**Michael Pollan, *The Omnivore’s Dilemma: The Secrets Behind What You Eat (Young Reader’s Edition)* - Grade 7**

**Originally published in New York: Dial Books, 2009.**

## **Learning Objective:** The goal of this two-day exemplar is to give students the opportunity to use the reading and writing habits they’ve been practicing on a regular basis to unpack Pollan’s investigative journalism of industrial farms. By reading and rereading the passage closely combined with classroom discussion about it, students will identify why and how farming practices have changed, as well as identify Pollan’s point of view on the subject. When combined with writing about the passage and teacher feedback, students will begin to appreciate investigative journalism, as well as question from where their food is coming.

## **Reading Task:** Students will silently read the passage in question on a given day—first independently and then following along with the text as the teacher and/or skillful students read aloud. Depending on the difficulties of a given text and the teacher’s knowledge of the fluency abilities of students, the order of the student silent read and the teacher reading aloud with students following might be reversed. What is important is to allow all students to interact with challenging text on their own as frequently and independently as possible. Students will then reread specific passages in response to a set of concise, text- dependent questions that compel them to examine the meaning and structure of Pollan’s reporting. Therefore, rereading is deliberately built into the instructional unit.

## **Vocabulary Task:** Most of the meanings of words in the exemplar text can be discovered by students from careful reading of the context in which they appear. Teachers can use discussions to model and reinforce how to learn vocabulary from contextual clues, and students must be held accountable for engaging in this practice. For a small number of words, important for comprehension where it was judged that this is not possible, a word list with definitions has been provided as an appendix (see page 8).

## These definitions should be provided to students either as a glossary for the text or provided briefly orally in context. At times, this is all the support these defined words need. At other times, particularly with abstract words, teachers will need to spend more time explaining and discussing them. In addition, the vocabulary appendix includes a short list words or phrases deserving more thorough explanation and discussion in subsequent close readings of passages of the text, because of their complexity and importance to main ideas of the lesson. These words are listed in bold in the vocabulary appendix. Given how crucial vocabulary knowledge is for academic and career success, it is essential that high value words be discussed and lingered over during the instructional sequence.

## **Sentence Syntax Task:** On occasion, students will encounter particularly difficult sentences to decode. Teachers should engage in a close examination of such sentences to help students discover how they are built and how they convey meaning. While many questions addressing important aspects of the text double as questions about syntax, students should receive regular supported practice in deciphering complex sentences. It is crucial that the help they receive in unpacking text complexity focuses both on the precise meaning of what the author is saying and why the author might have constructed the sentence in this particular fashion. That practice will in turn support students’ ability to unpack meaning from syntactically complex sentences they encounter in future reading.

## **Discussion Task:** Students will discuss the passage in depth with their teacher and their classmates, performing activities that result in a close reading of Pollan’s text. The goal is to foster student confidence when encountering complex text and to reinforce the skills they have acquired regarding how to build and extend their understanding of a text. A general principle is to always reread the passage that provides evidence for the question under discussion. This gives students another encounter with the text, helping them develop fluency and reinforcing their use of text evidence.

## Writing Task: Students will paraphrase different sentences and paragraphs of Pollan’s text and then write either a compare and contrast essay illustrating the differences between the traditional farm and the factory farm or an argument against the factory farm. Students might be afforded the opportunity to rewrite their essays or revise their in-class paraphrases after participating in classroom discussion , allowing them to refashion both their understanding of the text and their expression of that understanding.

**Text Selection:** This selection, from the Young Reader’s edition of Pollan’s bestseller, *The Omnivore’s Dilemma*, asks students to consider how their food is grown today and why and how that has changed. This brief history and science of United States farm ecology offers students diverse opportunities for exploration and close reading.

Teachers will find the excerpt by using the following citation: From Omnivore’s Dilemma: Young Readers Edition by Michael Pollan, copyright © 2009 by Michael Pollan. The material comes from Chapter 3: From Farm to Factory, published by Dial Books, an imprint of Penguin Group (USA) Inc.[[1]](#footnote-1) Teachers will need to provide the excerpted text.

The selection begins with the heading “Turning Bombs into Fertilizer” on pg. 29 and the line, “It may seem that I’ve given corn too much credit...” The excerpt ends with the line, “…But the system only works as long as fossil fuel energy is cheap” on pg. 32. Students should also be directed to read and consider the illustration titled, “Too much fuel for too little food” on pg. 32.

Teachers may purchase or preview this text here: <http://www.amazon.com/The-Omnivores-Dilemma-Secrets-Readers/dp/0803735006>, or through a variety of other book vendors.

**Outline of Lesson Plan**: This lesson can be divided by the teacher into two days of instruction and reflection on the part of students and their teachers, with the option of a written homework assignment after Day 1 and the possibility of adding an additional day devoted to peer review and revision of the culminating writing assignment. The lesson also includes recommendations for further passages from the book, which could be used for extension activities.

**Standards Addressed:** The following Common Core State Standards are the focus of this exemplar: RI.7.1, RI.7.2, RI.7.3, RI.7.4, RI.7.5; W.7.1, W.7.2, W.7.4; SL.7.1; L.7.4, L.7.5

**Appendices:**

* Appendix A: Selected Vocabulary List
* Appendix B: Additional Vocabulary Resources
* Appendix C: Recommendation for Additional Reading Passages
* Appendix D: Knowledge-Building Resources

**Day One: Instructional Exemplar for Pollan’s *The Omnivore’s Dilemma (Young Reader’s Edition)***

# Summary of Activities

## Teacher introduces the day’s passage with minimal commentary and students read it independently. (5 minutes)

1. Teacher or a skillful reader then reads the passage out loud to the class as students follow along in the text. (5 minutes)
2. Teacher asks the class to discuss the first set of text-dependent questions and perform targeted tasks about the passage, with answers in the form of notes, annotations to the text, or more formal responses as appropriate. (40 minutes)

**Directions for Teachers/Guiding Questions For Students**

### Introduce the text and ask students to read independently

On Day One, students should read the entire excerpt from beginning to end. Other than giving an initial gloss to words students would likely not be able to define from context (listed in Appendix A), teachers should avoid giving any background context or instructional guidance at the outset of the lesson while students are reading the text silently. This close reading approach helps to level the playing field for all students, by forcing all students to rely exclusively on the text. It is critical to cultivating independence and creating a culture of close reading that students initially grapple with rich texts like Pollan’s without the aid of prefatory material, extensive notes, or even teacher explanations.

*Note: The order of the student independent read and the read-aloud by a fluent reader may be reversed, depending on the needs of your students.*

1. **Read the passage out loud as students follow along**

The teacher may read the passage aloud or the teacher may select a fluent student reader to read while the class listens and follows along. Asking students to listen to Pollan’s text exposes students a second time to the rhythms and meaning of his language before they begin their own close reading of the passage. Speaking clearly and carefully will allow students to follow Pollan’s narrative, and reading out loud with students following along improves fluency while offering all students access to this complex text. Accurate and skillful modeling of the reading provides students who may be dysfluent with accurate pronunciations and syntactic patterns of English.

**3. Guide discussion of the first half of the essay with a series of specific, text-dependent questions and tasks.**

For Day One’s discussion and text-dependent questions, direct students to focus on the excerpt, beginning with the heading, “Turning Bombs into Fertilizer” and the sentence starting, “It may seem that I’ve given corn too much credit,” and continuing through the sentence, “With chemical fertilizer, farming went from being solar powered to being powered by oil, coal, and gas.”

As students move through the questions below, be sure to check for and reinforce their understanding of academic vocabulary in the corresponding text. At times, the questions provided here may focus on academic vocabulary.

**(Q1) Ask students to define “agribusiness.”**

It is important for students to understand that agribusinesses are not farmers. Some students might need clarification here. Teachers should discuss the following sentence: “Agribusinesses also need cheap corn from which they make processed food and hundreds of other products.” Agribusinesses are large companies that manufacture farming equipment, seeds, fertilizers, pesticides, processed foods as well as provide services to farmers.

**Sidebar: Website listing many different types of products made from corn.**

If students are intrigued to learn all the different types of products made from corn, have them view the graphic web on pages 68-69 of Pollan’s *The Omnivore’s Dilemma (Young Reader’s Edition)* or examine the following website: [**http://www.ontariocorn.org/classroom/products.html#Products%20that%20**](http://www.ontariocorn.org/classroom/products.html%23Products%20that%20use%20Corn)[**use%20Corn**](http://www.ontariocorn.org/classroom/products.html%23Products%20that%20use%20Corn)

**(Q2) How did the U.S. government help launch the chemical fertilizer industry?**

The U.S. government sprayed their WWII surplus of ammonium nitrate on farmland. Ammonium nitrate was manufactured for weapons during the war. After the war, the U.S. government needed to do something with the remaining bomb material. It must have worked well as a fertilizer because after that the chemical fertilizer business took off, and many farms began using it to grow crops.

**(Q3) Why are chemical fertilizers so important and necessary to agribusinesses?**

Students should remember from (Q1) that agribusinesses rely on corn to produce many of their products. The type of corn being grown, hybrid corn, needs very fertile soil. Chemical fertilizers are necessary to create this fertile soil especially because of the quantity (*thirty thousand hungry corn plants)* being planted.

**(Q4) Ask students to describe in writing one cause and effect relationship they have read about thus far.**

Possible answers should include the U.S. government’s surplus caused the chemical fertilizer industry to take off or that corn farming exploded as a result of the chemical fertilizers.

**(Q5) What is the natural way to fertilize crops?**

The natural way to fertilize crops is by planting different crops every couple of years in addition to spreading animal manure on the fields.

**(Q6) What are fossil fuels? What might be some problems with using fossil fuels to produce chemical fertilizers?**

Fossil fuels are natural sources of energy such as oil, coal, and gas. Teachers should point out why “fossil” appears with “fuel” (because these types of fuels are derived from the organic remains of prehistoric plants and animals). Students might recognize that “making nitrogen…takes enormous amounts of energy” and fossil fuels are not free, thus raising the cost of chemical fertilizer. Students might also cite the environmental costs (using their own prior knowledge) of using fossil fuels.

**Day Two: Instructional Exemplar for Pollan’s *The Omnivore’s Dilemma (Young Reader’s Edition)***

# Summary of Activities

## Teacher introduces the day’s passage with minimal commentary and students read it independently (5 minutes)

1. Teacher or a skillful reader then reads the passage out loud to the class as students follow along in the text (5 minutes)
2. Teacher asks the class to discuss the first set of text-dependent questions and perform targeted tasks about the passage, with answers in the form of notes, annotations to the text, or more formal responses as appropriate (40 minutes)

**Directions for Teachers/Guiding Questions For Students**

### Introduce the text and ask students to read independently

On Day Two, students should re-read the portion of the excerpt starting with the line, “ Then in 1909 a chemist discovered…” and continue through the end of the passage, up to and including the line, “But the system only works as long as fossil fuel energy is cheap.” Students should also view the illustration titled, “Too much fuel for too little food.”

1. **Read the passage out loud as students follow along**

The read-aloud for Day Two should only include the portion of the passage under consideration for Day Two, specified above. As noted on Day One, the order of the independent reading and the fluent read-aloud may be reversed, and a fluent student reader can read in place of the teacher. Re-reading the same passage aloud, while students follow along is a powerful scaffold which helps all students build fluency and particularly helps dysfluent students access texts which they may struggle to read independently.

**3. Guide discussion of the first half of the essay with a series of specific text-dependent questions and tasks.**

**Ask students to write a paragraph explaining the sentence “With chemical fertilizer, farming went from being solar powered to being powered by oil, coal, and gas.”**

Answers might sound like this: The traditional farm fertilizes its soil with animal dung and by rotating its crops. The crops such as corn and beans grow from the sun’s energy. Crop rotation allows the soil chemistry to change and become more fertile. Alternatively, chemical fertilizers treat the soil without the use of the sun. Chemical fertilizers are manufactured in a factory and transported to farms by machines powered by fossil fuels.

**(Q7) What does the author mean when he wrote, the “ecology of his farm underwent a quiet revolution”?**

Students should recognize that the natural order of fertilization described in the first paragraph was dramatically altered when Naylor’s father began using chemical fertilizer. It was a “quiet” revolution because nothing in this natural world protested the change.

**(Q8) Cite textual evidence for the claim, “Farming was no longer an ecological loop—it was more like a factory.**”

Teachers should highlight the connection in meaning to “loop” and “revolve/revolution.” Students will cite textual evidence such as:

*“The farmer bought raw materials (seed and fertilizer) and turned it into a finished product—corn.”*

*“…farmers could plant corn in every field, every year.”*

*“…the industrial farm produces just one product (or at most, two.)”*

*“…the industrial farm, is powered with fossil fuels.”*

**(Q9) What fossil fuels are needed to power the industrial farm?**

Students should highlight phrases such as: “natural gas in the fertilizer” and “the diesel used by the tractors, and the fuel needed to harvest, dry, and transport the corn.”

**(Q10) What does Pollan mean when he writes, “…the modern farm is a losing proposition”?**

This question will determine if the students understand the author’s purpose in writing this passage. It asks students to determine the importance of certain phrases and identify the central theme of this section. Students might cite the following phrases in their answers: “the industrial farm is using up more energy than it is producing” and “the system only works as long as fossil fuel energy is cheap.” Students should recognize the traditional farming methods produced more with less fossil fuel energy than the industrial farm. Students can also extract information

from the bar graph found in the exemplar.

**Explanatory Writing Assignment: Directions for Teachers and Students / Guidance for Teachers**

**Choose one of the following writing assignments based on the excerpt from Michael Pollan’s *The Omnivore’s Dilemma (Young Reader’s Edition):***

* Write an essay comparing and contrasting traditional farming methods with those of an industrial/factory farm.
* Write an argument against the industrial/factory farm. Support your argument with textual evidence.
* Reread the last three paragraphs of the passage we studied and examine the bar graph. In your own words, describe the author’s opinion of the industrial farm. Support your ideas with particular words or phrases that highlight the author’s opinion.

### Supporting details for a compare and contrast essay might include:

|  |  |
| --- | --- |
| **Traditional Farm** | **Factory Farm** |
| fertilizes soil with manure (needs animals)rotates crops every couple of years produces multiple productssolar poweredproduces more food energy than it uses to grow crops exists as a cycle | *“*The farmer bought raw materials (seed and fertilizer) and turned it intoa finished product—corn.”“…farmers could plant corn in every field, every year.”“…the industrial farm produces just one product (or at most, two.)” “…the industrial farm is powered with fossil fuels.”“industrial farm is using up more energy than it is producing” not a cycle |

**Textual evidence for an argument against the factory farm might include:**

“factory farm produces more food much faster than the old solar-based farm. But the system only works as long as fossil fuel energy is cheap” “the industrial farm is using up more energy than it is producing”

“...the industrial farm, is powered with fossil fuels. There’s natural gas in the fertilizer and the fossil fuel energy it takes to make the pesticides, the diesel used by the tractors, and the fuel needed to harvest, dry, and transport the corn.”

Factory farms need chemical fertilizers to grow hybrid corn

### Guidance regarding an essay about the author’s point of view:

Asking students to identify the author’s opinion or point of view (“the modern farm is a losing proposition”) forces them to synthesize the whole text.

Students might notice the author’s ironic tone in the sentence, “It’s too bad we can’t simply drink the petroleum directly—it would be more efficient.” Teachers should point out that this type of emotional language often signifies an author’s point of view.

## Appendix A: Selected Vocabulary List

**The role of vocabulary in this lesson set:**

The chart below lists the vocabulary words the teachers who wrote this lesson identified as important to understanding the text for this lesson.

**It is important to note the very high number of words recommended for instruction in these passages**, more than many of us have been used to teaching. This reflects the importance of vocabulary to comprehending the complex text called for by the CCSS. Students who are behind need to learn even more words. This can only happen if we can teach word meanings efficiently; devoting more time and attention to those words that merit it, and less to those that can be learned with less time and attention. Clearly, there will not be time in the few days of this lesson set to explicitly and extensively teach all the words listed below. Many of the words, however, can be taught quickly, while others deserve explicit and lengthy examination. Teachers should make intentional choices based on professional judgment, the needs of students, and the guidance provided below.

**The organization of the charts below:**

Each vocabulary word below has been categorized based on the question: “**Can students infer the meaning of the word from context?”**

The definitions of many words can be inferred in part or in whole from context, and practice with inferring word meanings is an integral part of instruction. The words in the first group have meanings which **can be inferred from context** within the text. Words in this category are printed in **bold** below and in the scaffolded version of the student text provided above. Definitions for these words have not been provided here; instead of directly providing definitions for these words draw students’ attention to these word and ask them to try to infer the meaning.

##  Words in the second group have meanings, or are being used in ways, which cannot reasonably be inferred from context within the text alone. These words are printed in underline, here and in the text, and their definitions are provided in the margins of the text for student reference.

**Determining which words to spend more time on**

As mentioned above, some words must be taught extremely quickly, sometimes in mere seconds by providing a quick definition and moving on. Other words are both more difficult and more important to understanding this text or future texts and hence deserve time, study, discussion and/or practice. In using this lesson exemplar, teachers will need to determine for themselves which words from the list above deserve more time and which deserve less. Use the guidelines below to help you determine which words to spend more time on. In addition the additional vocabulary resources listed in Appendix B below can help you learn more about selecting and teaching vocabulary.

**Words for which definitions should be provided to students:**

It would be difficult to deduce the meaning of the following words from context, but their meaning is important for comprehension of the passage. The definitions should be provided either through a glossary for the text or quickly out-loud, in context.

**Quicker and easier to learn** — words that are concrete, have only one meaning, or are limited to a specific topic area, such as fires or the ocean etc. These words should be addressed swiftly, when they are encountered and only as needed.

**regulations** – rules or orders

**pesticide** – a substance that kills insects

**hybrid corn** – corn grown from seeds with different traits

**DNA** – DNA is the material that carries genes; genes give plants, animals, and other organisms their traits, such as how fast they grow.

**manure** – animal dung used for fertilizing land

**solar** – relating to energy from the sun

**ecology** – branch of science concerned with the relationships between living things and their environment

**pastures** – grassy fields where animals can graze

**bushel** – a basket

**proposition** – a plan of action

**petroleum** – oil

**efficient** – more productive and less wasteful

**Take more time and attention to master** — words that are abstract, represent concepts unlikely to be familiar to many students, have multiple meanings, are a part of a word family, and/or are likely to appear again in future texts. These words require more instructional time.

agri-business

ammonium nitrate

nitrogen

legume

fossil fuels

hydrogen

quiet revolution

it was more like a factory

calories

## Appendix B: Additional Vocabulary Resources

**Hungry for more vocabulary? Check out the Academic Word Finder.**

The words in the list above were selected by an expert teacher as valuable to teach **in the context of this lesson**. But these are just some of the *many* words you could draw from this passage to help your students build their vocabulary. If you are interested in a tool which can quickly help you identify more of the high-value, Tier 2 academic vocabulary words that appear in this passage, visit the free **Academic Word Finder** at <http://achievethecore.org/academic-word-finder/> (registration required).

***Please note: Some of the words you will find with this tool will not overlap with those listed above.***This is a good thing, because it points out even more words that can help your students! The list above focuses on words crucial to understanding the key points of the passage and includes both Tier 2 and Tier 3 words, whereas the Academic Word Finder focuses on high-frequency Tier 2 words which will be valuable to your students across a variety of texts, (but which may not be particularly central to the meaning of this passage). These words often have multiple meanings or are part of a word family of related words. In addition the **Academic Word Finder** provides multiple related words and the variety of shades of a word’s meaning all in one location, so teachers can see the depth and diversity of word meanings they can teach around a word. Teachers then decide how and when to expose students to different word senses to promote their vocabulary growth.

Both sources of words are valuable, but for different purposes. Ultimately you will have to rely on your professional judgment to determine which words you choose to focus on with your students.

**Eager to learn more about how to select and teach vocabulary? Check out *Vocabulary and The Common Core* by David Liben.**

This paper includes a summary of vocabulary research and practical exercises to help you learn to select and teach vocabulary. Written by classroom veteran and literacy researcher David Liben, the exercises will help you hone your professional judgment and build your skill in the vocabulary teaching crucial to success with the Common Core State Standards.

Download the paper and exercises here:

<http://achievethecore.org/page/974/vocabulary-and-the-common-core-detail-pg>

## Appendix C: Recommendation for Additional Reading Passages from *The Omnivore’s Dilemma: The Secrets Behind What You Eat* (Young Reader’s Edition) 2009; pp. 48-52

The following two passages come from pp. 48 – 52 of the book. They offer a rich opportunity to extend the discussions and understandings developed through the preceding close reading lessons.

Additional Passage 1: CAFO – Concentrated Animal Feeding Operation

This passage explains the shift from cows raised on family farms to the new factory farm approach to raising cattle. The passage begins with the sentence, “The old-fashioned way of raising cattle, like the old-fashioned way of growing corn…” and ends with the sentence, “…But in a CAFO they are forced to eat corn…”

Additional Passage 2: Cows and Grass – A Partnership

This passage describes the complex ecological relationship that has evolved between grass and the animals that eat them. The passage begins with the sentence, “Cows have evolved over millions of years to eat grass…” and ends with the sentence, “Fast food indeed.”

## Appendix D: Knowledge-Building Resources

**Looking for ways to support all students in accessing complex text? Check out the Knowledge-Building Quad Text Sets.**

A high-leverage, evidence-based strategy to support students in accessing complex text is to anchor that text in a conceptually coherent set of resources that build needed knowledge and vocabulary. This work is particularly critical for students not yet reading at grade level. The knowledge-building resources follow a quad text set model developed by Comprehensive Reading Solutions and based on the article by Sarah Lupo and colleagues, “[Building Background Knowledge Through Reading: Rethinking Text Sets](https://ila.onlinelibrary.wiley.com/doi/abs/10.1002/jaal.701).” In a quad text set model, three to five texts are selected that help students develop knowledge critical to the complex text at the center of the close-reading lesson. Each of these supplemental texts is paired with a lightweight text-dependent task to support students’ comprehension and knowledge-building work. Implementing these knowledge-building texts and tasks can be done in a variety of ways; they are lightweight enough to be done either during short portions of class or as homework.

Download the Knowledge-Building Quad Text Set for this lesson here:

<https://achievethecore.org/file/5657>

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