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# Introduction

If you are like most teachers, your classroom includes a wide variety of scholars: average students, English language learners, gifted students, and learning disabled students. You may be expected to get your diverse student population, including special education students and those for whom English is a second language, to master grade-level, content-area material. That’s a challenging task and one that requires grade-level, content-area materials written at several levels. The *Differentiated Nonfiction Reading* kit was designed with that in mind.

Each unit in the *Differentiated Nonfiction Reading* kit covers a grade-level appropriate curriculum topic in science, geography, history, or language arts. One set of comprehension questions and answers is provided (in the back of the Teacher Resource Book) for each unit. This enables your students to access the text and concepts at their instructional—rather than frustration—level, while requiring them to meet objective standards, just as they must do on standardized assessments.

This kit contains 20 units, each with four sets of cards written at three different levels (240 cards), and a Teacher Resource Book which includes a Comprehension Questions page for each unit and a corresponding page with the answers. Students can fill in the answers on the unit question page or fill in the standard bubble Answer Sheet provided on page 71. A one-page Master Answer Key for all units is also provided on page 112. The kit's accompanying CD includes an Enhanced Teacher Resource eBook and the Common Core State Standards.

## Prepare Your Students to Read Content-Area Text

Each day you can prepare your students to read the passages in the *Differentiated Nonfiction Reading* kit by reading aloud a short nonfiction selection from another source. Reading content-area text aloud is critical to developing your students’ ability to read it themselves.

Discussing content-area concepts with your class is also very important. Remember, however, that discussion can never replace reading aloud since people do not speak using the vocabulary and complex sentence structures of written language.

## Readability

All of the passages in the *Differentiated Nonfiction Reading* kit have a reading level that has been calculated by the Flesch-Kincaid Readability Formula. This formula, built into Microsoft Word®, determines a text’s readability by calculating the number of words, syllables, and sentences.

Each passage is presented at three levels: easy, average, and challenging. *Easy* is below grade level; *average* is at grade level; and *challenging* is above grade level. The chart on page 10 shows you the specific reading levels of every passage.

To ensure that only you know the reading level at which each student is working, the levels are not printed on the passages. Instead, at the top of the card is a pair of books with a specific pattern that will allow you to quickly match students and passages.

<b>Reading Level</b>	 <b>Easy</b> (below grade level)	 <b>Average</b> (at grade level)	 <b>Challenging</b> (above grade level)
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# Introduction (cont.)

## Essential Comprehension Skills

Comprehension is the primary goal of any reading task. The *Differentiated Nonfiction Reading* kit will help your students build a foundation for comprehension skills necessary for a lifetime of learning.

The passage questions and answers can be found in this Teacher Resource Book or in the Enhanced eBook. Run off copies for each student or use the E-copies on an interactive white board or computer. The questions following each passage always appear in the same order and cover six vital comprehension skills:

1. **Locating facts**—Questions based on exactly what the text states—who, what, when, where, why, and how many
2. **Understanding vocabulary in context**—Questions based on the ability to infer word meaning from the syntax and semantics of the surrounding text, as well as the ability to recognize known synonyms and antonyms for a newly encountered word
3. **Determining sequence**—Questions based on chronological order—what happened first, last, and in between
4. **Identifying conditions**—Questions that ask students to identify similarities and differences or notice cause-and-effect relationships
5. **Making inferences**—Questions that require students to evaluate, make decisions, and draw logical conclusions
6. **Analyzing and visualizing**—Questions that make students draw upon their schema and/or visualization skills to select the correct response (Visualization reinforces the important skill of picturing the text.)

## How to Use the Unit Cards and the Teacher Resource Book

You can choose to do whole class, small group, or independent practice:

**Whole Group**—For whole-group practice, you can do the following:

1. Distribute the cards (or copies) based on students' instructional reading levels.
2. Have students read the text silently and answer the questions either on the Unit Comprehension Questions page or on the Answer Sheet on page 71.
3. Collect all of the papers and score them.
4. Return the comprehension questions pages or answer sheets to the students and discuss how they determined their answers.
5. Point out how students had to use their background knowledge to answer certain questions.

You may distribute the passages without revealing the different levels. If you do not want your students to be aware that the passages are differentiated, organize the passages in small piles by seating arrangement. Then, when you approach a group of desks, you'll have the levels you need. An alternative is to make a pile of passages from diamonds to polka dots. Put a finger between the top two levels. Then, as you approach each student, pull the passage from the top (easy), middle (average), or bottom (challenging) layer. Do this quickly and without much hesitation.

Unit 10 Reading Passage—Geography



### Turning Waste into Fuel

Turning waste into fuel sounds great. After all, we must find a place to put the waste. And we'll always need fuel. How does this work? Biomass energy burns organic waste. Such waste includes plant stalks and sawdust. Burning creates heat. The heat boils water. The water turns to steam. The steam spins a turbine. This makes electric power. Another way to use waste is to trap and burn methane gas. This gas rises from landfills. It comes from decomposing trash.

Biomass is a renewable energy. We won't run out of it. Even so, it has problems. Burning biomass causes air pollution and greenhouse gases. It does make less of these than gas or oil. While it's stored before use, biomass can sink. No one wants to live nearby. Another issue comes up in hot weather. In the heat, plant biomass may burst into flames. It can do so without warning. This is called spontaneous combustion.

Scientists know how to run cars and buses on vegetable oil. It's called biofuel. It is a use for waste oil that has already been used. It was used to deep fry chicken or French fries. When biofuel burns, it smells like fried foods. But although it smells better than normal exhaust fumes, it still causes air pollution. It still makes greenhouse gases.

Pyrolysis may be the most promising use of biomass. This process separates waste in the absence of oxygen. Plant matter is heated to 800°F. This changes it into gas and charcoal. Carbon dioxide is not produced with this method. It is the worst greenhouse gas. However, since pyrolysis needs high temperatures, it uses a lot of fuel.

Someday, turning waste into fuel may free the United States from needing foreign oil. Professor Thomas Sogter hopes so. He is trying to make a device called a gasifier. It will separate any kind of waste and turn it into pollution-free fuel. He has a partner. Professor Fu Zhao has built a gasifier. It is a stainless steel tube. It is eight feet long and about half a foot wide. The waste material and some water go inside. Then, they are superheated. In the end, the waste will have toxins. They must find a way to clean the water. That will make the gasifier more practical.

Their end goal is to make a movable machine that can accept any kind of waste. It will burn trash from a city. It will burn manure from a dairy farm. It will burn sawdust at a lumber mill. This machine will travel around and turn whatever waste is available into fuel. This would make it more economical than the biomass burners we have now. It would be more flexible, too. Today, each one can just handle one kind of waste, such as dried sewage. This practical, flexible, movable device may be decades away. Still, it is good to know that scientists are working on it. One day, it will be possible for us to turn waste into fuel.



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# Introduction *(cont.)*

## How to Use the Unit Cards and the Teacher Resource Book *(cont.)*

You can also announce to your class that all students will read at their own instructional levels. Do not discuss the technicalities of how the reading levels were determined. Just state that every person is reading at his or her own level and then answering the same comprehension questions. If you find that a student is doing well, try giving him or her a higher-level passage the next time. If he or she displays frustration, be ready to slip the student the lower-level passage. Remember, the cards look very similar and all three have the same photographs or illustrations.

**Working in Centers and Independently**—If you prefer to have the students work independently or in centers, try this procedure:

1. Create a folder for each student.
2. Make photocopies of the Answer Sheet for each class member and staple it to the back of each student folder. Replace as needed.
3. Each time you want to use a passage, place a unit card for the appropriate reading level and the related Comprehension Questions page in each student's folder.
4. Have each student retrieve his or her folder, read the passage, and answer the questions on the questions page or on the Answer Sheet.
5. Go over the answers together, or check the students' folders at a convenient time.
6. You may wish to provide a laminated copy of the Master Answer Key in the center, allowing students to check their own responses.

## Teaching Multiple-Choice Response

It's a good idea to practice as a class how to read a passage and respond to the comprehension questions. In this way, you can demonstrate your own thought processes by “thinking aloud” to figure out each answer. Essentially, this means that you tell your students your thoughts as they come to you.

Make copies of the practice comprehension questions on page 8 and distribute them to your class. Then, display the practice reading passage on page 7. You may wish to use the Enhanced eBook to show it to the class on an interactive board. Or, you might use a document camera or an overhead transparency to show the page. Read the passage chorally. Studies have found that students of all ages enjoy choral reading, and it is especially helpful for English language learners. Choral reading lets students practice reading fluently in a safe venue because they can read in a whisper or even drop out if they feel the need.

Remember to demonstrate how to “darken” the answer bubbles on the question page or answer sheet. It is important that students learn to clearly mark their answers.

**Discuss Question 1:** After you've read the passage together, ask a student to read the first question aloud. Tell the student NOT to answer the question. Instead, read all of the answer choices aloud. Emphasize that reading the choices first is always the best way to approach any multiple-choice question. Since this question is about *locating facts*, reread the first paragraph of the passage aloud as the class follows along. Have the students reread the question silently and make a selection based on the information found. Ask a student who gives the correct response (C) to explain his or her reasoning. Explain that the first question is always the easiest because the fact is stated right in the passage.

# Introduction *(cont.)*

## Teaching Multiple-Choice Response *(cont.)*

**Discuss Question 2:** The second question is about the vocabulary word shown in boldfaced print in the passage. Ask the student to read the question aloud. Teach your students to reread the sentence before, the sentence with, and the sentence after the vocabulary word in the passage. This will give them a context and help them to figure out what the word means. Then, have them substitute the word choices given for the vocabulary term in the passage. For each choice, they should reread the sentence with the substituted word and ask themselves, “Does this make sense?” This will help them to identify the best choice. One by one, substitute the words into the sentence, and read the sentence aloud. It will be obvious which one makes the most sense (A).

**Discuss Question 3:** The third question asks about *sequence*. Ask a student to read the question aloud. Write the choices on chart paper or the board. As a class, determine their order of occurrence, and write the numbers one through four next to them. Then, reread the question and make the correct choice (B).

**Discuss Question 4:** The fourth question is about *cause and effect* or *similarities and differences*. Ask a student to read the question aloud. Teach your students to look for the key words in the question (“*pump water down*”) and search for those specific words in the passage. Explain that they may need to look for synonyms for the key words. For this question, ask your students to show where they found the correct response in the passage. Have students explain in their own words how they figured out the correct answer (D). This may be time-consuming at first, but it is an excellent way to help your students learn from each other.

**Discuss Question 5:** The fifth question asks students to make an *inference*. Ask a student to read the question aloud. Tell your students your thoughts as they occur to you, such as: “Well, the article didn’t say that it is free to generate geothermal power, so that one’s questionable. The article did say that geothermal energy comes from Earth, not from the sun, air, and water. So I’ll get rid of that choice. We do have a lot of water, and in most places, that’s what is forced down into Earth to make the steam. But you need to have a place where Earth is really hot near its surface, so it’s not just a matter of having a water supply. I don’t think that’s the best choice here. Let’s look back at the passage...it does state that there’s an endless amount of heat rising from Earth, and we know that fossil fuels will soon be used up. Something that is endless cannot be used up, so I am going to choose (D).”

**Discuss Question 6:** The sixth question calls for *analysis* or *visualization*. With such questions, some of the answers may be stated in the passage, but others may have different wording. Sometimes one or more of the answers must be visualized to ascertain the correct response.

After having a student read the question aloud, you can say, “This one is tricky. It’s asking me to choose one that isn’t instead of one that is. First, let’s look at all the choices. Then, we can ask ourselves which ones are problems with geothermal power. Only one of these is not an issue.” Then, read the answer choices aloud and eliminate them one by one. Point out that the passage states that geothermal energy does not pollute groundwater, which is how you identify the correct answer (C).

## Frequent Practice Is Ideal

The passages and comprehension questions in *Differentiated Nonfiction Reading* are time-efficient, allowing students to practice these skills often. The more students practice reading and responding to content-area comprehension questions, the more confident and competent they will become. Set aside time to allow your class to do every passage. If you do so, you’ll be pleased with your students’ improved comprehension of any nonfiction text, both within your classroom and beyond its walls.



# Geothermal Power

Our Earth has a layer of hot rock below its crust in an area called the mantle. Where groundwater touches these hot rocks, it changes into steam. This steam enables people to make electricity without causing pollution. It's called geothermal power. *Geo* means Earth, and *thermal* means heat.

Italians built the first geothermal power station in 1904. They found a place where steam rose from the ground. They trapped the steam and sent it through pipes to turbines. Turbines are big and round and can spin very quickly. The steam made the turbines turn, which **generated** electrical power.

In most places, steam does not come up on its own. Instead, power stations pump water down to the mantle. Some of this water returns as steam to make turbines rotate and create electricity.

Geothermal energy is good for Earth and its wildlife. It does not damage the air, water, or soil. However, the steam can bring up minerals that harm the turbines. Also, workers must be careful around the steam, or they could get burned.

Someday all of the fossil fuels will be used up. Geothermal power can never get used up. That's why people hope to find more places and better ways to use geothermal power.





# Geothermal Power

Directions: Darken the best answer choice.

1. “Geothermal” means \_\_\_\_\_ from Earth.
  - (A) steam
  - (B) energy
  - (C) heat
  - (D) water

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2. The word **generated** means
  - (A) made.
  - (B) used.
  - (C) opened.
  - (D) wasted.

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3. Of the following choices, which occurs last in the passage?
  - (A) Steam moves turbines.
  - (B) Electricity goes to homes.
  - (C) Steam is trapped in pipes.
  - (D) Electrical power is made.

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4. Why would people pump water down to a layer of hot rock?
  - (A) to cool Earth’s mantle
  - (B) to prevent steam from escaping
  - (C) to bring minerals to Earth’s surface
  - (D) to create steam

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5. Why can’t geothermal power get used up as fossil fuels can?
  - (A) It costs nothing to generate geothermal power.
  - (B) Scientists know how to make geothermal energy from the sun, air, and water.
  - (C) We have a huge supply of water, which is what gives us geothermal power.
  - (D) There’s an endless supply of heat coming from within Earth.

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6. Which is *not* a problem related to geothermal power?
  - (A) Minerals can build up on the turbines.
  - (B) There are just a few places to tap the power.
  - (C) It causes salt to build up and damage the groundwater.
  - (D) The steam is dangerous if it comes in contact with workers.

# Common Core State Standards Correlation

Each passage and question in *Differentiated Nonfiction Reading* meets one or more of the following Common Core State Standards. © Copyright 2010 National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.

Informational Text Standards	Passage Title	Pages
<b>Key Ideas and Details</b>		
<b>Standard 1:</b> RI. 5.1. Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.	all passages	
<b>Standard 2:</b> RI.5.2. Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.	Wilma Rudolph, Olympic Champion Pelorus Jack: Famous Dolphin Feared Dead A Big Change Man’s Father and Son Shot— Seventy-Nine Years Apart	56–58, 102 62–64, 106  65–67, 108 68–70, 110
<b>Standard 3:</b> RI.5.3. Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.	Natural Forces Frances Glessner Lee, First Crime Scene Investigator (CSI) Wildfire! Confucius and the Role of Government Martin Luther and the Protestant Reformation The French and Indian War The Lewis and Clark Expedition The Spanish-American War Pelorus Jack: Famous Dolphin Feared Dead Man’s Father and Son Shot— Seventy-Nine Years Apart	17–19, 76 23–25, 80  32–34, 86 41–43, 92 44–46, 94  47–49, 96 50–52, 98 53–55, 100 62–64, 106  68–70, 110
<b>Craft and Structure</b>		
<b>Standard 4:</b> RI.5.4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.	all passages	
<b>Standard 5:</b> RI.5.5. Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.	Oceans: What’s Up Down There? A Major Disaster: The Indian Ocean Tsunami of 2004 The French and Indian War The Spanish-American War	26–28, 82 35–37, 88  47–49, 96 53–55, 100
<b>Standard 6:</b> RI.5.6. Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.	The French and Indian War The Spanish-American War	47–49, 96 53–55, 100
<b>Integration of Knowledge and Ideas</b>		
<b>Standard 7:</b> RI.5.7. Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.	Real Ghost Stories: Washington Irving	59–61, 104
<b>Standard 8:</b> RI.5.8. Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).	all passages	
<b>Range of Reading and Level of Text Complexity</b>		
<b>Standard 10:</b> RI.5.10. By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4–5 text complexity band independently and proficiently.	all passages	