



EXPEDITIONARY  
LEARNING

# Grade 8: Module 4: Unit 2: Lesson 3

## Further Research: Industrial Food Chain



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**Long-Term Targets Addressed (Based on NYSP12 ELA CCLS)**

- I can conduct short research projects to answer a question (including a self-generated question). (W.8.7)
- I can use several sources in my research. (W.8.7)
- I can gather relevant information from a variety of sources. (W.8.8)
- I can use search terms effectively. (W.8.8)
- I can evaluate the credibility and accuracy of each source. (W.8.8)
- I can quote and paraphrase others' work while avoiding plagiarism. (W.8.8)
- I can use a standard format for citation. (W.8.8)

**Supporting Learning Targets**

- I can use research skills to determine the consequences of the industrial organic food chain.
- I can devise a supporting research question to help me focus my research.
- I can identify the relevant information in a research source to answer my supporting research question.
- I can evaluate the credibility and accuracy of a source.
- I can quote and paraphrase others' work while avoiding plagiarism.

**Ongoing Assessment**

- Researcher's notebook



Agenda	Teaching Notes
<p>1. Opening</p> <ul style="list-style-type: none"><li>A. Share the Gist in Research Teams (6 minutes)</li><li>B. Unpacking Learning Targets (2 minutes)</li></ul> <p>2. Work Time</p> <ul style="list-style-type: none"><li>A. Determine Consequences in Research Article (15 minutes)</li><li>B. Mini Research Lesson: Review Paraphrasing (18 minutes)</li></ul> <p>3. Closing and Assessment</p> <ul style="list-style-type: none"><li>A. Filling Out the Rest of the Researcher's Notebook (4 minutes)</li></ul> <p>4. Homework</p> <ul style="list-style-type: none"><li>A. Finish filling out the researcher's notebook for your article, including the bibliographic information under Gathering Sources.</li></ul>	<ul style="list-style-type: none"><li>• In this lesson, students extend their research on Pollan's industrial food chain and review paraphrasing. Students will use the article selected in Lesson 2 in their research groups (read for homework) to determine additional consequences of the food chain. These additional consequences, tracked through text coding, will help students add to the Industrial Food Chain Cascading Consequences chart in Lesson 4. The addition of other perspectives on Pollan's food chains will round out students' research and prepare them to craft their own arguments for the end of unit assessment, as well as in Unit 3.</li><li>• Familiarize yourself with each of the research articles. This will help you guide students toward the most important consequences as they text code and paraphrase. In addition, it will allow you to take a look at students' exit slips and/or researcher's notebooks to briefly assess whether they captured the most relevant and important information from their chosen articles.</li><li>• This lesson marks the beginning of a gradual release process; scaffolding of research in Lessons 3, 6, and 9 helps students achieve independence as they research the consequences of each of Michael Pollan's food chains. This lesson is the only time students will use research articles given to them. In Lessons 6, 9, and 13, students will conduct internet searches on their own to find articles for research. Students should be proficient in the key research skills inherent in the standards by Lesson 11, the mid-unit assessment. By Lesson 13, students will research the final food chain completely independently.</li><li>• Since this lesson is the first time students use the researcher's notebook, take time to review and/or model the steps of the notebook as much as necessary. The researcher's notebook will be used in Lessons 3, 6, 9, and 13 to help track students' research skills and allow them the space to record important information about each food chain. The notebook follows the flow of the researcher's roadmap, with each heading matching one major step in the research process for each food chain. Questions and entries in the notebook echo the research skills anchor charts (posted alongside the researcher's roadmap), and are designed to prepare students for the mid-unit assessment.</li><li>• Note that students will not fill out the MLA citation in their researcher's notebooks until this process has been reviewed in Lesson 7.</li><li>• The homework in this lesson requires that students complete the researcher's notebook using the articles they read in class (if they have not done so by the end of class). This would require the students to print the articles, save them, or access them at home. Consider which option(s) would work best for your students and prepare accordingly.</li></ul>



Agenda		Teaching Notes (continued)
		<ul style="list-style-type: none"><li>• In advance: Prepare the Paraphrasing anchor chart (see the sample chart in supporting materials); leave the “Paraphrasing Helps Us” section blank so students can contribute their answers.</li><li>• Post: Learning targets; Paraphrasing anchor chart (next to researcher’s roadmap).</li></ul>
Lesson Vocabulary	Materials	
paraphrase, consequence	<ul style="list-style-type: none"><li>• Research article on the industrial food chain (selected by students from research folders in Lesson 2, one per student)</li><li>• Article: “Nitrogen Fertilizer Is Bad Stuff—and Not Just Because It Could Blow Up Your Town” (one for display)</li><li>• Paraphrasing anchor chart (new; teacher-created; see supporting materials)</li><li>• Researcher’s notebook (one per student and one for display)</li></ul>	



Opening	Meeting Students' Needs
<p><b>A. Share the Gist in Research Teams (6 minutes)</b></p> <ul style="list-style-type: none"><li>• Ask students to take out their <b>research article on the industrial food chain</b>.</li><li>• Remind students that they read the research article they selected for homework last night. Explain that throughout today's lesson they will gain expertise on their article and present their findings to their research teams. Ask students to first share the gist of the article with their research teams one at a time. Remind students that only one group member should speak at a time, and that other members should listen respectfully. Each group member should take one minute or less to share the gist.</li><li>• Tell students that they will continue to work with the same article throughout this lesson, and that the next step will be digging deeper into the article to find some answers to the overarching research question: What are the consequences of each of Michael Pollan's food chains? Today, students will focus on the industrial food chain.</li></ul>	
<p><b>B. Unpacking Learning Targets (2 minutes)</b></p> <ul style="list-style-type: none"><li>• Refocus students on the learning targets. Read the targets aloud:<ul style="list-style-type: none"><li>* "I can use research skills to determine the consequences of the industrial organic food chain."</li><li>* "I can devise a supporting research question to help me focus my research."</li><li>* "I can identify the relevant information in a research source to answer my supporting research question."</li><li>* "I can evaluate the credibility and accuracy of a source."</li><li>* "I can quote and paraphrase others' work while avoiding plagiarism."</li></ul></li><li>• Remind students that a consequence is an effect, result, or outcome of something occurring earlier.</li><li>• Focus students on the focus question and the overarching research question, and remind students that the overarching research question requires them to research the consequences of each food chain. Explain that today they will determine some consequences of the industrial food chain by closely reading their research articles.</li><li>• Inform students that they will review paraphrasing in this lesson in order to summarize what the authors of their research articles have to say about the industrial food chain.</li></ul>	



Work Time	Meeting Students' Needs
<p><b>A. Determine Consequences in Research Article (15 minutes)</b></p> <ul style="list-style-type: none"><li>Remind students that text coding is a process used when performing close reading to mark the parts of the text that are the most relevant to their research purposes. Tell students that they will use text coding to help them track consequences of the industrial food chain in their research article.</li><li>Tell students you will now model text coding using an article about nitrogen fertilizer, which is used in the United States to grow big crops like corn. Explain that the article will reveal some of the consequences of using nitrogen fertilizers as part of the industrial food chain. Tell students you will capture these consequences through text coding.</li><li>Begin by reading the title and then Paragraph 1 of the article <b>“Nitrogen Fertilizer Is Bad Stuff—and Not Just Because It Could Blow Up Your Town.”</b> Pause at the end of Paragraph 1 and think aloud for the students:<ul style="list-style-type: none"><li>* “This seems like a consequence of the industrial food chain because the explosion happened as a result of the fertilizer, which is manufactured to grow crops at big industrial farms.”</li></ul></li><li>Underline the word “explosion” and the phrases “killed 15 people and injured 200” and “obliterated the facility and destroyed houses.” Explain that you are underlining only the most important parts of the text that reveal the consequences.</li><li>Read Paragraph 2 aloud. Pause at the end of the paragraph and think aloud for the students:<ul style="list-style-type: none"><li>* “This paragraph says that explosion was ‘tragic,’ but I don’t think that’s a consequence or an important detail about the consequences because it is more about emotions than facts. I should be careful about including emotions in this kind of research. However, at the end of the paragraph I see a consequence of the industrial food chain: overuse of nitrogen fertilizer. Fertilizer factories have to make tons of this stuff, even though it’s risky, because industrial farms need it.”</li></ul></li><li>Underline the phrase “overuse of nitrogen fertilizers on American farmland.”</li><li>Read Paragraph 3 aloud and pause. Invite students to tell you if they see any additional consequences in this paragraph. Inform students that there are no additional consequences here. Explain that this paragraph provides background information on the origin of nitrogen fertilizer. It is important information for understanding what nitrogen fertilizer is, but it is not a consequence. Emphasize that it is normal to be tempted to underline other important information, but that they should stick to information about consequences only, as that is the information relevant to answering the research question.</li></ul>	<ul style="list-style-type: none"><li>During this work time, you may want to pull a small group of students to support in previously learned research skills they may struggle with.</li><li>If many students seem less than confident about text coding after the modeling, consider modeling Paragraphs 3, 4, and 5 of the article as well, continuing to think aloud for students.</li></ul>



Work Time (continued)	Meeting Students' Needs
<ul style="list-style-type: none"> <li>• Ask students to give a thumbs-up if they understand how to text code for consequences, a thumbs-sideways if they need clarification, or a thumbs-down if they need clarification on how to text code for consequences. Clarify and answer questions for individual students as needed.</li> <li>• Invite students to begin silently rereading and text coding their research articles for consequences of the industrial food chain. Advise students that they may need to reread their articles more than once to catch as many consequences as they can.</li> </ul>	
<p><b>B. Mini Research Lesson: Review Paraphrasing (18 minutes)</b></p> <ul style="list-style-type: none"> <li>• Ask students to discuss in teams:             <ul style="list-style-type: none"> <li>* “What does it mean to paraphrase?”</li> </ul> </li> <li>• Choose one or two volunteers to answer the question. Remind students that paraphrasing means to rewrite an author’s main points in your own words, transforming the author’s words, not simply copying them, which would be considered plagiarism.</li> <li>• Focus students on the <b>Paraphrasing anchor chart</b> and invite them to read it with you.</li> <li>• Explain that when paraphrasing in this lesson, students will paraphrase the main consequences that they have text coded in their research text, as this is the information that is most relevant to the overarching research question. Call students’ attention to the paraphrasing sentence starters on the anchor chart and invite them to read through the sentence starters with you.</li> <li>• Tell students that you will now use the criteria on the anchor chart to model how to paraphrase the text you coded earlier.</li> <li>• Display and distribute the <b>researcher’s notebooks</b> and tell students that this is where they will collect all of their research throughout this unit.</li> <li>• Invite students to read the instructions for paraphrasing underneath Analyzing the Source on Page 2 of the researcher’s notebook with you. Invite students to spend a couple of minutes looking at the first part of the researcher’s notebook, where they will record research about the industrial food chain</li> <li>• Refocus students on the “Nitrogen Fertilizer Is Bad Stuff—and Not Just Because It Could Blow Up Your Town” article. Invite student volunteers to reread Paragraphs 1 and 2 aloud. Think aloud for students:</li> </ul>	<ul style="list-style-type: none"> <li>• During this work time, you may want to pull a small group of students to support in previously learned research skills they may struggle with.</li> </ul>



Work Time (continued)	Meeting Students' Needs
<ul style="list-style-type: none"> <li>* "I already identified the consequences in these paragraphs so now I just have to write them in my own words. I think the author means that industrial farmers need fertilizer to keep growing as much food as they can. This leads to the overuse of harmful fertilizers. The fertilizers are risky to make because of the chemicals used, and in some cases the manufacturing plants can explode, injuring people and destroying property."</li> <li>• Write on the displayed researcher's notebook: <i>According to Tom Laskawy, industrial farms use too much nitrogen fertilizer. Because the fertilizer is risky to make, the manufacturing plants sometimes explode, killing and injuring people and destroying property.</i></li> <li>• Ask students to turn and talk to a partner about what they noticed about how you paraphrased. Listen for students to discuss which sentence starter you used, how you translated the author's words into your own, etc. Cold call on two or three volunteers to share what they or their partner noticed.</li> <li>• Ask students to discuss in research teams:             <ul style="list-style-type: none"> <li>* "How does paraphrasing help us in our research?"</li> </ul>             Call on a few volunteers to share their responses and add anything new to the Paraphrasing anchor chart.           </li> <li>• Instruct students to begin rereading and paraphrasing the consequences that they coded in their research text and listed in their researcher's notebooks. Remind students that their text coding should guide them to the sections they should reread and paraphrase. Their paraphrasing should always be relevant to the consequences of the industrial food chain. Instruct students to aim for three paraphrased consequences.</li> <li>• Circulate to assist students. Ask students questions to guide them in paraphrasing:             <ul style="list-style-type: none"> <li>* "Which sentence starter are you choosing? Why?"</li> <li>* "What is the consequence you are paraphrasing? Why?"</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• During this work time, you may want to pull a small group of students to support in previously learned research skills they may struggle with.</li> <li>• Some students may benefit from working with partially paraphrased information from their articles.</li> </ul>





Closing and Assessment	Meeting Students' Needs
<p><b>A. Filling Out the Rest of the Researcher's Notebook (4 minutes)</b></p> <ul style="list-style-type: none"><li>• Model how to fill out the bibliographic information under the Gathering Sources section in the displayed researcher's notebook. Tell students to ignore the question that asks them to provide an MLA citation for now—this will be addressed in a later lesson.</li><li>• Invite students to begin filling out their bibliographic information in their researcher's notebooks.</li></ul>	<ul style="list-style-type: none"><li>• Consider collecting the researcher's notebooks to verify students' understanding of the articles they read.</li></ul>
Homework	Meeting Students' Needs
<ul style="list-style-type: none"><li>• Finish filling out the researcher's notebook for your article, including the bibliographic information under Gathering Sources.</li><li>• Use the consequences you recorded from your research article to add to your personal Cascading Consequences chart for the industrial food chain. Use a different color pen or pencil so that the new information you have added is clear.</li></ul>	<ul style="list-style-type: none"><li>• This homework requires the student to print the article, save it, or access it at home. Consider which option(s) would work best for your students and prepare accordingly.</li></ul>



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# Grade 8: Module 4: Unit 2: Lesson 3

## Supporting Materials



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**Article: “Nitrogen Fertilizer Is Bad Stuff—  
and Not Just Because It Could Blow Up Your Town”**

*Expeditionary Learning is seeking permission for this material. We will post an updated version of the lesson once permission is granted.*

<http://grist.org/climate-energy/nitrogen-fertilizer-is-bad-stuff-and-not-just-because-it-could-blow-up-your-town/>



Paraphrasing Anchor Chart

**Paraphrasing means ...**

Using your own words instead of the author's to capture the meaning.

**Paraphrasing Sentence Starters**

1. According to + source + paraphrased fact

*Example: According to The New York Times, school lunches are often measured in calories, not healthfulness.*

2. Source + author writes + paraphrased fact

illustrates

notes

observes

states

reports

claims

*Example: In The Omnivore's Dilemma, Michael Pollan states that the industrial organic food chain has many of the same drawbacks as the industrial food chain.*

**Paraphrasing helps us:**

- process what an author means
- remember the content of an article without having to go back and read the whole thing
- record important information
- avoid plagiarism



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**Name:**

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**Date:**

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This notebook will help you gather information for the position paper you will begin writing at the end of this unit. In the paper, you will write about which of Michael Pollan's food chains would best feed the United States. In order to determine which food chain you will choose, you will research the consequences and determine the stakeholders of each food chain. This notebook will help you capture that research to inform your position paper.

Through your work in this researcher's notebook, you will practice the skills of a good researcher and demonstrate your progress toward the following learning targets:

- I can conduct short research projects to answer a question (including a self-generated question). (W.8.7)
- I can use several sources in my research. (W.8.7)
- I can generate additional research questions for further exploration. (W.8.7)
- I can gather relevant information from a variety of sources. (W.8.8)
- I can use search terms effectively. (W.8.8)
- I can evaluate the credibility and accuracy of each source. (W.8.8)
- I can quote and paraphrase others' work while avoiding plagiarism. (W.8.8)
- I can use a standard format for citation. (W.8.8)



**RESEARCH QUESTION:**

**What are the consequences of each of Michael Pollan's four food chains?**

**I. The Industrial Food Chain—Lesson 3**

**Gathering Sources**

In your research team, you chose an article about the industrial food chain. This text and the following entries in your researcher's notebook will help you determine more consequences of the industrial food chain.

A. Track the bibliographic information for this source so you can cite it later.

Title: \_\_\_\_\_ Author: \_\_\_\_\_  
\_\_\_\_\_

Print or Digital: \_\_\_\_\_

Source Type: \_\_\_\_\_ Date of Publication: \_\_\_\_\_  
\_\_\_\_\_

Page #(s): \_\_\_\_\_

B. MLA citation:



**Analyzing the Source**

- A. Reread. Read your article closely and text code for consequences.
- B. After you've read and text coded, paraphrase the information about consequences you found. Use sentence starters and examples in the chart below to help you as you paraphrase.

Sentence Starter #1	According to +	source	+ paraphrased fact	Examples	According to <i>The New York Times</i> , school lunches are often measure in calories, not healthfulness.
Sentence Starter #2	Source +	writes illustrates notes observes states reports claims	+ paraphrased fact		In <i>The Omnivore's Dilemma</i> , Michael Pollan states that the industrial organic food chain has many of the same drawbacks as the industrial food chain.



## II. The Industrial Organic Food Chain—Lesson 6

### Gathering Sources

Using a task card to guide your search, you will locate an article about the industrial organic food chain. This article should help you determine more consequences of the industrial organic food chain.

**Write the question from your exit ticket here:**

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**A. Search Terms:** What search terms did you use to conduct an internet search?

Write the terms in the chart below and indicate whether or not they were successful in helping you find a relevant text.

Search Attempt	Search Terms I Used	Successful? (Yes or No)	Why or why not? (Examples: too specific, too many words, too general, not enough detail, verbs instead of nouns, etc.)
1			
2			
3			





**B. Assess the Text's Credibility and Accuracy using the checklist below.**

- Is the author an expert on the topic?
- Is the purpose to inform or persuade/sell?
- When was the text first published?
- How current is the information on the topic?
- Does the text have specific facts and details to support the ideas?
- Does the information in this text expand on or contradict what I already know about the topic?
- If the text is from a Web site, is the site associated with a reputable institution such as a respected university, credible media outlet, government program or department, or well-known non-governmental organization? (Note: Beware of using sites like Wikipedia, which are collaboratively developed by users—anyone can add or change the content.)

Based on the checklist, is this text credible and accurate? Explain below.

**c. Track the bibliographic information for this source so you can cite it later.**

Title: \_\_\_\_\_ Author:

\_\_\_\_\_

Print or Digital: \_\_\_\_\_ Source Type:

\_\_\_\_\_

Date of Publication: \_\_\_\_\_ Page #(s):

\_\_\_\_\_

**D. MLA Citation:**



### Analyzing the Source

A. Reread. Read your article closely for consequences. List the consequences, including quotes from the text here:

B. Paraphrase the consequences you found in one paragraph.

### Refining the search

A. Generate another question.

Using “criteria for a good research question” from the *Good Research Questions Are ...* anchor chart, generate one additional research question based on what you learned today.



III. The Local Sustainable Food Chain—Lesson 9

**Gathering Sources**

Using a task card to guide your search, you will locate an article about the local sustainable food chain. This article should help you determine more consequences of this food chain.

**Write the question from your exit ticket here:**

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A. **Search Terms:** What search terms did you use to conduct an internet search? Write the terms in the chart below and indicate whether or not they were successful in helping you find a relevant text.

Search Attempt	Search Terms I Used	Successful? (Yes or No) If yes, move on to step B! If not, keep trying!	Why or why not? (Examples: too specific, too many words, too general, not enough detail, verbs instead of nouns, etc.)
1			
2			
3			



**B. Assess the Text's Credibility and Accuracy using the checklist below.**

- Is the author an expert on the topic?
- Is the purpose to inform or persuade/sell?
- When was the text first published?
- How current is the information on the topic?
- Does the text have specific facts and details to support the ideas?
- Does the information in this text expand on or contradict what I already know about the topic?
- If the text is from a Web site, is the site associated with a reputable institution such as a respected university, credible media outlet, government program or department, or well-known non-governmental organization? (Note: Beware of using sites like Wikipedia, which are collaboratively developed by users—anyone can add or change the content.)

Based on the checklist, is this text credible and accurate? Explain below.

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**c. Track the bibliographic information for this source so you can cite it later.**

Title: \_\_\_\_\_ Author: \_\_\_\_\_

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Print or Digital: \_\_\_\_\_ Source Type: \_\_\_\_\_

\_\_\_\_\_

Date of Publication: \_\_\_\_\_ Page #(s): \_\_\_\_\_

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**D. MLA Citation:**



**Analyzing the Source**

E. Reread. Read your article closely for consequences. List the consequences, including quotes from the text here:

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F. Paraphrase the consequences you found in one paragraph.

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**Refining the search**

G. Generate another question.

Using “criteria for a good research question” from the *Good Research Questions Are ...* anchor chart, generate one additional research question based on what you learned today.

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**IV. The Hunter-Gatherer Food Chain**

**Gathering Sources**

Using a task card to guide your search, you will locate an article about the local sustainable food chain. This article should help you determine more consequences of this food chain.

**Write the question from your exit ticket here:**

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A. **Search Terms:** What search terms did you use to conduct an internet search? Write the terms in the chart below and indicate whether or not they were successful in helping you find a relevant text.

Search Attempt	Search Terms I Used	Successful? (Yes or No) If yes, move on to step B! If not, keep trying!	Why or why not? (Examples: too specific, too many words, too general, not enough detail, verbs instead of nouns, etc.)
1			
2			
3			



**B. Assess the Text's Credibility and Accuracy using the checklist below.**

- Is the author an expert on the topic?
- Is the purpose to inform or persuade/sell?
- When was the text first published?
- How current is the information on the topic?
- Does the text have specific facts and details to support the ideas?
- Does the information in this text expand on or contradict what I already know about the topic?
- If the text is from a Web site, is the site associated with a reputable institution such as a respected university, credible media outlet, government program or department, or well-known non-governmental organization? (Note: Beware of using sites like Wikipedia, which are collaboratively developed by users—anyone can add or change the content.)

Based on the checklist, is this text credible and accurate? Explain below.

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**c. Track the bibliographic information for this source so you can cite it later.**

Title: \_\_\_\_\_ Author: \_\_\_\_\_

Print or Digital: \_\_\_\_\_ Source Type: \_\_\_\_\_

Date of Publication: \_\_\_\_\_ Page #(s): \_\_\_\_\_

**D. MLA Citation:**



**Analyzing the Source**

**A. Reread. Read your article closely for consequences. List the consequences, including quotes from the text here:**

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**B. Paraphrase the consequences you found in one paragraph.**

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### Refining the search

**A. Generate another question.**

Using “criteria for a good research question” from the *Good Research Questions Are ...* anchor chart, generate one additional research question based on what you learned today.

**B. Extension**

1. **Conduct an internet search for your new refined question. Choose your search terms carefully.**
2. **When you have relevant results, read the first paragraph to see whether the resource will answer your question or not.**
3. **List the consequences of the hunter-gatherer food chain in the article you read. Use quotes from the article.**
4. **Paraphrase the consequences of the hunter-gatherer food chain from the article you read.**



**V. Synthesis**

A. Review the research question. Begin thinking about which food chain you may choose as the best one to feed the United States. Using your research, consider the questions below and write down your initial ideas. You will have time to discuss these questions and others further before starting your position paper.

- What consequence(s) struck you as the biggest or most important? Why?

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- Which stakeholder do you care the most about and why?

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- What changes do you believe need to happen in our current food system?

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