC>BREAKING DOWN THE EXPECTATIONS IN THE RUBRIC: Ability to analyze and paraphrase the expectations and scoring elements identified in rubric components	RUBRIC SELF-REFLECTION: GLOW + GROW SWBAT explain, in writing, areas of strength and areas of grwoth using reflective vocabulary (My strengths are, my focused area of growth is).	Meets expectations if student: • Highlighted all boxes in the "meets expectations" column in either green or pink • Identified one "glow" and wrote a	<ul> <li>Provide each student with a copy of the rubric.</li> <li>Provide each student with a green highlighter and a pink highlighter.</li> <li>Ask students to individually review the "meets expectations" column in the rubric. Highlight in green areas that you feel confident you can succeed in. Highlight in pink areas that you know you need to work on.</li> </ul>
			<ul> <li>commitment statement next to it</li> <li>Identified one "grow" and wrote a</li> </ul>	• Choose one of your green highlights as a "glow," or an area in which you shine. Circle it and write "glow" next to it. Then look at the "advanced" column for that glow and write out a commitment: what are you going to do

			commitment statement next to it	<ul> <li>to make sure that you score advanced in that area? What support do you need? From whom?</li> <li>Choose one of your pink highlights as a "grow," or an area to focus on for improvement. Circle it and write "grow" next to it. Then write out a commitment: what you going to do to make sure that your score "meets expectations" in that area? What support do you need? From whom?</li> <li>Have students turn and talk with a partner, sharing their glows and grows. How can they help to support one another?</li> <li>Optional Extension: Have students bring their rubric home and share their glow and grow with an adult advisor (parent, grandparent, neighbor, another teacher, etc.). Ask adult advisors to comment on how they can help to support.</li> </ul>
				advisors to comment on how they can help to support.
	WHST.9-10.9 : Draw evidence fr WHST.9-10.4 : Produce clear ar WHST.9-10.5 : Develop and stre most significant for a specific pur WHST.9-10.1 : Write arguments	rom informational texts to support and coherent writing in which the de engthen writing as needed by plana pose and audience. focused on discipline-specific con	analysis, reflection, and resea velopment, organization, and ning, revising, editing, rewritir tent.	arch. style are appropriate to task, purpose, and audience. ng, or trying a new approach, focusing on addressing what is
	Additional Attachments:			
	LDC-Argumentation-Rubric-	2.0.pdf		
Not provided	ANALYZING FORMATS: Ability to examine text features of a health magazine	(OPTIONAL) ANALYZING TEXT FEATURES OF A HEALTH MAGAZINE>OBSERVATIONS GRAPHIC ORGANIZER SWBAT analyze, orally, what makes a health magazine article effective, using text feature vocabulary(illustrations, tables, graphs, charts, etc.).	<ul> <li>Meets requirements if:</li> <li>Students complete graphic organizer in a manner which</li> <li>shows meaningful analysis of text features</li> </ul>	<ul> <li>*Classroom set-up and materials: a sampling of popular health or science magazines (one for each group), timer, graphic organizer</li> <li>1) Distribute a sampling of Health or popular Science magazines (enough for one for each table/group)</li> <li>2) Direct students to choose AN article, scan it, and fill out a graphic organizer (attached) with noticings of what the text features of an article look like, timing 5-10 minutes for each magazine and then rotating magazines to the next group in a pattern that works for your classroom management.</li> <li>3) You may wish to model one example under a document camera with students or by showing a variety of illustrations and graphs, charts, etc. on the promethean board</li> <li>4) Facilitate small groups by asking key questions, ie: <i>What is the impact of this (chart/picture/etc)? What lines/section in the text correspond to the featurehow do you know? Does this picture, etc. enhance/change the meaning of the text in any way?</i></li> <li>5) Debrief as a class, asking questions such as: <i>Which article has the most interesting or impactful text features, why? Which has the least? Why? In what way did the text features aid understanding of the news in the text? How does this inform your vision of your final product and the decisions you might make?</i></li> </ul>
	Standards:			

RST.11-12.7: Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

**RST.11-12.6** : Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.

**RST.11-12.4**: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11—12 texts and topics.

**RST.11-12.1**: Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.



				on the right hand side of the notes as sub-headings.
				<ul> <li>*You may wish to have students share their questions with the class and answer them, point them in a research direction, or let them know the question will be addressed in a future reading, as you see fit. But the act of questioning is in and of itself a comprehension strategy, even if those questions go unanswered.</li> <li>6) After reviewing notes for questions formulation, the final step is to summarize the lesson's information by answering the Essential Question from the top of the notes. An appropriate scaffold is to give a sentence starter which rephrases the essential question and place an expectation for how many details you wish to have included in the summary. (3-4 sentences).</li> </ul>
	Standards:			
	1.4. Atoms band in different wa	we to form malagulas and company	nda that have definite proper	tion
	L.11-12.6 : Acquire and use acc college and career readiness lev comprehension or expression. SL.11-12.1 : Initiate and particip 11—12 topics, texts, and issues,	surately general academic and compound el; demonstrate independence in g nate effectively in a range of collabor building on others' ideas and expr	nas that have definite proper nain-specific words and phra- gathering vocabulary knowled prative discussions (one-on-or- ressing their own clearly and for reflection and revision) and	thes ses, sufficient for reading, writing, speaking, and listening at the dge when considering a word or phrase important to one, in groups, and teacher-led) with diverse partners on grades persuasively.
	range of discipline-specific tasks	, purposes, and audiences.	for reflection and revision) ar	id shorter time trames (a single sitting or a day or two) for a
	WHST.11-12.9 : Draw evidence	from informational texts to support	t analysis, reflection, and res	earch.
	RST.11-12.2 : Determine the ce	ntral ideas or conclusions of a text	; summarize complex concep	ots, processes, or information presented in a text by
	RST.11-12.1 : Cite specific textu gaps or inconsistencies in the ac	all evidence to support analysis of count.	science and technical texts,	attending to important distinctions the author makes and to any
	Additional Attachments:			
	Additional Attachments:	x		
	Additional Attachments:	x ell_notes_4.pdf		
20 mins	Additional Attachments:	x bll_notes_4.pdf FRAYER MODEL "FLASHCARDS" SWBAT define, in writing, unfamiliar words and terms encountered in the text using the language of word analysis (context, root, prefix, and suffix).	<ul> <li>Meets expectations if students have:</li> <li>accurately completed Frayer models for most words in word bank</li> <li>including definition, examples, quotes of context, and visuals/models.</li> </ul>	<ul> <li>Throughout the reading of <u>all of the texts</u>, students will add to their academic vocabulary about this topic. (After modeling in class and checking student understanding of the strategy, this may be assigned as homework)</li> <li>1) Direct students to examine the module word bank of predetermined vocabulary words (see attachment)</li> <li>2) Show the example Frayer model to students</li> <li>3) Explain that as they encounter these terms in the assigned texts, using differing active reading strategies for each text, they should use strategies they know for determining the meaning of unfamiliar words (see example of "fix-up strategies attached), to arrive at a definition for each key term.</li> <li>3) Students should also quote and cite (see example) the context in which the word was encountered.</li> <li>4) Students should provide an example and a visual for each key term (see model)</li> <li>5) Students should identify and note the characteristics of each key term</li> <li>4) When students read the term in a new context, they should add something to each Frayer model (perhaps in an additional color) and watch the Frayer model and definition grow!</li> </ul>

				and fixup strategies
	Standarda			
	Standards:			
	<b>1.4.</b> : Atoms bond in different wa	lys to form molecules and compou	nds that have definite proper	ties
	flexibly from a range of strategies	ine meaning of unknown and multi S.	pie-meaning words and phra	ises based on grades 11-12 reading and content, choosing
	RST.11-12.4 : Determine the me technical context relevant to grac	eaning of symbols, key terms, and les 11—12 texts and topics.	other domain-specific words	and phrases as they are used in a specific scientific or
	Additional Attachments:			
	2014-Fix-Up-Strategies20150	)421-3-mgg76b.docx		
	Plastics word bank.docx			
	Frayer model example plast			
	Revised Frayer Model Chem	.000		
10 mins	POST- READING>CATEGORIZING EVIDENCE: Ability to evaluate and record evidence	PRO-CON EVIDENCE T- CHART SWBAT evaluate, in writing, textual evidence about the use of BPA, using compare and contrast language (pro, con, interpretation, and perspective).	<ul> <li>Meets expectations if:</li> <li>evidence is quoted from all sources</li> <li>both pro and con sides are complete and make sense</li> <li>students have included "working" parenthetical citations (Title/author, pg #, pgh#)</li> </ul>	<ul> <li>This strategy should be used with EACH TEXT, creating an ongoing chart of evidence <u>before students have developed a claim.</u> (After practiced in class, this could be assigned as homework)</li> <li>1) Model using a "think aloud" and the attached example after the reading/viewing of the first text.</li> <li>2) Students should pull out and quote textual evidence for or against the use of BPA in plastics intended for food/drink after each reading and note the evidence within the chart.</li> <li>3) Students should keep track of the source of the information by adding the title and author at the top and noting the page and paragraph number in parentheses. (See example)</li> </ul>
	Standards:			
	<ul> <li>1.4. : Atoms bond in different wa</li> <li>WHST.11-12.9 : Draw evidence</li> <li>RST.11-12.10 : By the end of grap proficiently.</li> <li>RST.11-12.1 : Cite specific textual gaps or inconsistencies in the action</li> </ul>	tys to form molecules and compou from informational texts to support ade 12, read and comprehend scie al evidence to support analysis of count.	nds that have definite proper t analysis, reflection, and res ence/technical texts in the gra science and technical texts,	ties earch. ades 11—CCR text complexity band independently and attending to important distinctions the author makes and to any
	Additional Attachments:			
	Evidence T-Chart.docx			
30 mins	ACTIVE READING>NOTE- TAKING: Ability to identify and record cause and effect	MULTIFLOW MAP SWBAT analyze, in writing, the causes and effects of BPA composition and breakdown, using content language (protons, neutrons, bonding, leach, products, and byproducts).	Meets expectations of: • causes and effects are recorded clearly • use of graphic organizer makes sense	<ol> <li>Model: show students how a multiflow map works, using the non-text based sample attached</li> <li>You may wish to scaffold the graphic organizer by filling in some of the graphic organizer ahead of time</li> <li>Direct students to read the article, "What Is BPA", annotating for causes and effects (perhaps underline one and double underline another) and noting questions. Possible reading structures include whole class read and think-aloud, partner reading, small group reading, or independent silent reading.</li> <li>As students read or following the reading, have students record the breakdown and composition of BPA in the multiflow map.</li> </ol>
	Standards:			
	1.4.E. : Predict the type of bondi	ing that will occur among elements	based on their position in th	e periodic table

	<ul> <li>1.4.D. : Describe the role electron</li> <li>1.4.C. : Use characteristic physic covalent</li> <li>1.4.A. : Develop, communicate, WHST.11-12.2 : Write information</li> <li>RST.11-12.10 : By the end of graph proficiently.</li> <li>RST.11-12.2 : Determine the ceparaphrasing them in simpler but Additional Attachments:</li> <li>Multi-Flow Map.docx</li> <li>Multiflow map example.docy</li> </ul>	ons play in atomic bonding cal and chemical properties to deve and justify an evidence-based scie re/explanatory texts, including the ade 12, read and comprehend scie ntral ideas or conclusions of a text t still accurate terms.	elop predictions and supporti entific explanation supporting narration of historical events, ence/technical texts in the gra ; summarize complex concep	ng claims about compounds' classification as ionic, polar or the current models of chemical bonding scientific procedures/experiments, or technical processes. ades 11—CCR text complexity band independently and ots, processes, or information presented in a text by
20 mins	POST-READING>ESSENTIAL VOCABULARY: ability to define key terms in context	FRAYER MODEL "FLASHCARDS" SWBAT define, in writing, unfamiliar words and terms encountered in the text about BPA plastics, using terms of word-analysis (context, root, prefix, and suffix).	<ul> <li>Meets expectations if students have:</li> <li>accurately completed Frayer models for most words in word bank</li> <li>including definition, examples, quotes of context, and visuals/models.</li> </ul>	<ul> <li>Throughout the reading of <u>all of the texts</u>, students will add to their academic vocabulary about this topic.</li> <li>1) Direct students to examine the module word bank of predetermined vocabulary words (see attachment)</li> <li>2) Show the example Frayer model to students</li> <li>3) Explain that as they encounter these terms in the assigned texts, using differing active reading strategies for each text, they should use strategies they know for determining the meaning of unfamiliar words (see example of "fix-up strategies attached), to arrive at a definition for each key term.</li> <li>3) Students should also quote and cite (see example) the context in which the word was encountered.</li> <li>4) Students should provide an example and a visual for each key term (see model)</li> <li>5) Students read the term in a new context, they should add something to each Frayer model (perhaps in an additional color) and watch the Frayer model and definition grow!</li> <li>*See attached word bank, modified Frayer model example, and fixup strategies</li> </ul>
	Additional Attachments: 2014-Fix-Up-Strategies20150 Plastics word bank.docx Frayer model example plast Revised Frayer Model Chem	)421-3-mgg76b.docx ics.docx .doc		
10 mins	POST- READING>CATEGORIZING EVIDENCE: Ability to evaluate, categorize, and cite evidence	PRO-CON EVIDENCE T- CHART SWBAT evaluate textual evidence, in writing, about BPA plastics using the language of argument (point, counterpoint, perspective, evidence).	<ul> <li>Meets expectations if:</li> <li>evidence is quoted from all sources</li> <li>both pro and con sides are complete and make sense</li> <li>students have included "working" parenthetical citations (Title/author, pg #, pgh#)</li> </ul>	This strategy should be used with EACH TEXT, creating an ongoing chart of evidence <u>before students have developed a claim.</u> Teacher may choose to talk through the attached example and/or model with the first text. After each reading, students should identify and quote textual evidence that BPA in plastics intended for food/drink is either HARMFUL or NOT HARMFUL to humans and note the evidence within the chart. Students should keep track of the source of the information by adding the title and author at the top and noting the page and paragraph number in parentheses. (See example)

	Additional Attachments:			
	Evidence T-Chart.docx			
50 mins	ACTIVE PEADING>ANNOTATING: Ability to analyze science and technical texts	ANNOTATING A SCIENTIFIC TEXT SWBAT summarize, in writing, key points in the article, "BPA: Friend or Foe?", using the language of inquiry (similar, different, clarify, how, why, explain).	<ul> <li>Meets expectations</li> <li>if article is completely annotated</li> <li>annotations are focused, thoughtful, and varied</li> <li>students are able to explain their thinking when you ask targeted questions during small group facilitation</li> </ul>	<ul> <li>*Since this is a specific and unique annotation strategy, modeling is recommended. This may be done under a document camera, overhead projector, or smart board.</li> <li>1) Project the first paragraph of the text. Read aloud to class and identify a key idea. Direct/model annotation in the following way:</li> <li>CIRCLE words or phrases about which a student might have a question</li> <li>For each circled term, in the margin, students should write the specific question they have. For instance, if the term circled is <i>ecotoxicology</i>, the question you write in the margin may be, "Does this mean it is toxic to the environment or only to people?"</li> <li>UNDERLINE one sentence that represents the <u>main idea in each paragraph.</u></li> <li>For each sentence underlined, in the margin, students should rephrase the main idea in their own words. For example, if the sentence underlined is</li> <li>'It is made from very cheap ingredients – acetone and phenol – and it makes a nice, clear, rigid polycarbonate and is really useful for making epoxy resins.</li> <li>Then the notation is the margin might be</li> <li>BPA is inexpensive, transparent, and strong.</li> <li>2) Direct students to continue reading and annotation in this way. One way to scaffold this might be partner reading/annotating with intentional partners. However, students can continue independently if you are clear on the expectation to follow the model and if they are proficient readers of scientific texts.</li> <li>3) Consider facilitating the annotation process with questions like, "What is the significance of what you underlined/starred/circledwhy will that information matter when it comes time to form an argumentwhat questions do you have about what you have underlinedhow can you document those questions for further discussion" etc.</li> </ul>
	Standards: 1.4.A. : Develop, communicate, 1.4. : Atoms bond in different wa L.11-12.4 : Determine or clarify flexibly from a range of strategie SL.11-12.1 : Initiate and particip 11—12 topics, texts, and issues, RST.11-12.2 : Determine the ce paraphrasing them in simpler bu	and justify an evidence-based scie ays to form molecules and compou the meaning of unknown and multi s. pate effectively in a range of collabo , building on others' ideas and expr entral ideas or conclusions of a text t still accurate terms.	entific explanation supporting inds that have definite proper iple-meaning words and phra prative discussions (one-on-c ressing their own clearly and ;; summarize complex concep	the current models of chemical bonding ties uses based on grades 11—12 reading and content, choosing one, in groups, and teacher-led) with diverse partners on grades persuasively. ots, processes, or information presented in a text by
20 mins	POST-READING>ESSENTIAL VOCABULARY: Ability to define key terms in context	FRAYER MODEL "FLASHCARDS" SWBAT define, in writing, unfamiliar words and terms encountered in the text about BPA, using word-analysis terms like context, root, prefix, and suffix.	<ul> <li>Meets expectations if students have:</li> <li>accurately completed Frayer models for most words in word bank</li> <li>including definition, examples, quotes of context, and</li> </ul>	<ul> <li>Throughout the reading of <u>all of the texts</u>, students will add to their academic vocabulary about this topic.</li> <li>1) Direct students to examine the module word bank of predetermined vocabulary words (see attachment)</li> <li>2) Show the example Frayer model to students</li> <li>3) Explain that as they encounter these terms in the assigned texts, using differing active reading strategies for each text,</li> </ul>

			visuals/models.	<ul> <li>they should use strategies they know for determining the meaning of unfamiliar words (see example of "fix-up strategies attached), to arrive at a definition for each key term.</li> <li>3) Students should also quote and cite (see example) the context in which the word was encountered.</li> <li>4) Students should provide an example and a visual for each key term (see model)</li> <li>5) Students should identify and note the characteristics of each key term</li> <li>4) When students read the term in a new context, they should add something to each Frayer model (perhaps in an additional color) and watch the Frayer model and definition grow!</li> <li>*See attached word bank, modified Frayer model example, and fixup strategies</li> </ul>
	Additional Attachments:			
	2014-Fix-Up-Strategies2015	0421-3-mgg76b.docx		
	Plastics word bank.docx			
	Frayer model example plast	ics.docx		
	Revised Frayer Model Chem	1.000		
10 mins	POST- READING>CATEGORIZING EVIDENCE: Ability to evaluate, categorize, and cite evidence	PRO-CON EVIDENCE T- CHART SWBAT evaluate, in writing, textual evidence about the use of BPA plastics, using the language of argument (pro, con, evidence, point, counterpoint).	<ul> <li>Meets expectations if:</li> <li>evidence is quoted from all sources</li> <li>both pro and con sides are complete and make sense</li> <li>students have included "working" parenthetical citations (Title/author, pg #, pgh#)</li> </ul>	This strategy should be used with EACH TEXT, creating an ongoing chart of evidence <u>before students have developed a claim.</u> Teacher may choose to talk through the attached example and/or model with the first text. Students should pull out and quote textual evidence for or against the use of BPA in plastics intended for food/drink after each reading and note the evidence within the chart. Students should keep track of the source of the information by adding the title and author at the top and noting the page and paragraph number in parentheses. (See example)
	Additional Attachments:			
1 hr and 30 mins	ACTIVE READING>QUESTIONING: Ability to analyze scientific and technical texts	TUTORIAL ON A SCIENTIFIC JOURNAL ARTICLE SWBAT explain, in writing, specific points of confusion about an experiment about the effects of detergents on BPA breakdown, using the language of scientific journal structure (abstract, results, experimental design, and error analysis).	<ul> <li>Meets expectation if student:</li> <li>Completes all parts of TRF in a thoughtful manner</li> <li>Actively and productively participates in tutorial process</li> <li>Can answer teacher questions verbally that demonstrate productive struggle with the text during small group facilitation.</li> </ul>	<ul> <li>Direct students to do a first read (silently or teacher read-aloud/students follow-along) of "The Effects of Detergent on BPA in Baby Bottles," advising students to annotate to help their understanding and identify questions. Remind them that this is upper-range-of-grade-level material, but you will be going through a process to help them through it.</li> <li>Divide the text into sections. Assign different sections to intentional reading groups (a strong reader in each group). Have students read their text section aloud in small groups, adding to their annotations from the first read. These students are now the "experts" on their section.</li> <li>Students return to their original seats and fill out a Tutorial Request Form (TRF) regarding a different section than the one on which they are an "expert."</li> <li>Each student should identify a <i>point of confusion (POC)</i> in his/her text. A POC should be around specific line or lines, piece of data, calculation, or equation.</li> <li>Note: If students claim they have "no point of confusion" from their section, ask probing questions to see if their comprehension is truly complete. As a last resort, ask them to</li> </ul>

identify what would likely be a point of confusion for another student.
Tell students:
<ul> <li>The Critical Thinking box should be a diagram, a list, or a calculation of some type.</li> <li>The final point of confusion should be phrased like this: "I understand, but I am unsure (how/why/about)</li> </ul>
Once the point of confusion for each student is identified and the form filled out, students now get rearranged into groups with "experts" for each section.
In this group, the originator of the TRF presents his/her POC to the new group. The new group should help the student clarify his/her understanding by asking questions (not telling answers). If students are having trouble with asking questions instead of telling answers, you can present some open-ended ones from the Possible Questions for Use during Small Group document.
<ul> <li>Have you re-read the section in context?</li> <li>Have you tried to draw a diagram?</li> <li>Have you double-checked your facts?</li> <li>What/where could we research to find the answer?</li> <li>What would happen if?</li> <li>Can you give an example of?</li> </ul>
This inquiry process should result in an "A-ha!" moment. If it does not, the teacher may step in and ask questions to lead students in the right direction, or if time is running short, tell or explain answers. Each section "expert" should go through this with his/her POC. Students who are not presenting, ask questions and take notes about each POC/TRF.
Possible resources: phones/laptops for researching questions/looking up info, textbooks, periodic table, other reference books about chemistry.
Students return to their seats. Facilitate a group share of their learning using their notes. End class by clearing up any points of confusion that students are still unsure about.
<b>Optional:</b> Students might wish to reflect in a quick-write on the tutorial process. This is an excellent study-group technique and thinking technique because it forces students to come to their own conclusions, leading them to be able to resolve their own confusion by using the text, asking the right questions, and using additional resources, rather than always just "asking the teacher."
<b>Notes:</b> For this complex scientific journal text in particular, it is critical that the teacher reads this article in depth. You may wish to do the first-read of the entire article aloud, stopping to model annotation or to have students annotate. Alternatively, the first read/ annotation could be done silently and independently by students.
This may be the first time students encounter a scientific journal article as a text for class. You will likely want to explain what a "scientific journal article" is and how it relates to your work with experiments/lab reports in the classroom.
You may wish to shorten reading by assigning only essential pieces of the journal format.
(This strategy is adapted from AVID.)

Standards:

**1.4.D.** : Describe the role electrons play in atomic bonding

1.4.A. : Develop, communicate, and justify an evidence-based scientific explanation supporting the current models of chemical bonding

1.4.B.: Gather, analyze, and interpret data on chemical and physical properties of different compounds such as density, melting point, boiling point, pH, and

	<ul> <li>Atoms bond in different ways to form molecules and compounds that have definite properties</li> <li>1.3.A. : Recognize, analyze, interpret, and balance chemical equations (synthesis, decomposition, combustion, and replacement) or nuclear equations (and fission)</li> <li>SL.11-12.1 : Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on generative to the state of the state o</li></ul>				
	Additional Attachments: Solve of a tutorial in action potional pre-reading class d Possible Questions for Use Example plastics TRF.docx Plastics TRF.docx	iscussion.docx During Small Group Tutorial.doo	CX		
20 mins	POST-READING>ESSENTIAL VOCABULARY: Ability to define key terms in context	FRAYER MODEL "FLASHCARDS" SWBAT define, in writing, unfamiliar words and terms encountered in the text about BPA, using the language of word analysis (context, root, prefix, and suffix).	<ul> <li>Meets expectations if students have:</li> <li>accurately completed Frayer models for most words in word bank</li> <li>including definition, examples, quotes of context, and visuals/models.</li> </ul>	<ul> <li>Throughout the reading of <u>all of the texts</u>, students will add to their academic vocabulary about this topic.</li> <li>1) Direct students to examine the module word bank of predetermined vocabulary words (see attachment)</li> <li>2) Show the example Frayer model to students</li> <li>3) Explain that as they encounter these terms in the assigned texts, using differing active reading strategies for each text, they should use strategies they know for determining the meaning of unfamiliar words (see example of "fix-up strategies attached), to arrive at a definition for each key term.</li> <li>3) Students should also quote and cite (see example) the context in which the word was encountered.</li> <li>4) Students should provide an example and a visual for each key term (see model)</li> <li>5) Students read the term in a new context, they should add something to each Frayer model (perhaps in an additional color) and watch the Frayer model and definition grow!</li> <li>*See attached word bank, modified Frayer model example, and fixup strategies</li> </ul>	
	Additional Attachments: 2014-Fix-Up-Strategies20150421-3-mgg76b.docx Plastics word bank.docx Frayer model example plastics.docx Revised Frayer Model Chem.doc				
10 mins	POST- READING>CATEGORIZING EVIDENCE: Ability to evaluate, categorize, and cite	PRO-CON EVIDENCE T- CHART SWBAT analyze and evaluate textual evidence by writing in a	<ul> <li>Meets expectations if:</li> <li>evidence is quoted from all sources</li> </ul>	This strategy should be used with EACH TEXT, creating an ongoing chart of evidence <u>before students have developed a claim.</u>	

		evidence	T-chart using the language of argument (pro, con, evidence, point, counterpoint).	<ul> <li>both pro and con sides are complete and make sense</li> <li>students have included "working" parenthetical citations (Title/author, pg #, pgh#)</li> </ul>	Teacher may choose to talk through the attached example and/or model with the first text. Students should pull out and quote textual evidence for or against the use of BPA in plastics intended for food/drink after each reading and note the evidence within the chart. Students should keep track of the source of the information by adding the title and author at the top and noting the page and paragraph number in parentheses. (See example)		
		Additional Attachments:					
		Evidence T-Chart.docx					
	40 mins	ACTIVE READING>EVIDENCE REFLECTION: Ability to identify, record, and reflect upon textual evidence	ACTIVE READING>DOUBLE- ENTRY JOURNAL SWBAT, reflect, in writing, upon key evidence in the text about BPA, using comparative language (similar, different, agree, disagree, and clarify).	Meets expectations if journal entry correctly quotes/cites significant text and has complete, meaningful reflection/explanations.	<ul> <li>*For use with the New York times article and/or NPR and/or the Scientific American Article</li> <li>*A double entry journal (sometimes called a "dialectical journal") is used to have students reflect upon and explain their understanding of salient points during the reading of a text.</li> <li>1)Show example and direct students to set up the page in two equal columns.</li> <li>2) Direct students to read the article using whatever reading structures are most appropriate for your students (whole class gradual release read-aloud, partner reading, silent/independent reading/annotation)</li> <li>3)On the left-hand side, the reader identifies and copies a key quote from the text (often called "lifted text"), citing it in parentheses noting page and paragraph number.</li> <li>4)On the right hand side, the reader explains their understanding of the parallel quote (quote/reflection side by side) and/or reflects upon it with opinions, questions, or connections to other learning. (see attachment)</li> </ul>		
					language you wish them to use in their explanations/reflections.		
		<ul> <li>Standards:</li> <li>1.4.A. : Develop, communicate, and justify an evidence-based scientific explanation supporting the current models of chemical bonding</li> <li>WHST.11-12.9 : Draw evidence from informational texts to support analysis, reflection, and research.</li> <li>RST.11-12.10 : By the end of grade 12, read and comprehend science/technical texts in the grades 11—CCR text complexity band independently and proficiently.</li> <li>RST.11-12.6 : Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.</li> <li>RST.11-12.1 : Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.</li> </ul>					
		Additional Attachments:	cs.docx				
	20 mins	POST-READING>ESSENTIAL	FRAYER MODEL	Meets expectations if	Throughout the reading of <u>all of the texts</u> , students will add to		
		VOCABULARY: Ability to define key academic terms in context	"FLASHCARDS" SWBAT define and analyze, in writing, unfamiliar words and terms encountered in the text using the language of word analysis (context, root, prefix, and suffix).	<ul> <li>students have:</li> <li>accurately completed Frayer models for most words in word bank</li> <li>including definition, examples, quotes of context, and</li> </ul>	<ul> <li>their academic vocabulary about this topic.</li> <li>1) Direct students to examine the module word bank of pre- determined vocabulary words (see attachment)</li> <li>2) Show the example Frayer model to students</li> <li>3) Explain that as they encounter these terms in the assigned texts, using differing active reading strategies for each text, they should use strategies they know for determining the</li> </ul>		

			visuals/models.	<ul> <li>meaning of unfamiliar words (see example of "fix-up strategies attached), to arrive at a definition for each key term.</li> <li>3) Students should also quote and cite (see example) the context in which the word was encountered.</li> <li>4) Students should provide an example and a visual for each key term (see model)</li> <li>5) Students should identify and note the characteristics of each key term</li> <li>4) When students read the term in a new context, they should add something to each Frayer model (perhaps in an additional color) and watch the Frayer model and definition grow!</li> <li>*See attached word bank, modified Frayer model example, and fixup strategies</li> </ul>		
	Additional Attachments: 2014-Fix-Up-Strategies2015 Plastics word bank.docx Frayer model example plast Revised Frayer Model Chem	0421-3-mgg76b.docx ics.docx 1.doc				
10 mins	POST- READING>CATEGORIZING EVIDENCE: Ability to evaluate, categorize, and cite evidence	PRO-CON EVIDENCE T- CHART SWBAT evaluate, in writing, textual evidence using the language of argument (pro, con, for, against, impact, evaluate, evidence).	<ul> <li>Meets expectations if:</li> <li>evidence is quoted from all sources</li> <li>both pro and con sides are complete and make sense</li> <li>students have included "working" parenthetical citations (Title/author, pg #, pgh#)</li> </ul>	This strategy should be used with EACH TEXT, creating an ongoing chart of evidence <u>before students have developed a claim.</u> Teacher may choose to talk through the attached example and/or model with the first text. Students should pull out and quote textual evidence for or against the use of BPA in plastics intended for food/drink after each reading and note the evidence within the chart. Students should keep track of the source of the information by adding the title and author at the top and noting the page and paragraph number in parentheses. (See example)		
	Additional Attachments:  Evidence T-Chart.docx					
30 mins	ACTIVE READING>CONTENT COMPREHENSION: Ability to explain the relationships between text features and content information in an infographic	ACTIVE READING>TEXT- DEPENDENT QUESTIONS ABOUT AN INFOGRAPHIC SWBAT analyze, orally and in writing, key information about the use of BPA plastics, using complete sentences and content language (BPA, plastic, breakdown, estrogen).	Meets expectations if: • answers are accurate, complete • use academic language/syntax. (see attached answer key)	<ol> <li>Direct students to the infographic and allow for a cursory scan (resist the temptation to explain the entire infographic!)</li> <li>Project sample question. Allow time for students to turn and talk and draft an exemplary answer.</li> <li>Reveal and discuss sample exemplary non-exemplary responses and de-brief the thinking that led to the correct answer.</li> <li>*Scaffold: sentence stems. Rigor extension: have students formulate their own text-dependent questions.</li> </ol>		
	Standards:         1.4. : Atoms bond in different ways to form molecules and compounds that have definite properties         WHST.11-12.10 : Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.         RST.11-12.10 : By the end of grade 12, read and comprehend science/technical texts in the grades 11—CCR text complexity band independently and proficiently.         RST.11-12.5 : Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.         RST.11-12.2 : Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by					

	paraphrasing them in simpler but <b>RST.11-12.1</b> : Cite specific textu gaps or inconsistencies in the ac	still accurate terms. al evidence to support analysis of count.	science and technical texts,	attending to important distinctions the author makes and to any		
	Additional Attachments:					
	hlographic Qs.docx					
20 mins	POST-READING>ESSENTIAL VOCABULARY: Ability to define key academic terms in context	FRAYER MODEL "FLASHCARDS" SWBAT define, in writing, unfamiliar words and terms encountered in the text about BPA plastics, using the language of word analysis (context, root, prefix, and suffix).	<ul> <li>Meets expectations if students have:</li> <li>accurately completed Frayer models for most words in word bank</li> <li>including definition, examples, quotes of context, and visuals/models.</li> </ul>	<ul> <li>Throughout the reading of <u>all of the texts</u>, students will add to their academic vocabulary about this topic.</li> <li>1) Direct students to examine the module word bank of predetermined vocabulary words (see attachment)</li> <li>2) Show the example Frayer model to students</li> <li>3) Explain that as they encounter these terms in the assigned texts, using differing active reading strategies for each text, they should use strategies they know for determining the meaning of unfamiliar words (see example of "fix-up strategies attached), to arrive at a definition for each key term.</li> <li>3) Students should also quote and cite (see example) the context in which the word was encountered.</li> <li>4) Students should provide an example and a visual for each key term (see model)</li> <li>5) Students should identify and note the characteristics of each key term</li> <li>4) When students read the term in a new context, they should add something to each Frayer model (perhaps in an additional color) and watch the Frayer model and definition grow!</li> <li>*See attached word bank, modified Frayer model example, and fixup strategies</li> </ul>		
	Additional Attachments: 2014-Fix-Up-Strategies20150 Plastics word bank.docx Frayer model example plastic Revised Frayer Model Chem	)421-3-mgg76b.docx cs.docx .doc				
10 mins	POST- READING>CATEGORIZING EVIDENCE: Ability to evaluate, categorize, and cite textual evidence	PRO-CON EVIDENCE T- CHART SWBAT evaluate, in writing, textual evidence about BPA, using the language of argument (pro, con, for, against, and evidence).	<ul> <li>Meets expectations if:</li> <li>evidence is quoted from all sources</li> <li>both pro and con sides are complete and make sense</li> <li>students have included "working" parenthetical citations (Title/author, pg #, pgh#)</li> </ul>	This strategy should be used with EACH TEXT, creating an ongoing chart of evidence <u>before students have developed a claim.</u> Teacher may choose to talk through the attached example and/or model with the first text. Students should pull out and quote textual evidence for or against the use of BPA in plastics intended for food/drink after each reading and note the evidence within the chart. Students should keep track of the source of the information by adding the title and author at the top and noting the page and paragraph number in parentheses. (See example)		
	Additional Attachments:					
Transitio	on to Writing					
30 mins	PREPARING FOR WRITING:	EVIDENCE GALLERY WALK	Students will meet	At this point, students should have read all of the articles and		

SWBAT formulate, in writing, one given argument and support it using at least three pieces of evidence found in the text using content language (covalent bonds, heat, detergent, and regulation).	<ul> <li>expectations if:</li> <li>Students create a poster on the given topic</li> <li>Students include at least 3 pieces of evidence and sources</li> <li>Students will complete a gallery walk observing the different evidence posters to gather evidence for the debate.</li> </ul>	<ul> <li>highlighted evidence. This activity serves as a bridge from the reading process into the speaking and listening. It is meant to provide students a foundation in evidence so that when it is time for the discussion everyone has evidence supporting his or her claim.</li> <li>First, build out the various opinions that can emerge from the readings. Examples of these are below:</li> <li>Allow freely no regulations, ban completely, allow only for adults, allow only for disposable, allow with a heating warning, allow with cleaning warning</li> <li>Assign a group of two to three (2-3) students to each topic.</li> <li>Give each group 20 minutes to create a one-pager poster on the assigned topic.</li> <li>Students should put the topic on the top of the poster</li> <li>Students should write a claim that connects to the topic assigned.</li> <li>Under the topic list the three to five (3-5) best pieces of evidence to support the topic. The pieces of evidence should come from the text</li> <li>students can add illustrations that support the evidence found in the text</li> <li>At the completion of the 20 minutes, students will complete a gallery walk. All students can start at their own posters and walk clockwise around the room, reading all of the other posters.</li> <li>At this time, students can fill out the Philosophical Chair graphic organizer, citing their current belief on the question, and the best evidence that they see from the gallery walk to support their personal opinion.</li> </ul>
STUDENT DEBATE: PHILOSOPHICAL CHAIRS SWBAT orally articulate and defend a position on a debatable issue, using the language of agreement and disagreement (affirming, on the other hand, to build upon, and in opposition to).	<ul> <li>Meets expectations if:</li> <li>Student participates</li> <li>Student is able to articulate their evidence and reasoning for agreeing or disagreeing with the provocative statement.</li> </ul>	<ul> <li>Guidelines for Philosophical Chairs</li> <li>Classroom Setup :</li> <li>Chairs/desks are set up facing each other with about half facing one way and half facing the opposite way.</li> <li>Directions:</li> <li>1. A statement is presented to the students. This statement might be based on a reading or might be a standalone statement. Either way, the statement should be one that will divide the class into those who agree with the statement and those who disagree with the statement. Be sure that the statement is written on the board for reference during the activity. (Note: Allowing for a group of students who are undecided is addressed later in these guidelines.)</li> <li>Statement for debate: We should immediately cease using PBA plastics for all food and drink</li> <li>2. Those who agree with the central statement sit on one side and those who disagree sit on the other side.</li> <li>3. A mediator, who will remain neutral and call on sides to speak, is positioned between the two sides. (This role is usually filled by the teacher in the beginning or middle school years. Eventually, students should take on this role.) In addition to facilitating the discussion, the mediator may at times paraphrase the arguments made by each side for clarification. It is important that the mediator always remains neutral.</li> <li>4. The mediator recognizes someone from the side of the classroom that agrees with the central statement to begin the</li> </ul>
	SWBAT formulate, in writing, one given argument and support it using at least three pieces of evidence found in the text using content language (covalent bonds, heat, detergent, and regulation). STUDENT DEBATE: PHILOSOPHICAL CHAIRS SWBAT orally articulate and defend a position on a debatable issue, using the language of agreement and disagreement (affirming, on the other hand, to build upon, and in opposition to).	<ul> <li>SWBAT formulate, in writing, one given argument and support it using at least three pieces of evidence found in the text using content language (covalent bonds, heat, detergent, and regulation).</li> <li>Students include at least 3 pieces of evidence and sources</li> <li>Students will complete a gallery walk observing the different evidence for the debate.</li> </ul>

				the activity, and part of the job of the mediator is to ensure participation by as many students as possible and to keep just a few students from dominating the discussion. The mediator may also put a time limit on how long each side addresses the issue on each turn. 5. In addition to speaking in the discussion, students may express their opinions by moving from one side to other. Anyone may change seats at any time. Changing seats does not necessarily mean that a person's mind is changed, but rather that the argument made is compelling enough to sway opinions. Students may move back and forth throughout the discussion. 6. The discussion and movement go on for a designated period of time—usually one class period. The mediator may bring the discussion to a close at any time. Each side may be given an opportunity to make a final statement on the issue. If time allows, each participant states his/her final opinion and may also tell which arguments he/she found most convincing. 7. An additional piece to this activity can be to have a few students observe the process and take notes instead of participating. These students will debrief their observations to the class at the end of the activity. You may have students who were absent or unprepared to participate fulfill this role *Modifications: It is recommended that you begin this activity with just two sides. If students have difficulty choosing a side to begin, encourage them to sit on the side that they agree with the most even if they do not completely agree. Once students are accustomed to this format, you may choose to add this additional component: You may equire that they take a position before participating. Students sho are undecided. This section is placed between the two opposing sides. During the discussion, you may allow students from the undecided section if they wish. Before you end the undecided section if they wish. Before you end the discussion, require that all students shill seated in the undecided scone move to one side or the other depending on
Writing	Process			
30 mins	<b>CRITIQUE OF A TEXT</b> : ability to analyze and critique elements of a science text intended for a popular audience	CRITIQUE OF MODEL TEXTS>TEXT DEPENDENT QUESTIONS (OPTIONAL) SWBAT to analyze, in writing, the language and format of scientific writing for a general audience, using literary language (narrative, anecdote, transition, blend, and illustrate).	<ul> <li>Meets expectations if:</li> <li>each question is answered in a thoughtful manner</li> <li>text evidence if included to justify reponses</li> </ul>	<ol> <li>Divide students into intentional small groups for the 3 popular scientific magazine articles (one article for each group)</li> <li>*Decide whether to have students examine the same or different article than for the previous text reading of these articles, depending upon whether review or additional exposure is more appropriate for student reading levels</li> <li>Have students read for "the science story". Explain this time they are not reading to understand the story of the science and evidence in detail, but rather to understand how the article author uses storytelling to capture the reader's attention and entice them to care about the scientific content. You may choose to have students find the storytelling elements, or (for the sake of time), pre-select and ask them to highlight those elements.</li> <li>Assign students in small groups to complete the text</li> </ol>

				<ul> <li>dependent questions independently and then follow the the text-rendering small group discussion protocol with their small groups.</li> <li>5) De-brief as a whole class (or written reflection): When/how is "storytelling" important in scientific writing? How is it different than the writing you encountered in the scientific journal article? Consider the role of the writer, the audience, and the format of writing. What careers (in addition to science journalism) would require a scientist to tell a story, in what situations?</li> <li>*See attached TDQs and small group text-rendering protocol</li> </ul>
	Standards: WHST.11-12.1.D : Establish and writing. WHST.11-12.1.C : Use words, p relationships between claim(s) a	d maintain a formal style and objec ohrases, and clauses as well as va Ind reasons, between reasons and	tive tone while attending to t ried syntax to link the major evidence, and between clair	he norms and conventions of the discipline in which they are sections of the text, create cohesion, and clarify the m(s) and counterclaims.
	Additional Attachments:  Story Telling in Scientific W Text Rendering Protocol.do	'riting.docx cx		
50 mins	PLANNING THE WRITING>ESTABLISHING A CONTROLLING IDEA: Ability to develop and strengthen the writing of the thesis statement and introductory paragraph by planning.	CLAIM STATEMENT USING TVA SWBAT write a strong claim statement using argumentative language (should, reason, affirm, recommendation, and research-based).	Meets Expectations: • Claim statement contains all formula elements.	<ul> <li>IDO</li> <li>Review T+V+A with Students <ul> <li>T= topic what it means</li> <li>V= strong verb (action verb)</li> <li>A= argument- the specific debatable points or what he/she wants to say (there should be 3 key points)</li> <li>Color code the components for students. Example: Topic= red, Verb= blue, and Argument= green)</li> </ul> </li> <li>With students do Model on a topic that is different than the class topic. When modeling the argument number the 3 key points of the argument.</li> <li>For example: "Americans should eliminate (verb) the regular consumption of fast food (topic) because a fast food diet leads to preventable and expensive health issues, such as diabetes, obesity, and heart disease. (argument)"</li> <li>Review the essay prompt. Make sure students have this to refer to as they write their theses.</li> </ul> WE DO Use the examples below and have students color code them in pairs. Example: Topic= red, Verb= blue, and Argument=green) Some of the examples below are missing the necessary components. Ask students to identify what is missing. For the argument ask students to number the key points. You may also ask students to fix/edit the claim statements that are missing components. Review the answers as a whole class. Ask students to circle the claim statement that has all components present. <ol> <li>"In Denver should be given access to services, such as regular food donations, public restrooms, and camping facilities, because it would improve life for all inhabitants of the city."</li> <li>"Secondhand smoke should be from public places because it is just as harmful as smoking, it leads to a higher prevalence of cancer and heart disease, and people who inhale secondhand smoke are doing so without consent."</li> </ol>

				<ul> <li>YOU DO</li> <li>Each student will create a claim statement using the attached graphic organizer.</li> <li>Pair up students to review their claim statements by providing feedback on the quality, the effectiveness of addressing the prompt and its ability to meet all criteria.</li> <li>As a class, the teacher will highlight strong claim statements on the board or using the document camera.</li> <li>Exit card: Write your name and claim statement on a notecard. Hand it to the teacher on your way out the door.</li> <li>Teacher will provide feedback to students on their claim statements.</li> <li>Differentiation</li> <li>Optional support- provide students with a list of verbs to choose from.</li> <li>You may choose to have students working in pairs or groups during the WE DO portion of the lesson.</li> </ul>
	Standards:			
Standards: WHST.6-8.5 : With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewritin trying a new approach, focusing on how well purpose and audience have been addressed. WHST.6-8.4 : Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.				writing as needed by planning, revising, editing, rewriting, or style are appropriate to task, purpose, and audience.
	Additional Attachments:			
	⁰o Verbs			
	% T+V+A = Claim Statement			
30 mins	PLANNING THE WRITING>REVIEWING CONTENT LEARNING: ability to synthesize new content learning	KWL CHART SWBAT explain, in writing, new learning around the breakdown of bonds and plastics using content language (covalent	<ul> <li>Meets Expectations If:</li> <li>Student lists a minimum of 6 items in the "L" column</li> </ul>	This activity should determine what students come to the table understanding. The chart can be split into the three sections: The top section can answer what students know and want to know in regards to plastics, the middle section can answer what students know and want to know in regards
		bonds, ionic bonds, electrons, BPA, plastic, and intermolecular forces).	<ul> <li>(roughly 2 per topic).</li> <li>Meets expectations on the classroom assessment rubric.</li> </ul>	to BPA, and the lowest section can answer what students know and want to know in regards to bonding. NOTES: This mini-task can be taught or given as a homework assessment.
	Additional Attachments:			
	% KWL Chart			
40 mins	PLANNING THE WRITING>OUTLINING: Ability to structure and organize an argument	STICKY NOTE ARGUMENT AND OUTLINE PLAN Students will be able to organize, in writing, an argument about BPA plastics, using the language of composition (thesis, introduction, transitions, conclusion).	<ul> <li>Meets Expectations</li> <li>Students have planned with both an outline and a sticky note plan</li> <li>Students will have 3 key points</li> <li>For every key point students will have 2 pieces of textual evidence that supports their key point.</li> <li>Students will have one key counter point with 2 pieces of textual evidence.</li> <li>For all pieces of textual evidence students will elaborate and</li> </ul>	<ol> <li>Direct students to refer to their already-developed thesis statement and from there develop three Key Points for the essay.</li> <li>Students to use sticky notes to record and place the following pieces within Argument Plan:</li> <li>Two (2) pieces of textual evidence that support each Key Points</li> <li>One (1) piece of textual evidence that would provide opposing evidence for each Key Point.</li> <li>Show students non-related topic outline</li> <li>Show students blank outline and/or scaffolded outline</li> <li>For each piece of textual evidence you placed within your Argument Plan, record (on a sticky note) an explanation of how the evidence supports or opposes your Key Point, and place it in the Argument Plan.</li> <li>Direct students to create their own outline, using scaffold outline plan, facilitate by looking at student work and conferencing.</li> </ol>

	Standards: WHST.11-12.10 : Write routinely range of discipline-specific tasks, WHST.11-12.9 : Draw evidence WHST.11-12.9 : Draw evidence WHST.11-12.4 : Produce clear a WHST.11-12.4 : Determine the me technical context relevant to grad RST.11-12.4 : Determine the me technical context relevant to grad RST.11-12.1 : Cite specific textu gaps or inconsistencies in the action	r over extended time frames (time f , purposes, and audiences. from informational texts to support and coherent writing in which the de s focused on discipline-specific co nation from a range of sources (e.g ng conflicting information when po exaning of symbols, key terms, and tes 11—12 texts and topics. al evidence to support analysis of count.	write a clear explanation of how this evidence proves their key point (1-2 sentences)	<ul> <li>7. Now have students use outline to put their evidence stickies into the planning pages.</li> <li>WHY USE STICKY NOTES?</li> <li>Writing each piece of the argument on an individual sticky note will enable students to lift them off the Argument Plan and arrange them into an order in which they want to write them out. For instance, they might choose to begin with opposing evidence and follow with supporting; or they may choose to begin with an explanation and follow with a piece of evidence. They may even choose to place their Key Point at the end of a string of evidence/explanations. The sticky notes enable them to play with the structure of their argument in a flexible and kinesthetic way. NOTE: This effect can also be achieved electronically by typing within the boxes of the Argument Plan, and then using copy/paste onto another document to play with the organization of the pieces.</li> <li>MATERIALS NEEDED:</li> <li>Outline samples (attached)</li> <li>Large and small sticky notes</li> <li>Responsibility and Key Points Powerpoint presentation - OPTIONAL (attached)</li> <li>Argument Plan (attached)</li> <li>You can also make this electronically accessible to students. http://en.linoit.com/</li> <li>(NOTE: This is not the draft, just "thinking on a sticky note" about what should be in that part of the argument.)</li> <li>NOTE: The sticky note argument plan and the scaffolded outline do NOT match. This will give students two different possible ways to manage a counterargument in organizing their writing. If you feel this will be too confusing, consider modifying the handouts.</li> </ul>
	Additional Attachments: Sample outline.docx Outlining.docx Shino interactive online stick	vnotes		
1 hr	DEVELOPING THE WRITING>INITIAL DRAFT: ability to draft an argumentative essay responding to the prompt	INITIAL DRAFT SWBAT evaluate, in writing, the regulation of BPA plastics in food and drink containers, using content language (polycarbonate, ionic and covalent bonds, leach, residue, toxicity).	Meets Expectations <ul> <li>Initial Draft contains the following:</li> <li>introduction that contains background on</li> </ul>	<ul> <li>Provide students with time to revisit their feedback you provided on the argument plan and ask any questions for clarification.</li> <li>Have students use their argument plan and any other graphic organizers to write out their initial draft.</li> <li>Remind students that the argument plan should help organize their writing and to ensure that their topic sentence introduces the whole paragraph.</li> </ul>

			<ul> <li>nuclear power and a claim</li> <li>body paragraphs (including counterclaim) with both evidence from the text cited using parenthetical citations and logical reasoning from the student.</li> <li>a conclusion that connects back to the claim and leaves a lasting impression, or a call to action, to the audience.</li> </ul>	<ul> <li>Prior to writing the draft review with students the MEAT paragraph structure. Display this structure for students to see in the classroom.</li> <li>You may also provide students with transition words of phrases (optional support attached).</li> <li>Encourage students to re-read prompt partway through writing, to check that they are on track.</li> <li>Circulate around the room to respond to student questions or provide feedback.</li> </ul>
	Standards: WHST.11-12.4 : Produce clear a WHST.11-12.1 : Write argument	and coherent writing in which the d ts focused on discipline-specific co	evelopment, organization, ar ntent.	nd style are appropriate to task, purpose, and audience.
	Additional Attachments: % Transition Words for Writing % MEAT	3		
30 mins	INTRODUCTORY PARAGRAPH: Ability to write an introductory paragraph	WRITING AN INTRODUCTORY PARAGRAPH SWBAT explain, in writing, background information related to nuclear power using content language.	Meets Expectations If Student: • Completes an introductory paragraph with a background and claim	<ul> <li>Begin by asking students what information is important to the reader to understand prior to hearing their argument for or against nuclear power.</li> <li>Answers might include: How the power is created, the basics of nuclear chemistry.</li> <li>In addition to background information, ensure that students know that they need to include their claim at the end of the introduction to show readers what to expect.</li> <li>Once students understand this, give them time to write out this background information and claim. If they have time, allow students to read one another's introductions.</li> </ul>
	Standards: WHST.11-12.4 : Produce clear a	and coherent writing in which the d	evelopment, organization, ar	nd style are appropriate to task, purpose, and audience.
30 mins	BODY PARAGRAPHS: Ability to Write a Body Paragraph	WRITING BODY PARAGRAPHS SWBAT explain, in writing, the pros and cons of nuclear power using content vocabulary.	Meets expectations if: • Body paragraphs (including counterclaim) with both evidence from the text cited, using parenthetical citations and logical reasoning from the student	At this point students should have collected notes from all of the readings that give clear pros and cons to nuclear power, and they should have arranged this information into the sticky note argument plan. Give students time to utilize transition words and create the body paragraphs. Remind students that each piece of evidence used should be from the readings and correctly cited. Also remind students that they can include the counterclaim at the end of each paragraph (or as the last paragraph, depending on their choice). Also remind students that they should have three body paragraphs that make three clear points to support their thesis statement.
	Standards: WHST.11-12.4 : Produce clear a	and coherent writing in which the d	evelopment, organization, ar	nd style are appropriate to task, purpose, and audience.

			claim and leaves a lasting impression, or a call to action, for the audience.	switch papers to check each other to ensure that the claim is clear and that the conclusion pulls together the main points of the paper.
	Standards: WHST.11-12.4 : Produce clear a	and coherent writing in which the d	evelopment, organization, an	d style are appropriate to task, purpose, and audience.
30 mins	DEVELOPING THE WRITING>REVISION: ability to make changes to writing based upon feedback	PEER REVISING ROUND TABLE SWBAT revise, orally and in writing, an initial composition draft using language for suggesting revisions (add, remove, combine, clarify, evidence, claim, counterpoint, address).	<ul> <li>Meets Expectations:</li> <li>feedback on the sheet is focused and targeted providing clear next steps for the author.</li> <li>During the discussion, feedback to the author focuses on both strengths and weaknesses.</li> <li>Feedback on the sheet explains why an aspect of the author's essay is missing or needs to be developed.</li> <li>Grade the feedback sheet is submitted with explanations regarding the quality of the oral and written feedback the author received.</li> </ul>	<ul> <li>Arrange students into a group of four.</li> <li>Distribute the Guidelines for Peer Round Table Handout to all students and read aloud the handout to the group. Pass out also the Peer Reviser Graphic Organizer. Explain to students that all peer revisers will be using the sheet to provide feedback to the author of the essay. The sheet will also be passed when the essay is passed.</li> <li>Have them revise a paper for between 10 minutes writing directed and specific responses in the author's graphic organizer. Students will then pass the paper to the next group member for further revision.</li> <li>When all of the members of the group have read an essay, have them discuss their feedback and general aspects or themes of the essay that they noticed. Tell them to limit this discussion to not longer than five minutes Encourage them to focus the discussion on both the strengths and weaknesses of the essay.</li> <li>The author will take notes silently on the discussion on their graphic organizer.</li> <li>Then, when the discussion is over, the author asks those who revised his/her paper clarifying questions and about any other aspects that did not come up in discussion.</li> <li>Have students complete and then submit the Peer Accountability Sheet.</li> </ul>

L.11-12.6 : Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

L.11-12.3 : 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.11-12.2 : Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

L.11-12.1 : Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

SL.11-12.3 : Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.

SL.11-12.2 : Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

WHST.11-12.7: 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.

WHST.11-12.5 : 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.

WHST.11-12.2 : Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

SL.11-12.1 : Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11—12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

Additional Attachments:

% Guidelines for Peer Round Table

% Peer Accountability - Evalaute the Feedback

% Group Peer Revision Graphic Organizer

30 mins	DEVELOPING THE WRITING>CITATIONS: Ability to cite sources, using the appropriate format as dictated by a style guide.	CITATION LIST SWBAT cite, in writing, the source of each quote, paraphrase, or summary, using APA (or MLA) style formatting.	Meets expectations if student: • develops a citation, using APA (or MLA) style formatting, for each quote, paraphrase, or summary	<ul> <li>Tell students that now that they've drafted their response to the teaching task prompt, they will go back in and create a citation for each of the quotes, paraphrases, or summaries they've included as evidence.</li> <li>Ask students to turn and talk: Why is it important to include a citation for each piece of evidence?</li> <li>Debrief with the class as needed, highlighting the fact that citations strengthen scholarship, lend credibility to an argument, and help to avoid plagiarism.</li> <li>Choose one of the citation formats to use with your students. MLA is more typically used in a high school setting, however, APA is the standard in the discipline of science, and is used in higher education and academic journals. If students were actually writing for a health magazine, MLA would be expected. Provide students with the citation poster for the format of your choosing.</li> <li>Review with the class the chosen citation format, asking students to highlight the examples on the poster.</li> <li>Ask students use the citation poster to develop a citation for each piece of evidence, either including citations directly in their draft or on the Citations List graphic organizer.</li> </ul>	
	Chandarda				
	Standards:				
	WHST.9-10.9 : Draw evidence f WHST.9-10.4 : Produce clear an	rom informational texts to support and coherent writing in which the de	analysis, reflection, and rese velopment, organization, and	arch. d style are appropriate to task, purpose, and audience.	
	Additional Attachments:				
	APA.jpg				
	% Citation List				
	S Modern Language Associat	ion (MLA) Style Guidelines Over	VIEW		
30 mins	FINALIZING THE WRITING>FINAL DRAFT: Ability to develop and strengthen writing as needed by revising, editing, rewriting, or trying a new approach.	FINAL DRAFT SWBAT evaluate, in writing, the regulation of BPA plastics in food and drink containers, using content language (polycarbonate, ionic and covalent bonds, leach, residue, toxicity).	<ul> <li>Meets expectations if student:</li> <li>Wrote final draft with all parts (introductory paragraph, body paragraphs, concluding paragraph), incorporating feedback from peer revision workshop</li> <li>Wrote final draft in the form of an article for a historical</li> </ul>	Ask students to use feedback received during the peer revision workshop to revise their initial draft, ending up with a final draft.	

		<ul> <li>properly formatted citations</li> <li>Supported the thesis statement in the body of the essay by citing and explaining textual evidence in support of claims and citing and refuting textual evidence for counterclaims</li> </ul>	
Standards:	nd of the conventions of standard F	nolish grammar and usage v	when writing or speaking
L.9-10.6 : Acquire and use accu college and career readiness lev comprehension or expression.	rately general academic and doma el; demonstrate independence in g	in-specific words and phrase athering vocabulary knowled	es, sufficient for reading, writing, speaking, and listening at the dge when considering a word or phrase important to
L.9-10.2 : Demonstrate commar	nd of the conventions of standard E	nglish capitalization, punctu	ation, and spelling when writing.
1.2. : United States history (Rec	onstruction to the present):		
<b>1.1.</b> : Use the historical method interpretations defended by evide	of inquiry to ask questions, evaluate ence	e primary and secondary so	urces, critically analyze and interpret data, and develop
WHST.9-10.9 : Draw evidence f	rom informational texts to support a	nalysis, reflection, and research	arch.
WHST.9-10.4 : Produce clear an	nd coherent writing in which the dev	velopment, organization, and	d style are appropriate to task, purpose, and audience.
WHST.9-10.5 : Develop and stre	engthen writing as needed by plann	ing, revising, editing, rewritir	ng, or trying a new approach, focusing on addressing what is
most significant for a specific pur	pose and audience.	0, 0, 0,	

## Instructional Resources

No resources specified

## Section 4: What Results?

## Student Work Samples

Advanced

High 2.pdf

High 1.pdf

Approaches Expectations

- Low 1.pdf
- Medium Low 2.pdf

## Meets Expectations

Hedium.pdf

### Medium 2.pdf

## **Teacher Reflection**

Not provided

### All Attachments

<sup>∞</sup> Video: Ionic, Covalent, and Metallic Bonding - Preparing for the Task : https://s.ldc.org/u/d27dlwnu4as0xeo4e1c68g5y3

% A Closer Look at Bisphenol A- Reading Process : https://s.ldc.org/u/yb904jdzvvb2ufwhsj9oizhj

**BPA:** Friend or Foe?- Reading Process : https://s.ldc.org/u/czvchzh9zir15oxju36jrlbgj

% What is BPA?- Reading Process : https://s.ldc.org/u/coiykizw0zfz1qnm8e60xrjok

Effect of detergents in the release of bisphenol A from polycarbonate baby bottles- Reading Process : https://s.ldc.org/u/ejx9jw0qcrqsxy9z2q0dsfxfh

**%** In Feast of Data on BPA Plastic, No Final Answer- Reading Process : https://s.ldc.org/u/7qf2urefihxpjk2m658oa2908

**Study: Most Plastics Leach Hormone-Like Chemicals- Reading Process :** https://s.ldc.org/u/6dmor8doxwywr9oid27huci91

% What does US Government Research tell us about BPA?- Reading Process : https://s.ldc.org/u/dlnhnypb8wcvix27ukla9njf5

<sup>6</sup> Plastic (Not) Fantastic: Food Containers Leach Potentially Harmful Chemical- Reading Process : https://s.ldc.org/u/3ljcn3d1ukt6mur335kb03qhw

Sendocrine System and Disruptors- Pre-Module : https://s.ldc.org/u/5u0m7bw3hliqc1w1lqv0pwdrr

- % Optional Text: Ionic and Covalent Bonding : https://s.ldc.org/u/2djmvjttmdbvrraegpv61xiok
- High 2.pdf : https://s.ldc.org/u/3bfpp3m9x9el283qc3ik1n0wn
- High 1.pdf : https://s.ldc.org/u/4n2gts6minpydnw284tqkcrpd
- Low 1.pdf : https://s.ldc.org/u/67jwy0izubpv7qeox44eniqcp
- Medium Low 2.pdf : https://s.ldc.org/u/e42ny3l7jfcua3slz8gx4a21i
- Medium.pdf : https://s.ldc.org/u/13nl8fwk8t3ixa3vcvxc9dz40
- Medium 2.pdf : https://s.ldc.org/u/8mzv946rl8fbavupk93hlgdnh