


- A | Building Vocabulary.** Find the words in **blue** in the reading passage on pages 143–145. Use the context to guess their meanings. Then write each word next to its definition (1–10).

accessible	commerce	consume	goods	initially
intensive	obvious	output	overall	vehicle


- _____ : (adverb) soon after the beginning of a process or situation
- _____ : (noun) the amount of something that a person or a thing produces
- _____ : (adjective) easy to use or obtain
- _____ : (noun) things that people make to be sold
- _____ : (adjective) easy to see or understand
- _____ : (adjective) doing a lot of work in a concentrated area, such as producing as many crops as possible on one piece of land
- _____ : (verb) use up
- _____ : (noun) a machine—such as a bus, a car, or a truck—that carries people or things from place to place
- _____ : (noun) the activities and procedures involved in buying and selling things
- _____ : (adjective) used to refer to a situation in general or about the whole of something

Word Partners

Use **intensive** with nouns:
intensive **care**,
intensive
negotiations,
intensive
program,
intensive **study**,
intensive **training**

-  **B | Using Vocabulary.** Answer the questions. Share your ideas with a partner.

- What kinds of **vehicles** do people use to get around in your community?
- What are the most **obvious** environmental problems in your area?
- What types of **goods** are companies in your region or country famous for?

-  **C | Brainstorming.** Discuss your answers to the questions in a small group.

- Make a list of natural resources.
water
- Which of these resources do you think are renewable (replaceable)? Which ones are not renewable?
- What are some possible problems with using too many resources?

- D | Predicting.** Read the title of the reading passage on pages 143–145 and look at the photos and the graphs. What do you think the reading is about? As you read, check your prediction.

- ways to use fewer resources in order to have a sustainable future
- reasons for reducing population as a way to save resources
- problems that are caused by the overconsumption of resources



STRAINING OUR RESOURCES

▲ **Rondonia State, Brazil:** Most of the burned and cleared land in the Amazon rainforest is used for the raising of cattle.



track 2-03

THE HUMAN FOOTPRINT ON EARTH has never been so heavy. So many of our natural resources that once seemed limitless have already been consumed by our growing needs, our increasing population, and, too often, by our shortsighted¹ greed. We've reached a point now where our hunger for more of everything has pushed the world's natural resources to its breaking point.

During the past century, as the human population has quadrupled, the world economy has become 14 times bigger, industrial output has grown by 40 times, and there is five times more irrigated land. Over this same period, all but ten percent of the large fish in the seas have disappeared due to overfishing, approximately one-quarter of the planet's fertile soil has been damaged by intensive farming, and the atmosphere has filled with greenhouse gases from motor vehicles and factories.

Some of the most astounding increases in industry, trade, and overall wealth have happened over the past few decades. The benefits of economic growth and global commerce have been enormous—for example, many millions of people have been lifted out of poverty. But the consequences of such rapid growth have been dramatic, too, in part because our systems of finance, production, and trade are so closely interconnected.

Today's industrial, globalized world relies on a vast range of minerals, metals, ores, and reserves of fossil fuels. As these resources become scarce, we will have to find replacements or hunt for less accessible or lower-quality deposits. An example is petroleum, an initially plentiful resource that was relatively easy to extract from the earth. However, most of the readily available supplies of the fuel have now been

¹ When people's ideas are **shortsighted**, they are not making proper or careful judgments about the future.

tapped.² This has pushed oil prices up and forced oil companies to move into more remote regions to find the last remaining untapped supplies.

So many of these problems are connected, of course—the environment, population, food, access to fresh water, and the raw materials of commerce—and not just in the obvious ways. Certainly, fossil fuels and burning forests have contributed to climate change, and increased industrialization has spurred³ global warming as well as local and global pollution. However, increased wealth has also spurred people’s demand for luxury foods such as seafood and beef. This rising demand has led to oceans emptied of fish, and rainforests cleared to raise cattle.

With even modest economic growth, we will not only have more people but also more people wanting more and better food, more travel and tourism, more basic goods and luxuries. And that means more mines

and oil wells, more livestock raised—and more water needed to raise them. It also means more cars and factories, more airplanes to fill the air with heat-trapping gases, and rising mountains of waste.

The decades ahead will present many challenges to humanity. We will need to find new sources of energy to power our lives without polluting our air. We will need to learn to recycle and reuse on a scope not yet imagined, and to conserve more—and consume less—of our existing resources. Perhaps most importantly, we will need to develop ways of doing much, much more with our planet’s limited supply of fresh water. We will need to do all of this with a changing climate and a growing population—and with the one very limited planet we have had all along.

Adapted from the essay “Straining Our Resources,” by Thomas Hayden, National Geographic State of the Earth 2010.

² If a liquid is **tapped**, it is taken or drawn from somewhere, such as oil from the ground.

³ If something **spurs** a change or an event, it makes it happen faster or sooner.

106%

increase in global oil consumption would occur if per capita consumption in China matched individual consumption levels in the United States.

Top Ten Consumers


The United States leads the world in consumption as a nation, followed primarily by other industrialized economies. China and India have low per capita consumption, but their huge populations place them in the global top ten.

Gross household consumption, 2005
Trillion U.S. dollars (\$)



CT Focus: Inferring a Writer's Tone and Purpose

To **understand** a writer's **tone** in an essay, look for words and expressions that express his or her attitudes or feelings. Do the expressions show, for example, that the writer is positive, optimistic, angry, or pessimistic? To understand a writer's **purpose**, look for modals such as *must*, *have to*, or *need to*, which express necessity and strong advice. What do they tell about the writer's reasons for writing the passage?

 **C | Critical Thinking: Understanding Tone and Purpose.** Answer these questions with a partner.

1. Complete the expressions the writer uses in Paragraph A to describe human consumption.
the human footprint is heavy
our shortsighted _____ has pushed the
world's natural resources _____
2. Now complete the expressions the writer uses to describe the environmental impact of overconsumption.

Paragraph B:

the large fish in the seas _____

fertile soil _____

the atmosphere _____

Paragraph E:

oceans _____

rainforests _____


Paragraph F:

more airplanes to _____

rising mountains _____

3. What does the writer's choice of expressions tell you about his attitudes or feelings?
Circle the words that describe his tone.

happy concerned optimistic serious

-  4. In Paragraph G, what phrase does the writer repeat four times? What does the repetition of this phrase tell us about the author's purpose, or reasons, for writing the essay? What does he want readers to do? Discuss your ideas with a partner.

 **D | Critical Thinking: Evaluating an Argument.** Discuss these questions in a small group.

Do you share the feelings of the author of "Straining Our Resources"? In your opinion, how serious are the problems he describes? Is it realistic to expect developing countries not to increase their consumption?

A | Identifying Main Ideas. Skim the reading again. Choose the sentence in each pair that best expresses the main idea.

- | | |
|-----------------|---|
| 1. Paragraph A: | a. Overconsumption is having a serious impact on natural resources.
b. Many natural resources are gone due to our increasing population. |
| 2. Paragraph C: | a. Millions of people have benefited from global economic growth.
b. Global economic growth has had both positive and negative effects. |
| 3. Paragraph D: | a. The global economy relies on many resources that are becoming scarce.
b. Most of the world's available fuel deposits have already been used up. |
| 4. Paragraph E: | a. Many of the problems of overconsumption are interrelated.
b. When people become richer, they demand more expensive foods. |
| 5. Paragraph F: | a. An increasing population will also increase the demand for more water.
b. Economic growth will make the problem of overconsumption worse. |

B | Identifying Key Details. Answer the questions about "Straining Our Resources."

1. What are some examples of disappearing or damaged resources? (Paragraph B)

2. What has happened as the population has increased? (Paragraph B)

3. In which time period have we seen the most rapid growth in wealth, industry, and trade? (Paragraph C)

4. According to the reading, what causes oil prices to rise? (Paragraph D)

5. What is one effect of increased wealth on the world's resources? (Paragraph E)

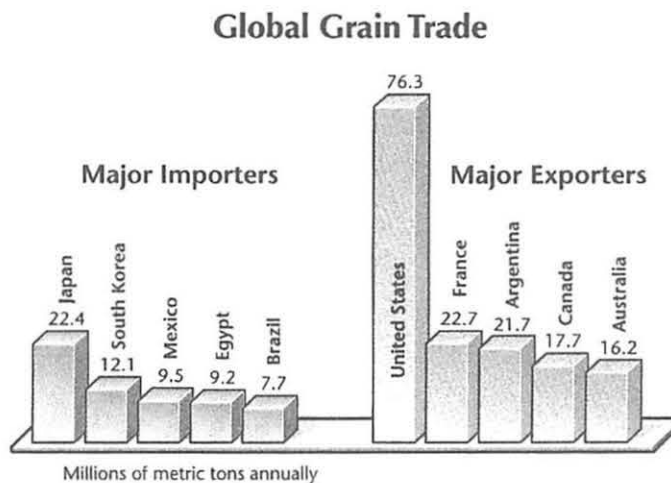
6. What will people consume more of even if our economy grows only a little (experiences "modest economic growth")? (Paragraph F)

7. According to the author, which resource may cause us the biggest problems in the future? (Paragraph G)

Reading Skill: Interpreting Visual Information

Writers sometimes use maps, graphs, charts, and diagrams to present information visually. For example, the diagram on page 144 uses circles to highlight information about consumer nations.

Bar graphs are another way of presenting statistics in a visual way. Bar graphs help you to quickly make comparisons among several items. They can be vertical, as in the graphs below, or horizontal (as on page 145).



The **title** tells you the main idea or purpose of the graph. One side (**axis**) of a bar graph usually lists the items being compared. The length of the **bars** shows the values that each item has. In some case, the values are listed as numbers next to the bars. A caption (**legend**) can help to explain what the values represent.



A | Interpreting Bar Graphs. Look at the bar graphs in the Reading Skill box and discuss your answers to these questions.

1. What do the bar graphs show?
2. What do the bars represent? What do the numbers next to the bars mean?
3. Does any of the information in the graphs surprise you?



B | Critical Thinking: Interpreting Visual Information. Look at the bar graph on page 145 and answer the questions. Discuss your answers with a partner.

1. What does the graph show? What does each blue dot indicate?
2. How much water does it take to produce 2.2 pounds (1 kilogram) of rice?
3. What actions might the author of “Straining Our Resources” want readers to take as a result of interpreting this bar graph?