



EXPEDITIONARY  
LEARNING

# **Grade 6: Module 4: Unit 2: Lesson 1**

## **Getting the Gist and Paraphrasing: “Rachel Carson: Environmentalist and Writer”**



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

I can conduct short research projects to answer a question. (W.6.7)  
I can quote or paraphrase what others say about my topic while avoiding plagiarism. (W.6.8)  
I can gather relevant information from a variety of sources. (W.6.8)

**Supporting Learning Targets**

- I can set a purpose to guide me in my research.
- I can get the gist of the informational article “Rachel Carson: Environmentalist and Writer.”
- I can paraphrase information from my reading to answer a question.

**Ongoing Assessment**

- Learning from Frightful’s Perspective: Chapter 12 (from homework)
- Researcher’s notebook
- Exit Ticket: Paraphrasing Information from “Rachel Carson: Environmentalist and Writer”



Agenda	Teaching Notes
<ol style="list-style-type: none"> <li>1. Opening               <ol style="list-style-type: none"> <li>A. Learning from Frightful’s Perspective: Chapter 12 (8 minutes)</li> <li>B. Unpacking Learning Targets (2 minutes)</li> </ol> </li> <li>2. Work Time               <ol style="list-style-type: none"> <li>A. Introducing the Research Folder (10 minutes)</li> <li>B. Read-aloud and Getting the Gist of an Excerpt from “Rachel Carson: Environmentalist and Writer” article (10 minutes)</li> <li>C. Using Paraphrasing to Respond to Text-Dependent Questions about “Rachel Carson: Environmentalist and Writer” (10 minutes)</li> </ol> </li> <li>3. Closing and Assessment               <ol style="list-style-type: none"> <li>A. Exit Ticket: Paraphrasing Information from “Rachel Carson: Environmentalist and Writer” (5 minutes)</li> </ol> </li> <li>4. Homework               <ol style="list-style-type: none"> <li>A. Read Chapter 13, “Sam Takes Charge” and complete Learning from Frightful’s Perspective: Chapter 13.</li> </ol> </li> </ol>	<ul style="list-style-type: none"> <li>• As students launch Unit 2, their work with the novel <i>Frightful’s Mountain</i> becomes increasingly independent. This follows a similar pattern to students’ work in Module 1 (with <i>The Lightning Thief</i>), Module 2A (with <i>Bud, Not Buddy</i>), and Module 3A (with <i>Dragonwings</i>). <i>Frightful’s Mountain</i> is used both to reinforce students’ previous work with literature, and as an entry point into their deeper research of the benefits and consequences of DDT. In Unit 2, the novel moves to the background while students’ guided research becomes the central focus of instruction.</li> <li>• In Unit 1, students built background knowledge about the benefits of DDT and its harmful consequences by reading several articles, viewing two videos, and analyzing charts and graphs. This unit builds on that background knowledge as students do further research. Students are given a research folder. See the Unit 2 overview “Preparation and Materials” for details.</li> <li>• Note this research is intentionally guided with scaffolding from the teacher. This meets the sixth-grade demands for W.7: students “conduct short research projects, drawing on several sources” (W.6.7). This guided research also moves students toward the more rigorous seventh-grade standard, which requires that students not only conduct short research projects, drawing on several sources, but also “generate additional related, focused questions for further research and investigation” (W.7.7). The CCLS explicitly expects students to conduct their own additional research in seventh grade.</li> <li>• While researching, students use a Credibility Checklist as they learn to check the credibility of sources. For additional ideas about how to approach this important skill with students, sample the checklists for evaluating a Web site: <a href="http://www.schrockguide.net/uploads/3/9/2/2/392267/weval.pdf">http://www.schrockguide.net/uploads/3/9/2/2/392267/weval.pdf</a> or <a href="http://www.library.illinois.edu/ugl/howdoi/webeval.html">http://www.library.illinois.edu/ugl/howdoi/webeval.html</a>.</li> <li>• Because the texts used for students’ guided research are authentic, not all of them have complete citations. Help students with the source information handouts, but know that for certain sources, the original document did not include all the categories on this handout.</li> <li>• Throughout this unit, students encounter a variety of articles in the range of credibility written by experts in public health and also concerned citizens, as well as sources ranging from well-known periodicals to unfamiliar Web sites. This intentionally allows students to evaluate the credibility of sources. Discuss this variety of credibility in the sources contained within students’ research folders so that they can develop the skills to independently evaluate credible sources in their future research.</li> </ul>



Agenda	Teaching Notes
	<ul style="list-style-type: none"><li>• Six specific articles are provided in the supporting materials of this lesson; prepare this for students’ research folders before the lesson. Please note that the article “DDT use should be last resort in malaria-plagued areas, scientists say,” by Marla Cone, is provided as a “stretch” text for stronger students. It likely will be too challenging for some students to read closely in its entirety. We strongly recommend that you mark paragraphs 1-11, 18-20, and 31-33 for students to read and use in their research, or consider excerpting this article to include these paragraphs only in students’ research folders.</li><li>• In today’s lesson, students are introduced to page 1 of the researcher’s notebook, which focuses on setting a purpose for their research. Students complete page 1 of the notebook and define key vocabulary in the research question. They also reflect on their learning about the benefits of DDT and its harmful consequences from Unit 1. On this page, students write what they still wonder about DDT. After a discussion, students write a paragraph describing a purpose for their research.</li><li>• Students will use the researcher’s notebook in Lessons 2, 4, 5, 7, and 8. Remind students at the end of an activity to place the notebook in the research folder.</li><li>• In advance: Consider forming partnerships; prepare the research folder with resources (see above).</li><li>• Post: Learning targets.</li></ul>



Lesson Vocabulary	Materials
purpose, research, paraphrase, benefit, harmful consequence; environmentalist, revolutionary	<ul style="list-style-type: none"><li>• <i>Frightful’s Mountain</i> (book; one per student)</li><li>• Peregrine Falcon Facts anchor chart (from Unit 1)</li><li>• Research Folder (with articles and other materials) (one per student)</li><li>• Credibility Checklist (five copies per student; for research folder)</li><li>• Assessing Sources (five copies per student; for research folder)</li><li>• “Sounding the Alarm on Pollution” (one per student; for research folder)</li><li>• “Rachel Carson: Environmentalist and Writer” article (one per student; for research folder)</li><li>• “Malaria Carrying Mosquito Crash Lands Due to His Insecticide” (one per student; for research folder)</li><li>• “How DDT Harmed Hawks and Eagles” (one per student; for research folder)</li><li>• “Biological Energy—Here, Let Me Fix It!” (one per student; for research folder)</li><li>• “A New Home for DDT” excerpt (one per student; for research folder)</li><li>• “DDT use should be last resort in malaria-plagued areas, scientists say” excerpts (one per student; for research folder)</li><li>• Researcher’s notebook (one per student)</li><li>• Document camera</li><li>• Exit Ticket: “Rachel Carson: Environmentalist and Writer,” Paraphrasing an Excerpt from the Text (one per student)</li><li>• Learning from Frightful’s Perspective: Chapter 13 (one per student)</li></ul>



Opening	Meeting Students’ Needs
<p><b>A. Learning from Frightful’s Perspective: Chapter 12 (8 minutes)</b></p> <ul style="list-style-type: none"> <li>As students enter, invite them to sit in their <i>Frightful’s Mountain</i> triad groups. Be sure students have their text, <b><i>Frightful’s Mountain</i></b>. Remind them to discuss the focus question from Learning from Frightful’s Perspective: Chapter 12 and add notes to their graphic organizer. The focus question asks students to recall what Molly sees in the bag when Flip Pearson and Dr. Werner open it.</li> <li>Direct students to share their unfamiliar words with group members. If the group is unsure of the word’s meaning, members should refer to the page number in the novel and read the sentence containing the word to find meaning using context clues. If this sentence is not helpful, ask students to read a sentence before and after to help them determine meaning.</li> <li>Circulate as students discuss. Provide support to select students needing help with finding meaning using context clues. If students are not able to determine meaning, give them the meaning and ask them to write it on their graphic organizer.</li> <li>Invite students to volunteer facts to add to the <b>Peregrine Falcon Facts anchor chart</b>.</li> <li>Compliment triads that are working cooperatively adding notes in their response to the focus question and adding meanings to their unfamiliar words.</li> </ul>	
<p><b>B. Unpacking Learning Targets (2 minutes)</b></p> <ul style="list-style-type: none"> <li>Ask for two volunteers to lead the class in reading the learning targets. Invite the rest of the class to read along with them: <ul style="list-style-type: none"> <li>* “I can set a purpose to guide me in my research.”</li> <li>* “I can get the gist of the informational article ‘Rachel Carson: Environmentalist and Writer.’”</li> <li>* “I can paraphrase information from my reading to answer a question.”</li> </ul> </li> <li>As students read the learning targets, underline the words <i>purpose</i>, <i>research</i>, and <i>paraphrase</i>.</li> <li>Invite them to Think-Pair-Share in their triads: <ul style="list-style-type: none"> <li>* “Given these learning targets, what do you think we are going to be doing in this lesson?”</li> </ul> </li> <li>Cold call students to share their thoughts with the class. Listen for students to explain that they are going to determine a purpose for research and learn to paraphrase information in articles.</li> </ul>	<ul style="list-style-type: none"> <li>Learning targets are a researched-based strategy that helps all students, especially challenged learners.</li> <li>Discussing and clarifying the language of learning targets helps build academic vocabulary.</li> </ul>



Work Time	Meeting Students’ Needs
<p><b>A. Introducing the Research Folder (10 minutes)</b></p> <ul style="list-style-type: none"> <li>Tell students today they will begin to set a <i>purpose</i>, or goal, for their <i>research</i> to answer the research question: “Do the benefits of DDT outweigh the harmful consequences?” Explain in today’s lesson and in upcoming lessons, they will <i>research</i>, or study, DDT to learn more about this topic. Tell students they will also learn how to <i>paraphrase</i> or restate an author’s text to avoid plagiarism. Ask:             <ul style="list-style-type: none"> <li>* “What does it mean to plagiarize?”</li> </ul> </li> <li>Select a volunteer to share the meaning of this word. If needed, tell students that to plagiarize means to “take the work of someone else and pass it off as your own.” Therefore, plagiarism is “the act of copying someone else’s work and taking credit for it.” Remind students that it is always important to give people credit for their hard work and thoughts.</li> <li>Distribute the <b>research folder</b>. Tell students the contents inside the folder will be used throughout Unit 2. Ask them to keep the folder neat and intact. Encourage students to quickly look over the resources in their folder:             <ul style="list-style-type: none"> <li>– <b>Credibility Checklist</b> (five copies)</li> <li>– <b>Assessing Sources</b> (five copies)</li> <li>– Research texts: “<b>Sounding the Alarm on Pollution</b>”; “<b>Rachel Carson: Environmentalist and Writer</b>”; “<b>Malaria Carrying Mosquito Crash Lands Due to His Insecticide</b>”; “<b>Biological Energy—Here, Let Me Fix It!</b>”; “<b>How DDT Harmed Hawks and Eagles</b>”; “<b>A New Home for DDT</b>” <b>excerpt</b>; and “<b>DDT use should be last resort in malaria-plagued areas, scientists say</b>” <b>excerpts</b>.</li> </ul> </li> <li>Invite students to find the <b>researcher’s notebook</b>. Use a <b>document camera</b> to display page 1 of the notebook. Tell students to record information for their research in the notebook. In today’s lesson, they will focus only on page 1, which will help them plan and set a purpose for learning more about DDT today and in future lessons. Ask students to read the research question: “Do the benefits of DDT outweigh its harmful consequences?”</li> <li>Tell students they will work in partners and complete page 1 of the notebook. Share partnerships with students. Give students time to regroup.</li> <li>Ask students to Think-Pair-Share:             <ul style="list-style-type: none"> <li>* “What is a <i>benefit</i>?”</li> </ul> </li> <li>Circulate and listen for: “Something that promotes well being, an advantage, or an asset.”</li> <li>Cold call partners to share their thoughts with the class.</li> </ul>	<ul style="list-style-type: none"> <li>Consider partnering ELLs who speak the same home language when discussing complex content. This allows them to have more meaningful discussions and clarify points in their native language.</li> <li>Asking students to provide feedback to their peers helps clarify their learning and develop speaking skills.</li> </ul>



Work Time (continued)	Meeting Students' Needs
<ul style="list-style-type: none"> <li>• Ask students to write their responses to Question 1 in the researcher’s notebook. Model writing the response using the document camera.</li> <li>• Ask students to Think-Pair-Share: <ul style="list-style-type: none"> <li>* “What is a <i>harmful consequence</i>?”</li> </ul> </li> <li>• Circulate and listen for: “A damaging effect or conclusion, an adverse result, a bad result.”</li> <li>• Cold call partners to share their thoughts with the class.</li> <li>• Ask students to write their responses to Question 2 in the researcher’s notebook. Model writing a response for students using the document camera.</li> <li>• Invite students to think about their learning from Unit 1 and discuss Question 3. Remind students about the articles they read, such as “Welcome Back,” “The Exterminator,” and “Rachel Carson: Sounding the Alarm.” Remind them of the videos they have viewed, such as the John Stossel DDT video and the video on bioaccumulation. Ask them to also think about the information gathered from analyzing charts, graphs, and maps.</li> <li>• Give students time to discuss and write their responses to Question 3.</li> <li>• Circulate to support students needing help in remembering information from these sources. Prompt them with questions like: <ul style="list-style-type: none"> <li>* “In ‘Welcome Back,’ what did we learn about the peregrine falcon population?”</li> <li>* “In ‘The Exterminator,’ what did we learn about malaria, and what did we learn about DDT?”</li> </ul> </li> <li>• Cold call to hear responses to the learning from Unit 1. Model writing a response to each question using the document camera.</li> <li>• Listen for: “The benefits of DDT include it helps fight malaria, it helps farmers control insects which cause damage to crop production; the harmful consequences would include DDT gets into the tissues of birds and can cause death, DDT can get into breast milk, DDT causes the egg shells of birds to thin and young cannot hatch, DDT can get into our water, killing fish and other organisms.”</li> <li>• Using the document camera, model writing these responses on page 1.</li> <li>• Invite students to independently answer Question 4. Pause to give time.</li> <li>• Ask students to turn and talk with their partner to share what they still wonder about DDT.</li> <li>• Invite volunteers to share their “wonders.” Model writing Question 4 responses using a document camera.</li> </ul>	





Work Time (continued)	Meeting Students’ Needs
<ul style="list-style-type: none"><li>• Direct students’ attention to the next section of the graphic organizer, where they will write a short paragraph describing the purpose for their research. Ask students to incorporate the notes from the first section into a paragraph describing their goal.</li><li>• Tell them to develop a topic sentence using ideas from Questions 1 and 2. Pause to give students time to write.</li><li>• Circulate to support students needing sentence writing prompts. An example topic sentence could be: “DDT has both benefits and harmful consequences” or “The benefits of DDT never outweigh its harmful consequences.”</li><li>• Invite students to share their topic sentences. Using a document camera, model writing several example topic sentences.</li><li>• Next, tell students to read what they wrote in response to Questions 3 and 4 on page 1.</li><li>• Ask them to write three to four sentences about things they want to learn about DDT and/or what they still wonder about DDT. Remind them that their last sentence of their paragraph should be a concluding statement restating the main idea of the paragraph. Pause to give students time.</li><li>• Circulate to support students. If some students find this challenging, ask them to read what they wrote in Questions 3 and 4. Then invite them to write this information in a sentence form. Also, check in to see if students understand how to write a concluding sentence.</li><li>• Invite students to share their paragraphs describing the purpose for their research. Model writing several details the students share using the document camera, and model an example of a concluding sentence.</li><li>• Commend students for reflecting on Unit 1 learning and setting a purpose for Unit 2 and their further study of DDT</li></ul>	



Work Time (continued)	Meeting Students’ Needs
<p><b>B. Read-aloud and Getting the Gist of an Excerpt from “Rachel Carson: Environmentalist and Writer” (10 minutes)</b></p> <ul style="list-style-type: none"> <li>• Ask students to find the “Rachel Carson: Environmentalist and Writer” article in their research folder. Remind students they read an article about Rachel Carson in Unit 1, and this new article will provide more background knowledge about her and the book she wrote called <i>Silent Spring</i>. Tell students not only was Rachel Carson an author, but she was also an environmentalist.</li> <li>• Ask students to Think-Pair-Share: <ul style="list-style-type: none"> <li>* “What is an environmentalist?”</li> </ul> </li> <li>• Invite students to share their thoughts with the class. Listen for: “An <i>environmentalist</i> is a person who cares about polluting land, air, and water or polluting our environment.”</li> <li>• Ask students to write the title only of this article on page 2 of the researcher’s notebook. Tell them the title should be written on the line titled “Source Title.” Explain the rest of the page will be completed in Lesson 2 when “Rachel Carson: Environmentalist and Writer” will be analyzed for claims and evidence.</li> <li>• Ask students to follow along as you read “Rachel Carson: Environmentalist and Writer” for the gist. Remind students about the importance of reading an article to determine what it is mostly about. Ask them to read along silently as you read the article to help them improve their fluency and comprehension.</li> <li>• After you finish the article, ask students to Think-Pair-Share: <ul style="list-style-type: none"> <li>* “What is this article mostly about?”</li> <li>* “What is the gist of each section?”</li> </ul> </li> <li>• Listen for: “The article says Rachel Carson was one of the first people to recognize that we need to take care of our world. She was a <i>revolutionary</i>, a person wanting to bring change and help create environmental awareness. As an environmentalist she states, ‘We need to come to terms with nature.’ She feels using chemicals, like DDT, should be clearly explored before using them in order to be able to make informed decisions regarding our natural world.”</li> <li>• Briefly have student volunteers share a gist statement for smaller sections of the article to aid comprehension.</li> </ul>	<ul style="list-style-type: none"> <li>• Providing students with topic sentence starters encourages students to develop their writing skills.</li> </ul>



Work Time (continued)	Meeting Students’ Needs
<ul style="list-style-type: none"> <li>Next ask partners to Think-Pair-Share:               <ul style="list-style-type: none"> <li>* “What does the article say about the benefits of DDT?”</li> </ul> </li> <li>Listen for: “The article does not cite any benefits.”</li> <li>Share with students an author may choose to present only one side of an issue or topic. As a reader, it is important to think critically about the texts one reads, and to evaluate a topic from multiple perspectives.</li> </ul>	
<p><b>C. Using Paraphrasing to Respond to Text-Dependent Questions about “Rachel Carson: Environmentalist and Writer” (10 minutes)</b></p> <ul style="list-style-type: none"> <li>Tell students in the next few lessons they will read articles to gain more knowledge about their research question. They will use the researcher’s notebook to record relevant information.</li> <li>Explain as writers they will read articles and record information in response to their research question. Tell them they will <i>paraphrase</i> the author’s text. To <i>paraphrase</i> means to capture the idea of a text, but putting it into different words. Share they will also need to let the reader know the source of the information. Explain that if only a few words and phrases are changed and the source is not cited, it’s plagiarism. Inform them plagiarism is illegal. Tell students it’s possible to use the exact words of an author; however, they need to use quotation marks to begin and end the quote.</li> <li>Invite students to independently reread the last two paragraphs on page 1 of “Rachel Carson: Environmentalist and Writer.” Ask them to annotate the text as they read by underlining the main ideas and circling unfamiliar vocabulary. Remind them to write phrases or sentences in their own words summarizing these two paragraphs in the margins. Pause to give students time.</li> <li>Circulate to support students.</li> <li>Next, ask partners to discuss:               <ul style="list-style-type: none"> <li>* “Did Rachel Carson make a claim in this excerpt? If so, what was her claim?”</li> </ul> </li> <li>Ask partners to share their thinking. Listen for: “Rachel Carson made a claim that pesticides had caused the death of or was hurting animals and humans.” Using a document camera, model writing the statement.</li> <li>Ask partners to Think-Pair-Share:               <ul style="list-style-type: none"> <li>* “Is this information paraphrased or is it the author’s exact words and therefore should it be quoted?”</li> </ul> </li> <li>Invite partners to share their thoughts. Listen for: “This statement is paraphrased and would not need quotation marks.”</li> </ul>	<ul style="list-style-type: none"> <li>Consider preparing more examples of paraphrasing and examples of when to use quotation marks.</li> </ul>



Work Time (continued)	Meeting Students’ Needs
<ul style="list-style-type: none"> <li>• Next, ask partners to Think-Pair-Share:             <ul style="list-style-type: none"> <li>* “Did Rachel Carson provide the reader with supporting evidence for her claim?”</li> </ul> </li> <li>• Invite students to share their ideas.</li> <li>• Using a document camera model writing student’s responses. As each one is written, ask students to decide if quotation marks would be needed. Remind them quotation marks should be used if the writer copies the exact words of the author and also if only a few words are changed.</li> <li>• Using a document camera, write this example of supporting evidence with students: Sickness and death appeared everywhere: among flowers and trees, cattle and sheep, even humans.</li> <li>• Ask students to Think-Pair-Share:             <ul style="list-style-type: none"> <li>* “Would quotation marks be needed in this example?”</li> </ul> </li> <li>• Invite partners to share their thoughts. Listen for: “Quotation marks are needed because these are the exact words the author used in the article.” If students share a paraphrased example, such as “Plants, animals, and even people began to get sick,” confirm that as paraphrasing, and therefore not in need of quotation marks.</li> <li>• Using a document camera, write another example of supporting evidence: Chemicals had washed into streams, had gotten into the air, and were absorbed by the soil contaminating the natural world.</li> <li>• Ask students to Think-Pair-Share:             <ul style="list-style-type: none"> <li>* “Would quotation marks be needed in this example? Why or why not?”</li> </ul> </li> <li>• Listen for: “Quotation marks would not be needed. However, the source would need to be cited.” (Share as many examples as time permits. Analyze each sentence or phrase to determine if it is paraphrased or if it should have quotation marks around it.)</li> <li>• Invite students to turn to page 3 of the article. Ask students to follow along as you reread Paragraph 3 and 4 on this page. Remind them to keep in mind our research question: “Do the benefits of DDT outweigh the harmful consequences?”</li> <li>• Read the paragraph. Using the document camera, model how to paraphrase and use quotation marks when using the author’s exact words. An example could be: In the past pesticides have had ingredients that have been linked to causing cancer. Because of this finding 68 pesticide ingredients are not being used. In 1993, <i>The New York Times</i> reported farmers using pesticides are six times more likely to get certain cancers, children in homes where pesticides are used are seven times more likely to get leukemia, and wells containing drinking water have shown traces of pesticides. In fact, one in every ten wells tested showed evidence of pesticides. Rachel Carson poses this thought: “man’s way is not always best.”</li> </ul>	



Closing and Assessment	Meeting Students’ Needs
<p><b>A. Exit Ticket: Paraphrasing Information from “Rachel Carson: Environmentalist and Writer” (5 minutes)</b></p> <ul style="list-style-type: none"><li>• Distribute the <b>Exit Ticket: “Rachel Carson: Environmentalist and Writer,” Paraphrasing an Excerpt from the Text</b>. Tell students you would like them to try to paraphrase their own excerpt from the article. Ask them to read the excerpt and put the information in their own words.</li><li>• Circulate to support students. If there is too much information for some students, ask them to chunk their reading. After they have read part of the text, ask them to tell you about what they read. Have them record their paraphrased sentences on the lines provided. Then, ask them to finish reading the rest of the text. Ask them to write another paraphrased sentence(s).</li></ul>	<ul style="list-style-type: none"><li>• Using exit tickets allows a quick check for understanding of the learning target so that instruction can be adjusted or tailored to students’ needs before the next lesson.</li></ul>
Homework	Meeting Students’ Needs
<ul style="list-style-type: none"><li>• Read Chapter 13, “Sam Takes Charge” and complete <b>Learning from Frightful’s Perspective: Chapter 13</b>.</li></ul>	



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LEARNING

# Grade 6: Module 4: Unit 2: Lesson 1

## Supporting Materials



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Credibility Checklist

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Source Information	Most Credible	Fairly Credible	Least Credible
Author	Expert in the field	Educated on topic	Little or no information about author
Date	Recently published or revised	Outdated	No date listed
Source Type	Official Web sites, institutional sites, academic journals, reputable news sources	Published material	Unfamiliar Web sites
Publisher	Publisher's relationship to the topic is balanced or neutral	Publisher is sponsored by a trusted source	Clearly biased or favoring a position for a purpose

## Assessing Sources

Name: \_\_\_\_\_

Date: \_\_\_\_\_

When you find a text you might use for research, assess it first by asking these questions.

### 1. Assess the Text's Accessibility

- ☐ Am I able to read and comprehend the text easily?
- ☐ Do I have adequate background knowledge to understand the terminology, information, and ideas in the text?

### 2. Assess the Text's Credibility

- ☐ Is the author an expert on the topic?
- ☐ Is the purpose to inform?
- ☐ Is the purpose to persuade?
- ☐ Is the purpose to sell?
- ☐ Is the tone convincing?
- ☐ Does the text have specific facts and details to support the ideas?

### 3. Assess the Text's Relevance

- ☐ Does the text have information that helps me answer my research question? Is it information that I don't have already?
- ☐ How does the information in the text relate to other sources I have found?

Informed by "Assessing Sources," designed by Odell Education





## Rachel Carson: Sounding the Alarm on Pollution

# GREEN GIANTS (HEROES OF THE ENVIRONMENT) RACHEL CARSON: SOUNDING THE ALARM ON POLLUTION

**R**achel Carson was a small, soft-spoken scientist.

She also was one of the towering Green Giants of the 20th century.

### Her Book Changed Our World

Her 1962 book, "Silent Spring," was probably the most influential work on conservation ever written. It made Americans think hard about pollution of the environment. It led to strict controls on synthetic pesticides.

Rachel Carson was a marine biologist. She already had published three excellent books about the sea and its creatures. All were best sellers. They combined sound science with good writing.

### Deadly Chemicals

The purpose of "Silent Spring" was to raise public alarm about chemical pesticides, especially one called DDT, which was introduced in 1939.

In the 1940's, the chemical industry developed many related pesticides. The pesticides saved farmers and gardeners time and money because they made it easier to control insects and weeds. By the mid-1950's, half a billion pounds of pesticides were being spread over fields and gardens each year.

The trouble was that some chemicals hurt not only insects and weeds but also birds, mammals and fish. Some scientists said the chemicals hurt people too. Others had written about the danger before Rachel Carson wrote "Silent Spring," but few people paid attention.

### Thousands of Dead Fish

By 1960, though, the evidence was clear. Fish had died by the tens of thousands when orchards near lakes were sprayed with pesticides. Thousands of birds had been doomed by aerial spraying of woodlands.

Rachel Carson's "Silent Spring" fairly shouted: "Whoa! Look what we're doing!" She did not oppose the use of all pesticides. But she wrote, "We have allowed these chemicals to

### Eighth in a Series

### Carson at a Glance

#### BORN:

May 27, 1907, at  
Springdale, Pa.;  
died April 14, 1964.

#### LEGACY FOR THE EARTH:

She put a spotlight  
on environmental  
pollution.

#### FOR FURTHER READING:

"Sea and Earth: The  
Life of Rachel  
Carson,"

by Philip Sterling;  
"Rachel Carson,"  
by Carol B. Gartner.



"Future historians  
may well be amazed  
by our distorted  
sense of proportion.  
How could intelligent  
beings seek to  
control a few unwanted  
species by a method that  
contaminated the entire  
environment and  
brought the threat  
of disease and death  
even to their own  
kind? Yet this is  
what we have  
done." —Rachel  
Carson's warning in  
"Silent Spring."



be used with little or no advance investigation of their effect on soil, water, wildlife, and man himself."

Parts of the book began appearing in *The New Yorker* magazine in 1962. Rachel's message made for a noisy summer. It was attacked by the chemical industry, food companies, and some government agencies. They said the book was scientifically unsound. They dismissed her as a "nature nut," "food faddist," and "just a bird watcher."

### Mild-Mannered but Tough

Rachel was quiet and mild-mannered, but she was also tough-minded. She stood up to all the criticism and enjoyed the praise that came from many scientists who knew about pesticides.

In following years, DDT and 11 other chemical pesticides Rachel had warned about were banned or tightly restricted. By the time of her death in 1964, her name was a household word.

### A Writer at Age 10

Rachel Carson had come a long way from her childhood in a small town near Pittsburgh, Pa.

She had learned to love nature as a young girl. Her mother could not bear to kill a living thing, and so Rachel had to catch insects that got into the house and release them outside.

Rachel's first published story appeared in *St. Nicholas*, a children's magazine, when she was only 10 years old. She decided to become a writer, but in college she had to take a science course. She chose biology—and liked it. That was the start of a career that joined science with literature.

By the time she had published her third best seller on the sea, Rachel Carson was famous. People were ready to listen to her scary message in "Silent Spring." It changed how they thought about the earth—and also how they treated it.\*

—Robert W. Peterson

Illustration by John Goodrich



## Rachel Carson: Environmentalist and Writer

“Man’s way is not always best”

by Kathy Wilmore

When you hear the word “revolutionary,” what image comes to mind? An angry, wild-eyed man toting a machine gun, perhaps? Or do you look back in history to see someone like George Washington or Paul Revere? How about the environmentalist and writer Rachel Carson? She may not look the part, but Rachel Carson was a true revolutionary. Her work as a writer and scientist stirred people up and helped launch a new age of environmental awareness in the United States.

In 1962, Carson published *Silent Spring*, her fourth book on nature. It had an almost fairy-tale beginning: “There once was a town in the heart of America where all life seemed to live in harmony with its surroundings.”



However, something in that town went horribly wrong. Sickness and death appeared everywhere: among flowers and trees, cattle and sheep, even humans. “There was a strange stillness,” wrote Carson. “The birds, for example—where had they gone?... The few birds seen anywhere ... trembled violently and could not fly. It was a spring without voices. On the mornings that had once throbbed with the dawn chorus of ... (many) bird voices there was now no sound: only silence lay over the fields and woods and marsh.”

Carson went on to explain the cause of that eerie silence: “Pesticides” (insect-killing chemicals) had gotten into the water, air, and soil and were killing or sickening all sorts of creatures—including humans. “Can anyone believe,” she wrote, “it is possible to lay down such a barrage of poisons on the surface of the earth without making it unfit for all life? They should not be called “insecticides” [insect killers] but biocides [life killers].”

If we are not more careful with the chemicals we use, warned Carson, the nightmarish silence described in *Silent Spring* could come true.

## Rachel Carson: Environmentalist and Writer

### Anything but Silence

The reaction to Carson's book was anything but silence. It caused such an uproar that a *New York Times* headline declared: SILENT SPRING IS NOW NOISY SUMMER.

Chemical manufacturers were furious with Carson. They ran ads telling Americans to ignore *Silent Spring*. They questioned Carson's abilities as a scientist, calling her a hysterical fanatic. Pesticides, they said are perfectly safe—don't worry about a thing.

But Americans did worry. The White House and the Congress were flooded with letters from anxious citizens demanding that something be done. President John F. Kennedy called for a special committee of scientists to investigate Carson's claims. Congress also formed an investigation committee.

The soft-spoken Carson would rather have spent her days on the rocky coast of Maine, where she did much of her research as a marine biologist (scientist who studies sea life). But the storm of debate surrounding her book and its critics pulled her into the limelight.

### Coming to Terms with Nature

In defending her research, Carson told Americans to think for themselves. Who had the most to win or lose if she turned out to be correct? "As you listen to the present controversy about pesticides," said Carson, "I recommend that you ask yourself: Who speaks? And why?"

The main thing to consider, she said, is our future. What kind of world do we want to leave our children? "I deeply believe," Carson told Congress, "that we in this generation must come to terms with nature."

Carson's ideas may not seem revolutionary today. But back in 1962, few people were familiar with such terms as pollution and ecology and environmental awareness. U.S. industries were constantly coming out with useful and exciting new products, but few people stopped to think if there could be negative side effects to any of them. Humans did what was convenient for them. Nature to most people was something that just took care of itself.

### A Message to Remember

President Kennedy's commission supported Carson's warnings. So did other government studies. Armed with such new data and the public outcry, Congress began passing laws to ban or control the use of potentially dangerous pesticides. It also called for more careful testing of chemicals' side effects. In 1970, Congress established the Environmental Protection Agency (EPA) to reduce and control pollution of water, air, and soil. Rachel Carson did not live to see all of this happen. She died of cancer in 1964.



### Rachel Carson: Environmentalist and Writer

What about us? Can we avoid the “silent spring” that Carson predicted? In the 31 years since *Silent Spring* first appeared, people have grown far more aware of our impact on the environment. But we still use many potentially deadly chemicals.

A 1993 *New York Times* article says that “68 pesticide ingredients [not in use] have been determined to cause cancer. One out of every 10 community drinking-water wells contains pesticides.... Farmers exposed to “herbicides” [weed killers] have a six times greater risk than others of contracting certain cancers. Children in homes using pesticides are seven time as likely to develop childhood leukemia [a form of cancer].”

“There remains, in this space-age universe,” wrote Rachel Carson, “the possibility that man’s way is not always best.” We would do well to remember her warning.

Wilmore, Kathy. “Rachel Carson: Environmentalist and Writer.” *Scholastic Junior Magazine*. 2013. <<http://www.scholastic.com/browse/article.jsp?id=4964>>.



## Malaria Carrying Mosquito Crash Lands Due to His Insecticide

Paul Müller was a chemist who made a discovery that led to the rapid decrease of many dangerous insect-transmitted diseases. He did this by finding one of the most effective and controversial pesticides in history. It has been found to be effective in killing the mosquito, which spreads malaria; the louse, which spreads typhus; the flea, which spreads the plague; and the sandfly, which spreads tropical diseases. It was a main factor in complete elimination of malaria in Europe, the U.S., Japan, and Australia. This pesticide is called dichloro-diphenyl-trichloroethane, more commonly known as DDT.

Müller was an independent scientist often referred to in the labs as a “lone wolf,” or as his daughter related, an *Eigenbrotler*—someone “who makes his own bread.” Two events occurred that influenced his research into insecticides. The first was a severe food shortage in Switzerland, which demonstrated the need for better insect control of crops. The second event was the Russian typhus epidemic, the largest typhus epidemic in history. Müller, with his background in chemistry and botany, found himself both motivated and prepared for the challenge.



He worked for J.R. Geigy (which eventually became today’s drug giant Novartis), developing tanning methods for protecting clothes from insects, and a safe seed disinfectant that wasn’t based on poisonous mercury compounds, as was common in his era. After these successes, he decided to pursue the perfect synthetic insecticide. He absorbed all the information possible on the subject, came up with properties such an insecticide would exhibit, and set forth on his solitary quest to find it. After four years of work and 349 failures, in September of 1939, Müller placed a compound in his fly cage. After a short while the flies dropped and died. What he had found was DDT.



## Malaria Carrying Mosquito Crash Lands Due to His Insecticide

In 1948, Paul Müller was awarded the Nobel Prize in medicine, despite the fact that he was neither a doctor nor a medical researcher, but rather a chemist. Such recognition speaks volumes about the world's perception of the benefits of DDT in preventing human disease. Later, due to overuse, questions began to surface about its impact on nature. Then environmentalists rallied against it, which culminated in the U.S. Environment Protection Agency banning DDT in 1972. Soon, most other countries also banned its use. Environmentalists and public health advocates remained polarized for decades over DDT. It wasn't until September 2006 that the World Health Organization reversed its stance and admitted DDT was at times the best insecticide to prevent malaria. As the years have passed, many on both sides of the debate are coming to realize proper limited use of DDT, on the inside walls of homes, can be effective and have virtually no impact on the environment.

**Author:** Adam Allie (contributing writer)

**Source:** [www.scienceheroes.com/index.php?option=com\\_content&view=article&id=71:mueller-ddt&catid=55:paul-muller&Itemid=](http://www.scienceheroes.com/index.php?option=com_content&view=article&id=71:mueller-ddt&catid=55:paul-muller&Itemid=)

**Publisher:** www.scienceheroes.com

Allie, Adam. "Malaria Carrying Mosquito Crash Lands Due to His Insecticide." Scienceheroes.com.

Web.<[http://www.scienceheroes.com/index.php?option=com\\_content&view=article&id=71:mueller-ddt&catid=55:paul-muller&Itemid=119](http://www.scienceheroes.com/index.php?option=com_content&view=article&id=71:mueller-ddt&catid=55:paul-muller&Itemid=119)>.

### How DDT Harmed Hawks and Eagles (excerpt)

Pesticide DDT is a chemical compound that was a major factor in reducing the eagle and hawk populations around the world. Raptors were also hurt by other problems such as hunting and deforestation. The 1972 ban of DDT certainly contributed to the birds of prey's revival in the United States. It is important to understand how people have tracked and identified their progress. The modern day explosion of nesting pairs makes us realize the disastrous effects of synthetic pesticides.

The United States used DDT during the mid-1900s. During and after World War II (1939–1945), DDT was widely used as a synthetic pesticide to prevent insects from killing agricultural crops. It was popular with farmers, foresters, and domestic gardeners. The compound reached a global peak of 386 million pounds (175 million kilograms) in 1970. In 1959, the United States sprayed 79 million pounds (36 million kilograms) of DDT chemical compound.

The dangerous consequences of spraying synthetic pesticides were not realized until 1962. An American biologist, Rachel Carson, published *Silent Spring*. The public learned DDT caused cancer in people. The synthetic pesticide harmed eagles and other birds of prey populations. Bald eagles were threatened with extinction in the lower 48 states. Finally, in June 1972, the U.S. Environmental Protection Agency (EPA) banned DDT use in the United States. Recently as May 23, 2001, DDT pesticide use was limited worldwide at the Stockholm Convention.

Birds of prey species badly affected by synthetic pesticide use included: peregrine falcons, sharp-shinned hawks, Cooper's hawks, Eurasian sparrow hawks, osprey, bald eagles, white-tailed eagles, brown pelicans, and herons.

The eagle needs rich soil and its fertility. Grass cannot grow on deteriorated soil. A diminishing rabbit population hurts eagle populations. DDT contaminated many soils and plants. Mice stored the poisonous particles in their fatty tissues. Hawks consumed numerous mice, and their numbers declined because of DDT poisoning.

Bald eagle populations decreased as low as 500 nesting pairs in the lower 48 states. Some bald eagles were poisoned because their fish ingested synthetic pesticides. The 1972 DDT ban and the 1973 Endangered Species Act, helped reverse a dismal trend. The lower 48 states noticed an increase of over 5,000 nesting pairs. 70,000 bald eagles inhabit North America.



### How DDT Harmed Hawks and Eagles (excerpt)

In 2007, the American bald eagle was taken off the endangered species list in Wisconsin. In 1973, the bald eagle inhabited 108 territories in the state. Those territories rose to 1,150 breeding pairs in 2010. Half of the eagle population nest on privately owned land. It makes it important for Wisconsin citizens to understand the importance of protecting eagles.

**Author:** Gil Valo (Interested Citizen)

**Date:** July 26, 2007

**Source:** <http://www.helium.com/items/2203587-how-ddt-harmed-hawks-and-eagles>

**Publisher:** www.helium.com





## Biological Energy—Here, Let Me Fix It! The Effects of Humans on a Specific Food Web

A food web is all of the feeding relationships in an ecosystem. A food web is a complex and interconnected unit. This becomes clear to us when human actions have unexpected effects. An example of this is evident in the events on the Southeast Asian island of Borneo. In 1955 the World Health Organization used the pesticide DDT to kill mosquitoes that carry the disease malaria. Malaria is a disease of red blood cells. Severe fever and sweats characterize it. The DDT killed the mosquitoes and relieved the malaria, but it caused an undesirable chain reaction on the island.



First, the island homes' thatched roofs started collapsing. What could this have to do with DDT? The DDT had not only killed the mosquitoes but also wasps that ate thatch-eating caterpillars. Without the wasps, the caterpillars multiplied and devoured the thatch roofs.

Second, the DDT was killing cockroaches as well as mosquitoes and wasps. Island lizards then ate the cockroaches. The pesticide in the cockroaches damaged the lizard's nervous system. The effect was that the lizard's movement and reflexes slowed. Because they moved so slowly, most of them were caught and eaten by house cats. After they ate the lizards the cats suffered the effects of the DDT and died in great numbers.

Without cats in the village, rats from the forest moved in. The rat's fur carried fleas. The fleas were infected with the bacteria that cause the plague. Plague is a devastating disease that can cause mass mortality. Finally, officials were forced to parachute crates of healthy cats into Borneo to control the rat population and rid the island of plague.

The chain of events on Borneo occurred because the organisms on Borneo were connected to each other in a food web. When one part of the web was disturbed, other parts were affected.



**Biological Energy—Here, Let Me Fix It!**  
**The Effects of Humans on a Specific Food Web**

**Author:** Unknown

**Source:** The Utah Education Network Web site.

<http://www.uen.org/core/science/sciber/sciber8/stand-2/humanimp.shtml>.

**Publisher:** Utah State Office of Education

“Biological Energy—Here, Let Me Fix It!” The Utah Education Network.

<<http://www.uen.org/core/science/sciber/sciber8/stand-2/humanimp.shtml>>.



A New Home for DDT (excerpt)

By Donald Roberts  
Bethesda, Md.

DDT, the miracle insecticide turned environmental bogeyman, is once again playing an important role in public health. In the malaria-plagued regions of Africa, where mosquitoes are becoming resistant to other chemicals, DDT is now being used as an indoor repellent. Research that I and my colleagues recently conducted shows that DDT is the most effective pesticide for spraying on walls, because it can keep mosquitoes from even entering the room.

The news may seem surprising, as some mosquitoes worldwide are already resistant to DDT. But we've learned that even mosquitoes that have developed an immunity to being directly poisoned by DDT are still repelled by it.

Malaria accounts for nearly 90 percent of all deaths from vector-borne disease globally. And it is surging in Africa, surpassing AIDS as the biggest killer of African children under age 5.

From the 1940s onward, DDT was used to kill agricultural pests and disease-carrying insects because it was cheap and lasted longer than other insecticides. DDT helped much of the developed world, including the United States and Europe, eradicate malaria. Then in the 1970s, after the publication of Rachel Carson's *Silent Spring*, which raised concern over DDT's effects on wildlife and people, the chemical was banned in many countries. Birds, especially, were said to be vulnerable, and the chemical was blamed for reduced populations of bald eagles, falcons, and pelicans. Scientific scrutiny has failed to find conclusive evidence that DDT causes cancer or other health problems in humans.

Today, indoor DDT spraying to control malaria in Africa is supported by the World Health Organization; the Global Fund to Fight AIDS, Tuberculosis and Malaria; and the United States Agency for International Development.

It would be a mistake to think we could rely on DDT alone to fight mosquitoes in Africa. Fortunately, research aimed at developing new and better insecticides continues—thanks especially to the work of the international Innovative Vector Control Consortium. Until a suitable alternative is found, however, DDT remains the cheapest and most effective long-term malaria fighter we have.



A New Home for DDT (excerpt)

**Author:** Donald Roberts, professor emeritus of tropical medicine and board member of nonprofit Africa Fighting Malaria

**Source:** Opinion Editorial, The New York Times.

[http://www.nytimes.com/2007/08/20/opinion/20roberts.html?\\_r=0](http://www.nytimes.com/2007/08/20/opinion/20roberts.html?_r=0).

**Published:** The New York Times, August 20, 2007.

Roberts, Donald. "OP-ED CONTRIBUTOR; A New Home for DDT." The New York Times. The New York Times, 20 Aug. 2007. Web.  
[http://www.nytimes.com/2007/08/20/opinion/20roberts.html?\\_r=1](http://www.nytimes.com/2007/08/20/opinion/20roberts.html?_r=1).

## DDT use should be last resort in malaria-plagued areas, scientists say (excerpts)

By Marla Cone and Environmental Health News Monday, May 4, 2009

A panel of scientists recommended today that the spraying of DDT in malaria-plagued Africa and Asia should be greatly reduced because people are exposed in their homes to high levels that may cause serious health effects.

The scientists from the United States and South Africa said the insecticide, banned decades ago in most of the world, should only be used as a last resort in combating malaria.

The stance of the panel, led by a University of California epidemiologist, is likely to be controversial with public health officials. Use of DDT to fight malaria has been increasing since it was endorsed in 2006 by the World Health Organization and the President's Malaria Initiative, a U.S. aid program launched by former President Bush.

In many African countries, as well as India and North Korea, the pesticide is sprayed inside homes and buildings to kill mosquitoes that carry malaria.

Malaria is one of the world's most deadly diseases, each year killing about 880,000 people, mostly children in sub-Saharan Africa, according to the World Health Organization.

The 15 environmental health experts, who reviewed almost 500 health studies, concluded that DDT "should be used with caution, only when needed, and when no other effective, safe and affordable alternatives are locally available."

We cannot allow people to die from malaria, but we also cannot continue using DDT if we know about the health risks," said Tiaan de Jager, a member of the panel who is a professor at the School of Health Systems & Public Health at the University of Pretoria in South Africa. "Safer alternatives should be tested first and if successful, DDT should be phased out without putting people at risk."

The scientists reported that DDT may have a variety of human health effects, including reduced fertility, genital birth defects, breast cancer, diabetes and damage to developing brains. Its metabolite, DDE, can block male hormones.

"Based on recent studies, we conclude that humans are exposed to DDT and DDE, that indoor residual spraying can result in substantial exposure and that DDT may pose a risk for human populations," the scientists wrote in their consensus statement, published online today in the journal *Environmental Health Perspectives*.

"We are concerned about the health of children and adults given the persistence of DDT and its active metabolites in the environment and in the body, and we are particularly concerned about the potential effects of continued DDT use on future generations."

In 2007, at least 3,950 tons of DDT were sprayed for mosquito control in Africa and Asia, according to a report by the United Nations Environment Programme.

**DDT use should be last resort in malaria-plagued areas, scientists say (excerpts)**

"The volume is increasing slowly," said Hindrik Bouwman, a professor in the School of Environmental Sciences and Development at North-West University in Potchefstroom, South Africa, who also served on the panel.

In South Africa, about 60 to 80 grams is sprayed in each household per year, Bouwman said.

Brenda Eskenazi, a University of California at Berkeley School of Public Health professor and lead author of the consensus statement, is concerned because the health of people inside the homes is not being monitored.

A 2007 study on male fertility is the only published research so far. Conducted in Limpopo, South Africa by de Jager and his colleagues, the study found men in the sprayed homes had extremely high levels of DDT in their blood and that their semen volume and sperm counts were low.

"Clearly, more research is needed...but in the meantime, DDT should really be the last resort against malaria, rather than the first line of defense," Eskenazi said.

The pesticide accumulates in body tissues, particularly breast milk, and lingers in the environment for decades.

In the United States, beginning in the 1940s, large volumes of DDT were sprayed outdoors to kill mosquitoes and pests on crops. It was banned in 1972, after it built up in food chains, nearly wiping out bald eagles, pelicans and other birds.

Today's use differs greatly. In Africa, it is sprayed in much smaller quantities but people are directly exposed because it is sprayed on walls inside homes and other buildings.

Many health studies have been conducted in the United States, but on people who carry small traces of DDT in their bodies, not the high levels found in people in Africa.

"DDT is now used in countries where many of the people are malnourished, extremely poor and possibly suffering from immune-compromising diseases such as AIDS, which may increase their susceptibility to chemical exposures," said panel member Jonathan Chevrier, a University of California at Berkeley post-doctoral researcher in epidemiology and in environmental health sciences.

In 2001, more than 100 countries signed the Stockholm Convention, a United Nations treaty which sought to eliminate use of 12 persistent, toxic compounds, including DDT. Under the pact, use of the pesticide is allowed only for controlling malaria.

Since then, nine nations—Ethiopia, South Africa, India, Mauritius, Myanmar, Yemen, Uganda, Mozambique and Swaziland—notified the treaty's secretariat that they are using DDT. Five others—Zimbabwe, North Korea, Eritrea, Gambia, Namibia and Zambia--also reportedly are using it, and six others, including China, have reserved the right to begin using it, according to a January Stockholm Convention report.



### DDT use should be last resort in malaria-plagued areas, scientists say (excerpts)

"This is a global issue," Eskenazi said. "We need to enforce the Stockholm Convention and to have a plan for each country to phase out DDT, and if they feel they can't, good reason why other options cannot work."

Mexico, the rest of Central America and parts of Africa have combated malaria without DDT by using alternative methods, such as controlling stagnant ponds where mosquitoes breed and using bed nets treated with pyrethroid insecticides. But such efforts have been less successful in other places, particularly South Africa.

"We have a whole host of mosquito species and more than one parasite. The biology of the vectors is different and there is therefore no one-method-fits-all strategy, as is the case in Central America," Bouwman said.

For example, he said, some types of mosquitoes in South Africa breed in running [water](#), which cannot be easily controlled.

"The area to be covered is also vast, and infrastructure in most areas is too little to allow environmental management on a sustainable basis," he said.

When a mosquito strain that had previously been eliminated returned to South Africa, it was resistant to the pyrethroid insecticides that had replaced DDT.

"The resulting increase in malaria cases and deaths was epidemic," Bouwman said. Cases soared from 4,117 in 1995 to 64,622 in 2000. "South Africa had to fall back on DDT, and still uses it in areas where other chemicals would have a risk of failure," he said.

The scientists also recommended study of possible health effects of pyrethroids and other alternatives for DDT. "The general thoughts are that if chemicals have a shorter half-life, like pyrethroids, they are less dangerous," Eskenazi said. "This may be true, but there are virtually no studies on the health effects in humans of the alternatives."

The panel convened in March, 2008, at Alma College in Michigan, near a Superfund site where DDT was produced at a chemical plant. Their goal was "to address the current and legacy implications of DDT production and use," according to their report.

Acknowledging that some areas remain dependent on DDT, they recommended monitoring of the spraying to ensure that usage guidelines are followed and improved application techniques.

"It is definitely not a matter of letting people die from malaria," de Jager said.



DDT use should be last resort in malaria-plagued areas, scientists say (excerpts)

**Author:** Marla Cone (Editor in Chief Environmental Health News)

**Source:** [www.environmentalhealthnews.org/ehs/news/ddt-only-as-last-resort](http://www.environmentalhealthnews.org/ehs/news/ddt-only-as-last-resort)

**Published:** Environmental Health News. May 4, 2009

Cone, Marla. "DDT Use Should be Last Resort in Malaria-Plagued Areas, Scientists Say." May 4, 2009. Environmental Health News. The above work is property of <http://www.environmentalhealthnews.org/ehs/news/ddt-only-as-last-resort> Environmental Health News. License: <http://creativecommons.org/licenses/by-nc-nd/3.0/>





Researcher's Notebook

Name:

Date:

**Research Question: Do the benefits of DDT outweigh its harmful consequences?**

To plan for your research, think, talk, and write about the following questions:

1. *What is a benefit?*

2. *What is a harmful consequence?*

3. *What important benefits of DDT do you already know about?*

4. *What important harmful consequences of DDT do you already know about?*

5. *What do you still wonder about DDT?*

In this section, write a short, well-written paragraph describing the purpose for your research:



Researcher's Notebook

Name:

Date:

**Research Question: Do the benefits of DDT outweigh its harmful consequences?**

Source Information	Claims/Central Ideas (Paraphrase the Benefits or Harmful Consequences)	Details/Evidence
<b>Source 1:</b>  Source Title:		
Author:		
Date:		
Source Type ( <i>newspaper article, book, Web site, video, etc.</i> ):		
Credible? Yes / No (Use your Credibility Checklist to guide you.)		
Does this source help you refocus or refine your research question in any way? How?		
What are new questions you would like answered before making your claim about DDT?		



Researcher's Notebook

Name:

Date:

**Research Question: Do the benefits of DDT outweigh its harmful consequences?**

Source Information	Claims/Central Ideas (Paraphrase the Benefits or Harmful Consequences)	Details/Evidence
<b>Source 2:</b>  Source Title:		
Author:		
Date:		
Source Type ( <i>newspaper article, book, Web site, video, etc.</i> ):		
Credible? Yes / No (Use your Credibility Checklist to guide you.)		
Does this source help you refocus or refine your research question in any way? How?		
What are new questions you would like answered before making your claim about DDT?		



Researcher's Notebook

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Research Question: Do the benefits of DDT outweigh its harmful consequences?**

Source Information	Claims/Central Ideas (Paraphrase the Benefits or Harmful Consequences)	Details/Evidence
<b>Source 3:</b> Source Title:		
Author:		
Date:		
Source Type ( <i>newspaper article, book, Web site, video, etc.</i> ):		
Credible? Yes / No (Use your <i>Credibility Checklist</i> to guide you.)		
Does this source help you refocus or refine your research question in any way? How?		
What are new questions you would like answered before making your claim about DDT?		



Researcher's Notebook

Name:

Date:

**Research Question: Do the benefits of DDT outweigh its harmful consequences?**

Source Information	Claims/Central Ideas (Paraphrase the Benefits or Harmful Consequences)	Details/Evidence
<b>Source 4:</b> Source Title:		
Author:		
Date:		
Source Type ( <i>newspaper article, book, Web site, video, etc.</i> ):		
Credible? Yes / No (Use your Credibility Checklist to guide you.)		
Does this source help you refocus or refine your research question in any way? How?		
What are new questions you would like answered before making your claim about DDT?		



Researcher's Notebook

Name:

Date:

**Research Question: Do the benefits of DDT outweigh its harmful consequences?**

Source Information	Claims/Central Ideas (Paraphrase the Benefits or Harmful Consequences)	Details/Evidence
<b>Source 5:</b>		
Source Title:		
Author:		
Date:		
Source Type ( <i>newspaper article, book, Web site, video, etc.</i> ):		
Credible? Yes / No (Use your Credibility Checklist to guide you.)		
Does this source help you refocus or refine your research question in any way? How?		
What are new questions you would like answered before making your claim about DDT?		



Exit Ticket: “Rachel Carson: Environmentalist and Writer,”  
Paraphrasing an Excerpt from the Text

Name:

Date:

**Paraphrase the quote from “Rachel Carson: Environmentalist and Writer.”**

“Anything but Silence”

The reaction to Carson’s book was anything but silence. It caused such an uproar that a *New York Times* headline declared: SILENT SPRING IS NOW NOISY SUMMER.

Chemical manufacturers were furious with Carson. They ran ads telling Americans to ignore *Silent Spring*. They questioned Carson’s abilities as a scientist, calling her a hysterical fanatic. Pesticides, they said are perfectly safe—don’t worry about a thing.”

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Learning from Frightful's Perspective: Chapter 13

Name: \_\_\_\_\_

Date: \_\_\_\_\_

<b>Chapter 13: "Sam Takes Charge"</b>  <b>Words I Found Difficult:</b>  <b>Glossary:</b> poachers— <i>n.</i> people who kill or take wild animals (as game or fish) illegally bivouac— <i>n.</i> a temporary or casual shelter or lodging deluge— <i>n.</i> a large amount of rain that suddenly falls in an area rivulets— <i>n.</i> small streams of water or liquid endangered— <i>adj.</i> used to describe a type of animal or plant that has become very rare and that could die out completely	<b>Focus Question:</b> Flip Pearson and Dr. Werner took two of the eyases from the bridge for a reason. Why did the two men take the eyases?.	
	My thoughts about why two of the eyases were taken:	Evidence from the Text: