

A young woman with dark hair is lying on her back in a field of tall green grass and yellow flowers. She has her arms raised behind her head and her eyes are closed, appearing to be resting or enjoying the sun. The field is filled with many yellow flowers, some in the foreground and some in the background. The sky is bright and clear.

# Doing Nothing Is Something

by Anna Quindlen

## Summer is coming soon.

I can feel it in the softening of the air, but I can see it, too, in the textbooks on my children's desks. The number of uncut pages at the back grows smaller and smaller. The looseleaf is ragged at the edges, the binder plastic ripped at the corners. An old remembered glee rises inside me.

10 Summer is coming. Uniform skirts in mothballs. Pencils with their points left broken. Open windows. Day trips to the beach. Pickup games. Hanging out.

### ANALYZE VISUALS

What **mood** does this photograph suggest to you?

How boring it was.

Of course, it was the making of me, as a human being and a writer. Downtime is where we become ourselves, looking into the middle  
20 distance, kicking at the curb, lying on the grass or sitting on the stoop and staring at the tedious blue of the summer sky. I don't believe you can write poetry, or compose music, or become an actor without downtime, and plenty of it, a **hiatus** that passes for boredom but is really the quiet moving of the wheels inside that fuel creativity.

30 And that, to me, is one of the saddest things about the lives of American children today. Soccer leagues, acting classes, tutors—the calendar of the average middle-class kid is so over the top that soon Palm handhelds will be sold in Toys “R” Us. Our children are as overscheduled as we are, and that is saying something. **A**

40 This has become so bad that parents have arranged to schedule times for unscheduled time. Earlier this year the privileged suburb of Ridgewood, N.J., announced a Family Night, when there would be no homework, no athletic practices and no after-school events. This was terribly exciting until I realized that this was not one night a week,  
50 but one single night. There is even a free-time movement, and Web site: familylife1st.org. Among the frequently asked questions provided online: “What would families do with family time if they took it back?”

Let me make a suggestion for the kids involved: how about nothing? It is not simply that it is pathetic to consider the lives of children who  
60 don't have a moment between piano and dance and homework to talk about their day or just search for split ends, an enormously satisfying leisure-time activity of my youth. There is also ample psychological research suggesting that what we might call “doing nothing” is when human beings actually do their best thinking, and when creativity comes  
70 to call. Perhaps we are creating an entire generation of people whose ability to think outside the box, as the current parlance<sup>1</sup> of business has it, is being systematically stunted by scheduling.

A study by the University of Michigan quantified<sup>2</sup> the downtime **deficit**; in the last 20 years American kids have lost about four unstruc-  
80 tured hours a week. There has even arisen a global Right to Play movement: in the Third World it is often about child labor, but in the United States it is about the sheer labor of being a perpetually busy child. In Omaha, Neb., a group of parents recently lobbied for additional recess. Hooray, and yikes. **B**

How did this happen? Adults did  
90 it. There is a culture of adult distrust that suggests that a kid who is not playing softball or attending science-enrichment programs—or both—is huffing or boosting cars: if kids are left alone, they will not stare into the middle distance and consider

**hiatus** (hī-ā'təs) *n.* a gap or break in continuity

**deficit** (dēf'ī-sīt) *n.* a shortfall or deficiency

**A DISTINGUISH FACT FROM OPINION**

Is the last statement in this paragraph a fact or an opinion? Explain your answer.

**B ARGUMENT**

What evidence does Quindlen supply in lines 76–88 to support her claim? Add this evidence to your chart.

1. **parlance** (pār'ləns): a particular manner of speaking.

2. **quantified**: expressed as a number or quantity.

**prestigious**  
(prĕ-stĕ'jĕs) *adj.* having a great reputation; highly respected

**contemptuous**  
(kən-tĕmp'chōō-əs) *adj.* scornful or disrespectful

**laudable** (lō'də-bəl) *adj.* worthy of high praise

**C DISTINGUISH FACT FROM OPINION**

Reread lines 109–126. What fact does Quindlen include to support her opinion that parents have too little leisure time?

**D GRAMMAR AND STYLE**

Reread lines 150–163. Quindlen uses **rhetorical questions** to make the idea of doing nothing sound more appealing than the usual summertime activities.

the meaning of life and how come your nose in pictures never looks the way you think it should, but  
100 instead will get into trouble. There is also the culture of cutthroat and unquestioning competition that leads even the parents of preschoolers to gab about **prestigious** colleges without a trace of irony: this suggests that any class in which you do not enroll your first grader will put him at a disadvantage in, say, law school.

Finally, there is a culture of  
110 workplace presence (as opposed to productivity). Try as we might to suggest that all these enrichment activities are for the good of the kid, there is ample evidence that they are really for the convenience of parents with way too little leisure time of their own. Stories about the resignation of presidential aide Karen Hughes unfailingly reported her  
120 dedication to family time by noting that she arranged to get home at 5:30 one night a week to have dinner with her son. If one weekday dinner out of five is considered **laudable**, what does that say about what's become commonplace? **C**

Summer is coming. It used to be a time apart for kids, a respite from the clock and the copybook, the  
130 organized day. Every once in a while, either guilty or overwhelmed or tired of listening to me keen<sup>3</sup> about my monumental boredom, my mother would send me to some rinky-dink park program that consisted almost entirely of three-legged races and making things out of Popsicle sticks.

Now, instead, there are music camps, sports camps, fat camps, probably  
140 thin camps. I mourn hanging out in the backyard. I mourn playing Wiffle ball in the street without a sponsor and matching shirts. I mourn drawing in the dirt with a stick.

Maybe that kind of summer is gone for good. Maybe this is the leading edge of a new way of living that not only has no room for contemplation but is **contemptuous**  
150 of it. But if downtime cannot be squeezed during the school year into the life of frantic and often joyless activity with which our children are saddled while their parents pursue frantic and often joyless activity of their own, what about summer? Do most adults really want to stand in line for Space Mountain or sit in traffic to get to a shore house that  
160 doesn't have enough saucepans? Might it be even more enriching for their children to stay at home and do nothing? For those who **D** say they will only watch TV or play on the computer, a piece of technical advice: the cable box can be unhooked, the modem removed. Perhaps it is not too late for American kids to be given the  
170 gift of enforced boredom for at least a week or two, staring into space, bored out of their gourds, exploring the inside of their own heads. "To contemplate is to toil, to think is to do," said Victor Hugo. "Go outside and play," said Prudence Quindlen. Both of them were right.

3. **keen**: cry out in grief.

## Comprehension

1. **Recall** What were Quindlen’s summers like when she was a child?
2. **Recall** What does she believe many children lack today?
3. **Recall** What change does Quindlen propose in her essay?
4. **Clarify** What does the word *nothing* mean in the essay’s title?

## Critical Analysis

5. **Analyze an Argument** Review the chart you created as you read. What are two reasons Quindlen provides to support her claim?
6. **Distinguish Fact from Opinion** Identify whether each statement listed in the chart is a fact or an opinion. Use a chart like the one shown to record your answers.

<i>Statement</i>	<i>Fact or Opinion?</i>
<i>"I don't believe you can write poetry, or compose music, or become an actor without downtime..." (lines 23–26)</i>	
<i>"... in the last 20 years American kids have lost about four unstructured hours a week." (lines 78–80)</i>	
<i>"I mourn hanging out in the backyard." (lines 140–141)</i>	

7. **Examine Support** How does the Victor Hugo quotation in lines 173–175 support Quindlen’s **claim**?
8. **Make Judgments** Quindlen notes that children today are enrolled in soccer leagues, acting classes, music camps, and sports camps—pursuits that may be quite enjoyable. Explain whether you agree with her that such activities do not qualify as **leisure**.
9. **Synthesize Concepts** What does the essay suggest about our society’s values? Cite evidence in your response.
10. **Evaluate an Argument** How effective is Quindlen’s argument in this essay? Support your opinion with evidence from the text.

# Vocabulary in Context

## VOCABULARY PRACTICE

Choose the letter of the word that is most different in meaning from the others. If necessary, use a dictionary to check the precise meanings of words you are unsure of.

1. (a) prestigious, (b) reputable, (c) infamous, (d) eminent
2. (a) hiatus, (b) gap, (c) respite, (d) renewal
3. (a) surplus, (b) excess, (c) sufficiency, (d) deficit
4. (a) despicable, (b) admirable, (c) laudable, (d) commendable
5. (a) disdainful, (b) deferential, (c) scornful, (d) contemptuous

### WORD LIST

contemptuous  
deficit  
hiatus  
laudable  
prestigious

## VOCABULARY IN WRITING

Using three or more vocabulary words, write about why you think young people often lack free time. Here is an example of how you could begin.

### EXAMPLE SENTENCE

*Students who want to get into a **prestigious** college not only study hard but also involve themselves in many extracurricular activities.*


## VOCABULARY STRATEGY: ETYMOLOGY

The **etymology** of a word, or its origin and history, can provide insight into the word's meaning. You can learn about a word's etymology by looking up the word or its root in a dictionary. Information about the etymology will appear near the beginning or end of the dictionary entry.

**hi•a•tus** (hī-ā'təs) *n., pl. -tus•es or hiatus 1.* A gap or interruption in space, time, or continuity; a break: "We are likely to be disconcerted by . . . *hiatuses of thought*" (Edmund Wilson). **2.** *Linguistics* A slight pause that occurs when two immediately adjacent vowels in consecutive syllables are pronounced, as in *reality* and *naive*. **3.** *Anatomy* A separation, aperture, fissure, or short passage in an organ or body part. [Latin *hiātus*, from past participle of *hiāre*, to gape.] —**hi•a'tal** (-āt'l) *adj.*

**PRACTICE** Look up the following italicized words in a dictionary, noting each word's derivation and meaning. Also look for clues to explain its spelling. Then answer the questions.

1. What language is the original source of the word *deficit*?
2. Through which languages can the history of *laudable* be traced?
3. From which Latin word does *contemptuous* derive, and what does the Latin word mean?

 **VOCABULARY PRACTICE**  
For more practice, go to the **Vocabulary Center** at **ClassZone.com**.

## Reading-Writing Connection

Explore the ideas presented in “Doing Nothing Is Something” by responding to these prompts. Then use **Revision: Grammar and Style** to improve your writing.

WRITING PROMPTS	SELF-CHECK
<p><b>A. Short Response: Describe Free Time</b> What is it like to “do nothing”? Write a <b>one- or two-paragraph description</b> of how you have spent a period of leisure.</p>	<p><b>A strong description will . . .</b></p> <ul style="list-style-type: none"><li>• explain how you were affected by the experience</li><li>• use words and phrases that appeal to readers’ senses</li></ul>
<p><b>B. Extended Response: Write an Editorial</b> Write a <b>three-to-five-paragraph editorial</b> in which you argue that children reap greater benefits from participating in structured activities.</p>	<p><b>An effective editorial will . . .</b></p> <ul style="list-style-type: none"><li>• clearly state a claim</li><li>• provide reasons and evidence to support the claim</li></ul>

### REVISION: GRAMMAR AND STYLE

**ADD RHETORICAL QUESTIONS** Review the **Grammar and Style** note on page 582. Quindlen uses **interrogative sentences** to pose a series of **rhetorical questions**, or questions that do not require answers, encouraging readers to think about issues. Revise your response to Prompt B by employing these techniques:

1. **Include one or more rhetorical questions in your editorial.** Rhetorical questions can help you focus your audience’s thoughts on an issue.
2. **Use rhetorical questions sparingly so that they retain their impact.** Add rhetorical questions only when you really need to underscore a point. Here is one student’s example.

#### STUDENT MODEL

Are we supposed to feel sorry for kids who are lucky enough to participate in a variety of activities? Do we really think kids are too overscheduled just because they spend their days at soccer practice and music lessons instead of looking up at the sky?

Notice how the revision in red helps to highlight the message in this first draft.

#### STUDENT MODEL

I know plenty of kids who do volunteer work in the summer or take courses in subjects not taught at school. <sup>^</sup>Would they really be better off hanging out at the pool?

#### WRITING TOOLS

For prewriting, revision, and editing tools, visit the **Writing Center** at [ClassZone.com](http://ClassZone.com).

## Abolishing the Penny Makes Good Sense

Editorial by Alan S. Blinder

# *Why keep what is no longer* **USEFUL?**

**KEY IDEA** Are there old tools or appliances in your home that nobody ever uses? What keeps your family from throwing them away? In “Abolishing the Penny Makes Good Sense,” economist Alan Blinder denies the **usefulness** of one of the most common objects in our society.

**QUICKWRITE** Write a paragraph about a device or an object that has outlived its usefulness. Explain what caused it to lose value, and discuss why some people might be reluctant to get rid of it.



## ELEMENTS OF NONFICTION: EVIDENCE

Writers use **evidence** to try to convince readers that their claims are valid. Alan Blinder presents a variety of evidence in “Abolishing the Penny Makes Good Sense,” including family anecdotes and observations such as the following:

*Few people nowadays even bend down to pick a penny off the sidewalk.*

Evidence may also consist of examples, statistics, and the views of experts. Sound evidence is

- relevant to the writer’s argument
- sufficient to support a claim or reason

As you read, evaluate the evidence Blinder presents.

## READING SKILL: ANALYZE DEDUCTIVE REASONING

When you arrive at a conclusion by applying a general principle to a specific situation, you are using **deductive reasoning**.

Here is an example:

**General Principle:** Any student caught cheating will be suspended.

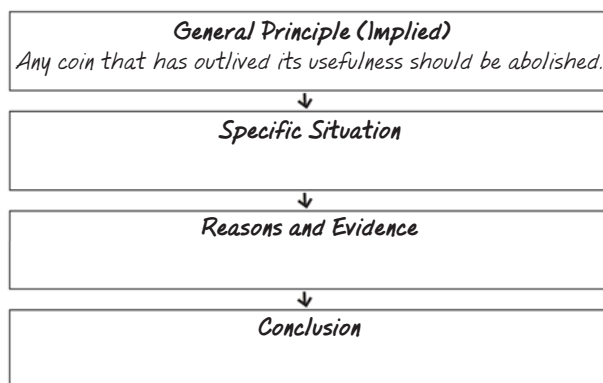
**Specific Situation:** Jeremiah was caught cheating.

**Conclusion:** Jeremiah will be suspended.

Writers often use deductive reasoning in arguments without stating the general principle. They just assume that readers will recognize and agree with the principle.

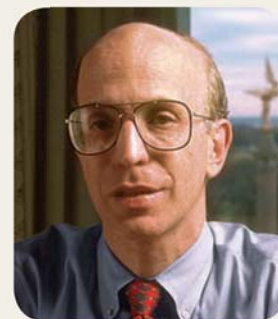
Careful readers don’t always assume the general principle is sound, however. They identify it, as well as the other parts of the argument, and then ask whether each part is really true.

To analyze Alan Blinder’s deductive reasoning, one reader began the chart shown here. As you read Blinder’s editorial, complete the chart.



### Money Matters

Alan S. Blinder is a professor of economics at Princeton University. The author of numerous articles and essays, Blinder has also influenced economic policy from within government. He served on the Council of Economic Advisors, which advises the president on economic issues, and from 1994 to 1996 he helped oversee the nation’s banking system as vice chairman of the Federal Reserve Board. An economist who collaborated on a textbook with Blinder noted that “when Alan offered a criticism of something I had done, it was almost invariably right. I never could think of a good counterargument.”



Alan S. Blinder  
born 1945



### MORE ABOUT THE AUTHOR

For more on Alan S. Blinder, visit the Literature Center at [ClassZone.com](http://ClassZone.com).

## Background

**The Ever-Changing Penny** The first U.S. penny was minted in 1793. Made of solid copper, it was about the size of a quarter. Since that time, the penny has been redesigned 11 times, with the Lincoln penny making its debut in 1909 to mark the 100th anniversary of Lincoln’s birth. The composition of the penny has changed over the years as well. In 1982 the government switched from a mostly copper penny to one that is 97% zinc with a copper coating. Had the mint continued to make pennies out of copper, the cost to produce each one would have been greater than one cent.

**Diminishing Value** A penny doesn’t go as far as it once did. In the 1930s a penny could buy a lollipop, a pencil, or a handful of peanuts. Today, you would be hard-pressed to find anything that costs only one cent.





# Abolishing the Penny Makes Good Sense

by Alan S. Blinder

An economist rarely has the opportunity to recommend a policy change that benefits 200 million people, imposes costs on virtually no one, and saves the government money to boot. But I have such a suggestion to offer the nation as a holiday gift: Let's abolish the penny.

Yes, the old copperhead has outlived its usefulness and is by now a public nuisance—something akin to the gnat. Pennies get in the way when  
10 we make change. They add unwanted weight to our pockets and purses. Few people nowadays even bend down to pick a penny off the sidewalk. Doesn't that prove that mining and minting<sup>1</sup> copper into pennies is wasteful? Today, if it rained pennies from heaven, only a fool would turn his umbrella upside down: The money caught would be worth less than the ruined umbrella. **A**

**A DEDUCTIVE REASONING**

Reread lines 7–17. What is the specific situation Blinder intends to prove exists? Restate this situation in your own words on your chart.

1. **minting**: stamping coins from metal.

I have been antipenny for years, but final proof came about two years ago. I used to dump my pennies into a shoe box. Eventually, I accumulated several hundred. Dismayed by the ever-growing collection of useless copper, I offered the box to my son William, then 8, warning him that the bank would take the pennies only if he neatly wrapped them in rolls of 50. William, obviously a keen, intuitive economist, thought the matter over carefully for about two seconds before responding: “Thanks, Dad, but it’s not worth it.” If it’s not worth the time of an 8-year-old to wrap pennies, why does the U.S. government keep producing the things? **B**

### 91 Billion in Circulation

More than the time of 8-year-olds is involved. Think how often you have waited in line while the customers ahead of you fumbled through their pockets or purses for a few—expletive deleted—pennies. A trivial problem? Yes, until you multiply your wasted seconds by the billions of cash transactions that take place in our economy each year. I estimate that all this penny-pinching wastes several hundred million hours annually. Valuating<sup>2</sup> that at, say, \$10 an hour adds up to several billion dollars per year, which is more than enough to justify this column.

We also must consider the cost of minting and maintaining the penny supply. There are roughly 91 billion pennies circulating, and every year

the U.S. Treasury produces 12 billion to 14 billion more, at a cost of about \$90 million. Since this expenditure just produces a nuisance for society, it should be at the top of everyone’s list of budget cuts.

There are no coherent objections to abolishing the penny. It has been claimed, apparently with a straight face, that eliminating pennies would be inflationary,<sup>3</sup> because all those \$39.99 prices would rise to \$40. Apart from the fact that such increases would be penny-ante,<sup>4</sup> the claim itself is ludicrous. A price such as \$39.99 is designed to keep a four from appearing as the first digit—something the retailer deems psychologically important. In a penny-less society merchants probably would change the number to \$39.95, not raise it to \$40. Even if only one-fifth of all merchants reacted this way, abolishing the penny would be disinflationary.

Sales tax poses a problem. How would a penny-free economy cope with, for instance, a 7% sales tax on a \$31 purchase, which comes to \$2.17? The answer leads to the second part of my suggestion. Let all states and localities amend their sales taxes to round all tax bills to the next-highest nickel. In the example, the state would collect \$2.20 instead of \$2.17. The customer would lose 3¢ but—if my previous arguments are correct—would actually be better off without the pennies. What other tax leaves the taxpayer happier for having paid it?

### **B** EVIDENCE

In your opinion, is the anecdote Blinder offers in lines 18–35 truly “final proof” that the penny has no value? Why or why not?

2. **valuating:** placing a value on.

3. **inflationary:** causing an increase in the price of goods.

4. **penny-ante** (ăn'tē): a business deal on a trivial scale.



After pennies are struck at the U.S. Mint, they must be inspected for imperfections before they can be released.

### Sentimental Value

Only tradition explains our stubborn attachment to the penny. But sometimes traditions get ridiculous. Surely the smallest currency unit  
100 a country uses should be related to its average income. Yet countries with lower standards of living than the United States have minimum currency units worth more than 1¢—while we have been minting the penny for two centuries.

Even England, as tradition-bound a nation as they come, is more progressive in this matter than the  
110 United States. Years ago the smallest unit of British currency was the farthing, equal to one-quarter of what was then called a penny. As England grew richer, the farthing gave way to the half-penny, then to the old penny, and finally to the new penny, which is the equivalent of 9.6 farthings. During this same time, all the stodgy United States did was  
120 abolish the half-penny. ©

Sure, the penny has sentimental value. That motivates the last part of my suggestion. Rather than call in all the pennies and melt them, which would be too expensive and perhaps heartrending, the government should simply announce that it is demonetizing<sup>5</sup> the penny as of next January—and let collectors  
130 take many of the pesky coppers out of circulation. After hobbyists and investors accumulated whatever stockpiles they desired, the rest could be redeemed by the government—wrapped neatly in rolls of 50, of course.

Let's get penny-wise and abolish the 1¢ piece. The idea is so logical, so obviously correct, that I am sure  
140 the new Congress will enact it during its first days in office.

### © EVIDENCE

Reread lines 107–120. How relevant to the author's **argument** is the evidence about currency in other countries?

5. **demonetizing** (dē-mŏn'ī-tī'zīng): depriving of value.

## Comprehension

1. **Recall** What is the author’s opinion of the penny?
2. **Recall** In what ways does the penny inconvenience people?
3. **Summarize** According to the author, how will customers be affected at checkout lines if the penny is abolished?

## Critical Analysis

4. **Examine an Argument** For each objection to abolishing the penny listed in the chart shown, summarize the **counterargument** that the author makes to refute the objection.
5. **Analyze Deductive Reasoning** Review the chart you created as you read. What is the strongest reason that the author presents to support his conclusion that the penny has lost its **usefulness**? Explain your answer.

<i>Objection</i>	<i>Counterargument</i>
<i>Inflation would result.</i>	
<i>People would pay more in sales taxes.</i>	
<i>The penny is part of our tradition.</i>	

6. **Analyze Tone** What tone does the author use when discussing arguments in favor of keeping the penny? Cite examples from the text.
7. **Interpret a Statement** What does the author intend to suggest in the last paragraph when he says that his “idea is so logical, so obviously correct, that I am sure the new Congress will enact it during its first days in office”?
8. **Predict an Outcome** The author speculates about how merchants and consumers would respond if the penny is abolished. What do you predict will happen if the penny is removed from circulation? Give reasons for your prediction.
9. **Make Judgments** The author states in the opening paragraph that abolishing the penny would impose “costs on virtually no one.” Do you agree with his characterization of how the change would affect people? Cite evidence to support your opinion.
10. **Evaluate Evidence** Does the author provide sufficient evidence to support his conclusion that the penny should be abolished? Explain why or why not.
11. **Evaluate an Unstated Assumption** Look at the chart on page 587 and note Blinder’s unstated general principle. Do you agree with this basis for Blinder’s argument? Explain why or why not.

## On Nuclear Disarmament

Speech by Carl Sagan

# *What would make the world* **SAFER?**

**KEY IDEA** The newspapers are full of reports about war, epidemics, terrorism, and environmental crises. Some problems are so serious that they may threaten civilization. In his speech on nuclear disarmament, delivered in 1988, scientist Carl Sagan argues for rethinking ideas about how to maintain **security**.

**SURVEY** Ask six people to identify something that can be done to make the world a safer place. Present the results of your survey to the class.



## ● ELEMENTS OF NONFICTION: RHETORICAL DEVICES

In persuasive writing, rhetorical devices can make the writer’s ideas more compelling and memorable. Carl Sagan uses the following devices in his speech “On Nuclear Disarmament”:

- **Repetition**—the use of the same word, phrase, or sentence more than once for emphasis
- **Parallelism**—the use of similar grammatical constructions to express related ideas. Sagan opens his speech with a sentence that includes the parallel phrases “ancestors of some of us, brothers of us all.”

As you read, notice how Sagan uses these rhetorical devices to drive home his persuasive argument.

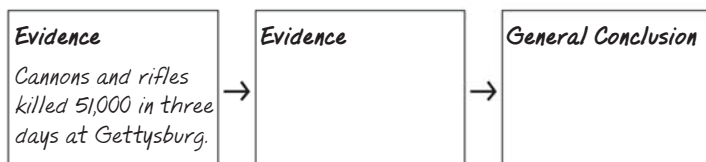
## ● READING SKILL: ANALYZE INDUCTIVE REASONING

When you are led by specific evidence to form a general principle, or generalization, you are following **inductive reasoning**. Carl Sagan uses inductive reasoning when he presents examples and facts from past wars and then, from these, makes a generalization about warfare in general.

When you encounter inductive reasoning, examine the evidence and the concluding generalization to see whether

- the evidence is valid and provides sufficient support for the conclusion
- the writer overgeneralizes, or draws a conclusion that is too broad

As you read, use a graphic organizer like the one shown to help you analyze Sagan’s inductive reasoning.



## ▲ VOCABULARY IN CONTEXT

In the speech you are about to read, Sagan makes use of the following words. Which words do you already know? Write a sentence for each of those words. After you have read the selection, check to see if you used those words correctly.

<b>WORD LIST</b>	annihilate	contending	precursor
	carnage	malice	reconcile

### Popular Scientist

Carl Sagan’s gift for explaining science to the general public helped make him one of the most famous scientists of his time. The astronomer is best known for writing and narrating a television series about astronomy and related topics. The series, *Cosmos*, was watched by 400 million viewers, or, as Sagan put it, 3 percent of the world’s population.



Carl Sagan  
1934–1996

**No Nukes!** A staunch opponent of nuclear weapons, Sagan promoted the idea that even a limited nuclear war would devastate life on Earth by causing global temperatures to plunge. Although some scientists disputed this “nuclear winter” theory, it probably helped spur efforts in the 1980s to reduce the number of nuclear weapons held by the United States and the Soviet Union.

**MORE ABOUT THE AUTHOR**  
For more on Carl Sagan, visit the Literature Center at [ClassZone.com](http://ClassZone.com).

### Background

**The Cold War** In 1988, Carl Sagan delivered “On Nuclear Disarmament” in Gettysburg, Pennsylvania, to mark the 125th anniversary of a famous Civil War battle. At the time of the speech, the United States and the Soviet Union were still locked in a decades-long rivalry known as the cold war. Both nations had tens of thousands of nuclear warheads in their arsenals. According to some military strategists, these weapons prevented direct conflict because each side knew that it could be destroyed in a counterattack. This state of affairs was known as a balance of terror. However, many people feared that a crisis could spark a nuclear war between the superpowers.

# On Nuclear Disarmament

Carl Sagan

Fifty-one thousand human beings were killed or wounded here, ancestors of some of us, brothers of us all. This was the first full-fledged example of an industrialized war, with machine-made arms and railroad transport of men and materiel. This was the first hint of an age yet to come, our age; an intimation of what technology bent to the purposes of war might be capable. The new Spencer repeating rifle was used here. In May 1863, a reconnaissance balloon of the Army of the Potomac<sup>1</sup> detected movement of Confederate troops across the Rappahannock River, the beginning of the campaign that led to the Battle of Gettysburg. That balloon was a **precursor** of air forces and strategic bombing and reconnaissance satellites.

A few hundred artillery pieces were deployed in the three-day battle of Gettysburg. What could they do? What was the war like then? . . . Ballistic projectiles, launched from the cannons that you can see all over this Gettysburg Memorial, had a range, at best, of a few miles. The amount of explosive in the most formidable of them was some twenty pounds, roughly one-hundredth of a ton of TNT.<sup>2</sup> It was enough to kill a few people. **A**

But the most powerful chemical explosives used eighty years later, in World War II, were the blockbusters, so-called because they could destroy a city block. Dropped from aircraft, after a journey of hundreds of miles, each

## ANALYZE VISUALS

In what other contexts have you seen images like this one used?

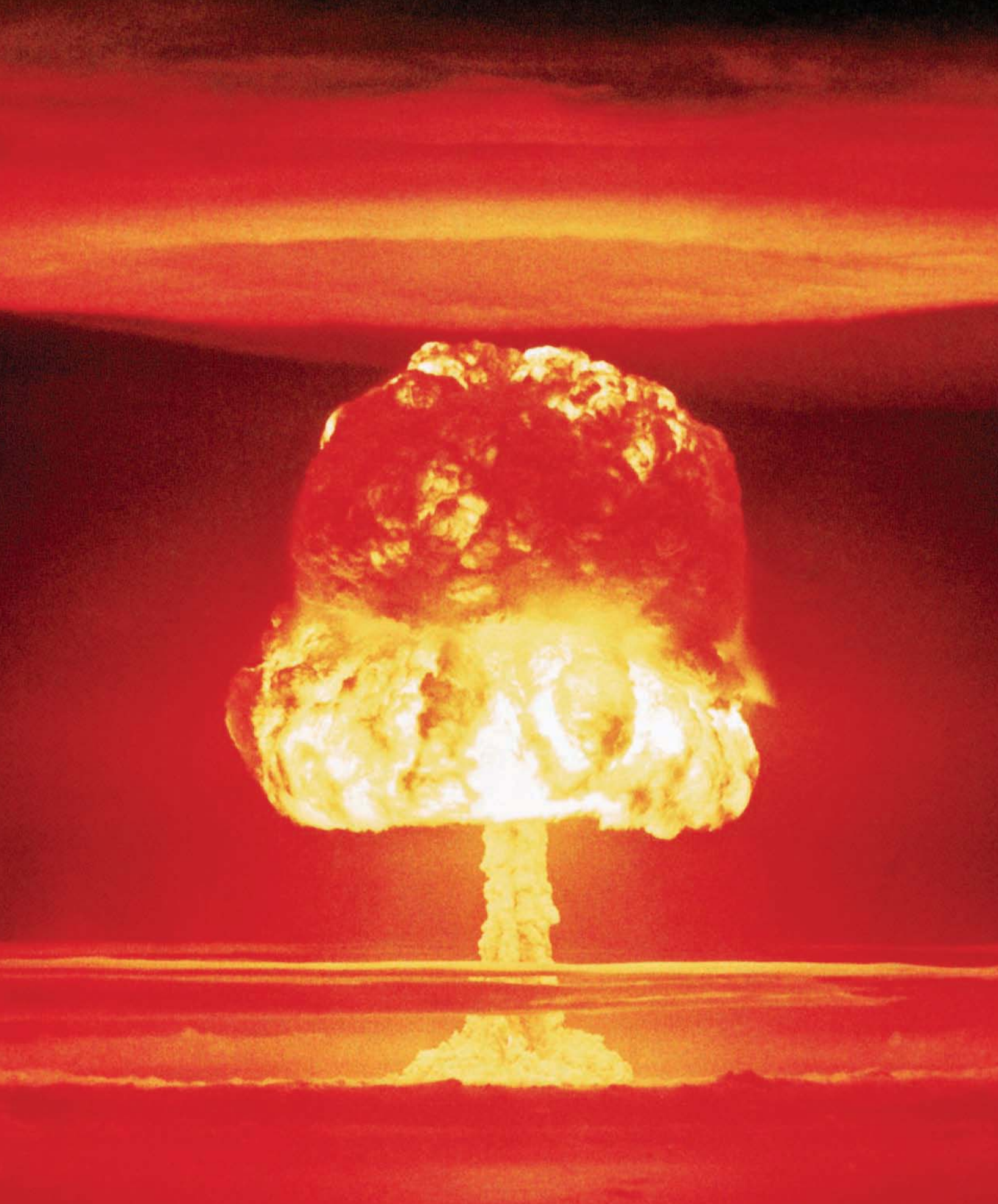
**precursor** (prĭ-kŭr'sər) *n.*  
something that comes before and signals or prepares the way for what will follow

## **A** INDUCTIVE REASONING

What statistics does Sagan provide as **evidence** in lines 1–16?

1. **Army of the Potomac:** the Union army that defeated Confederate forces near the town of Gettysburg, Pennsylvania. The battle was a turning point in the Civil War.

2. **TNT:** a chemical compound used as an explosive.







The Soldiers' National Cemetery in Gettysburg National Military Park

20 carried about ten tons of TNT, a thousand times more than the most powerful weapon at the Battle of Gettysburg. A blockbuster could kill a few dozen people.

At the very end of World War II, the United States used the first atomic bombs to **annihilate** two Japanese cities. Each of those weapons had the equivalent power of about ten thousand tons of TNT, enough to kill a few hundred thousand people. One bomb.

A few years later the United States and the Soviet Union developed the first thermonuclear<sup>3</sup> weapons, the first hydrogen bombs. Some of them had an explosive yield equivalent to ten million tons of TNT; enough to kill a few million people. One bomb. Strategic nuclear weapons can now be launched to  
30 any place on the planet. Everywhere on earth is a potential battlefield now. **B**

Each of these technological triumphs advanced the art of mass murder by a factor of a thousand. From Gettysburg to the blockbuster, a thousand times more explosive energy; from the blockbuster to the atomic bomb, a thousand times more; and from the atomic bomb to the hydrogen bomb, a thousand times still more. A thousand times a thousand, times a thousand is a billion; in less than one century, our most fearful weapon has become a billion times more deadly. But we have not become a billion times wiser in the generations that stretch from Gettysburg to us. **C**

**annihilate** (ə-nī'ə-lāt') v.  
to destroy completely

**B INDUCTIVE REASONING**

How is the **evidence** in this paragraph related to evidence provided earlier in the speech?

**C RHETORICAL DEVICES**

Reread lines 32–38. What idea does Sagan stress through the use of **parallelism**?

3. **thermonuclear** (thūr'mō-nōō'klē-ər): based on the process of nuclear fusion, in which atomic nuclei combine at high temperatures, releasing energy.

The souls that perished here would find the **carnage** of which we are now  
40 capable unspeakable. Today, the United States and the Soviet Union have  
booby-trapped our planet with almost sixty thousand nuclear weapons. Sixty  
thousand nuclear weapons! Even a small fraction of the strategic arsenals  
could without question annihilate the two **contending** superpowers, probably  
destroy the global civilization, and possibly render the human species extinct.  
No nation, no man should have such power. We distribute these instruments  
of apocalypse<sup>4</sup> all over our fragile world, and justify it on the grounds that it  
has made us safe. We have made a fool's bargain.

The 51,000 casualties here at Gettysburg represented one-third of the  
Confederate army and one-quarter of the Union army. All those who died,  
50 with one or two exceptions, were soldiers. The best-known exception was a  
civilian in her own house who thought to bake a loaf of bread and, through  
two closed doors, was shot to death; her name was Jennie Wade. But in the  
global thermonuclear war, almost all the casualties will be civilians, men,  
women, and children, including vast numbers of citizens of nations that  
had no part in the quarrel that led to the war, nations far removed from the  
northern mid-latitude "target zone." There will be billions of Jennie Wades.  
Everyone on earth is now at risk. . . . **D**

Two months before Gettysburg, on May 3, 1863, there was a Confederate  
triumph, the Battle of Chancellorsville. On the moonlit evening following the  
60 victory, General Stonewall Jackson and his staff, returning to the Confederate  
lines, were mistaken for Union cavalry. Jackson was shot twice in error by his  
own men. He died of his wounds.

We make mistakes. We kill our own.

There are some who claim that since we have not yet had an accidental  
nuclear war, the precautions being taken to prevent one must be adequate.  
But not three years ago we witnessed the disasters of the *Challenger*<sup>5</sup> space  
shuttle and the Chernobyl<sup>6</sup> nuclear power plant, high-technology systems, one  
American, one Soviet, into which enormous quantities of national prestige had  
been invested. There were compelling reasons to prevent these disasters. In  
70 the preceding year, confident assertions were made by officials of both nations  
that no accidents of that sort could happen. We were not to worry. The experts  
would not permit an accident to happen. We have since learned that such  
assurances do not amount to much.

We make mistakes. We kill our own. **E**

This is the century of Hitler and Stalin, evidence—if any were needed—that  
madmen can seize the reins of power of modern industrial states. If we are  
content in a world with nearly sixty thousand nuclear weapons, we are betting  
our lives on the proposition that no present or future leaders, military or  
civilian—of the United States, the Soviet Union, Britain, France, China, Israel,

**carnage** (kār'nīj) *n.*  
massive slaughter

**contending**  
(kən-tēn'dīng) *adj.*  
struggling in rivalry  
**contend** *v.*

**D** **INDUCTIVE REASONING**

What new point does Sagan make with the historical **evidence** he discusses in lines 48–57?

**E** **GRAMMAR AND STYLE**

The two simple sentences in line 74 also appear earlier and later in the speech. Consider how this **repetition** serves to link and emphasize essential points.

4. **apocalypse** (ə-pŏk'ə-līps'): total devastation.

5. **Challenger**: an American space shuttle that exploded in 1986, killing all seven crew members.

6. **Chernobyl** (chēr-nŏ'bēl): a town in the Ukraine (then part of the Soviet Union) that was the site of a major nuclear power plant accident in 1986.

80 India, Pakistan, South Africa, and whatever other nuclear powers there will be—will ever stray from the strictest standards of prudence. We are gambling on their sanity and sobriety even in times of great personal and national crisis, all of them, for all times to come. I say this is asking too much of us. Because we make mistakes. We kill our own. . . .

We have made a fool's bargain. We have been locked in a deadly embrace with the Soviet Union, each side always propelled by the abundant malefactions of the other; almost always looking to the short term—to the next congressional or presidential election, to the next party congress—and almost never seeing the big picture.

90 Dwight Eisenhower, who was closely associated with this Gettysburg community, said, “The problem in defense spending is to figure out how far you should go without destroying from within what you are trying to defend from without.” I say we have gone too far. . . .

The Civil War was mainly about union; union in the face of differences. A million years ago, there were no nations on the planet. There were no tribes. The humans who were here were divided into small family groups of a few dozen people each. They wandered. That was the horizon of our identification, an itinerant family group. Since then, the horizons have expanded. From a handful of hunter-gatherers, to a tribe, to a horde, to a small city-state, to  
100 a nation, and today to immense nation-states. The average person on the earth today owes his or her primary allegiance to a group of something like a hundred million people. It seems very clear that if we do not destroy ourselves first, the unit of primary identification of most human beings will before long be the planet Earth and the human species. To my mind, this raises the key question: whether the fundamental unit of identification will expand to embrace the planet and the species, or whether we will destroy ourselves first. I'm afraid it's going to be very close.

The identification horizons were broadened in this place 125 years ago, and at great cost to North and South, to blacks and whites. But we recognize that  
110 expansion of identification horizons as just. Today there is an urgent, practical necessity to work together on arms control, on the world economy, on the global environment. It is clear that the nations of the world now can only rise and fall together. It is not a question of one nation winning at the expense of another. We must all help one another or all perish together. **F**

On occasions like this it is customary to quote homilies; phrases by great men and women that we've all heard before. We hear, but we tend not to focus. Let me mention one, a phrase that was uttered not far from this spot by Abraham Lincoln: “With **malice** toward none, with charity for all. . . .”  
*Think* of what that means. This is what is expected of us, not merely because  
120 our ethics command it, or because our religions preach it, but because it is necessary for human survival.

**F** **INDUCTIVE REASONING**

What **conclusion** does Sagan draw in lines 108–114?

**malice** (mə'lī's) *n.* a desire to harm others

Here's another: "A house divided against itself cannot stand." Let me vary it a little: A species divided against itself cannot stand. A planet divided against itself cannot stand. And [to be] inscribed on this Eternal Light Peace Memorial, which is about to be rekindled and rededicated, is a stirring phrase: "A World United in the Search for Peace."

The real triumph of Gettysburg was not, I think, in 1863 but in 1913, when the surviving veterans, the remnants of the adversary forces, the Blue and the Gray, met in celebration and solemn memorial. It had been the war that set  
130 brother against brother, and when the time came to remember, on the fiftieth anniversary of the battle, the survivors fell, sobbing, into one another's arms. They could not help themselves.

It is time now for us to emulate them, NATO and the Warsaw Pact,<sup>7</sup> Israelis and Palestinians, whites and blacks, Americans and Iranians, the developed and the underdeveloped worlds.

We need more than anniversary sentimentalism and holiday piety and patriotism. Where necessary, we must confront and challenge the conventional wisdom. It is time to learn from those who fell here. Our challenge is to **reconcile**, not *after* the carnage and the mass murder, but *instead* of the  
140 carnage and the mass murder.

It is time to act. ∞

**reconcile** (rĕk'ən-sīl') v. to restore friendly relations

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7. **Warsaw Pact:** an alliance of the Soviet Union and other Communist nations.



## Comprehension

1. **Recall** What weapons were used in the Battle of Gettysburg?
2. **Recall** What developments in warfare occurred during and shortly after World War II?
3. **Summarize** According to Sagan, why should we reject assurances that a nuclear war will not occur?

## Critical Analysis

4. **Examine a Rhetorical Device** What idea does Sagan emphasize with his **repetition** of the statement, “We have made a fool’s bargain”?
5. **Examine an Argument** Sagan states that as society has evolved, humans have gone from identifying with small groups to identifying with enormous nation-states. How does this idea relate to the main **claim** of his argument?
6. **Interpret a Statement** What does Sagan mean when he says that “the real triumph of Gettysburg” was the behavior of surviving veterans who attended the 50th anniversary of the battle, in 1913?
7. **Analyze Inductive Reasoning** Review the graphic organizer you created as you read. Does Sagan provide sufficient **support** for his conclusion about nuclear weapons and **security**? Explain why or why not.

8. **Analyze a Conclusion** At the end of his speech, Sagan says it is “time to act” to prevent nuclear war. In a chart like the one shown, identify specific actions that individuals and groups can take in response to Sagan’s call for action.

<i>Preventing Nuclear War</i>	
<i>Individual Actions</i>	<i>Group Activities</i>
•	•
•	•
•	•

9. **Compare Texts** Compare and contrast the techniques of argument used in Sagan’s speech and Alan Blinder’s editorial “Abolishing the Penny Makes Good Sense.”
10. **Evaluate Explanations** Sagan became famous for helping the general public understand scientific concepts. How well does he explain the complex issues involved with nuclear weapons? Cite evidence to support your opinion.

# Vocabulary in Context

## VOCABULARY PRACTICE

Decide whether the words in each pair are synonyms or antonyms.

1. annihilate/preserve
2. carnage/bloodshed
3. contending/cooperating
4. malice/hatred
5. precursor/aftermath
6. reconcile/antagonize

## WORD LIST

annihilate  
carnage  
contending  
malice  
precursor  
reconcile

## VOCABULARY IN WRITING

Create four questions that you would like to ask a politician or military leader about war, using at least one vocabulary word in each question. Here is a sample.

### EXAMPLE SENTENCE

*Is this harsh criticism of the country's ruler a precursor to war?*


## VOCABULARY STRATEGY: SPECIALIZED VOCABULARY

**Specialized vocabulary** is vocabulary specifically suited to a particular occupation or field of study. Politicians and military personnel often use specialized vocabulary when talking about war. This vocabulary includes terms such as *ballistic*, which refers to the movements of missiles and other weapons propelled through the air. It is often possible to figure out the meaning of a specialized vocabulary term from context. Otherwise, look up the term in a dictionary.

**PRACTICE** Write the term that matches each definition. If you need to, check a dictionary.

arsenal    casualties    deploy    disarmament    reconnaissance

1. military people lost through death, injury, sickness, or capture
2. a stock of weapons
3. the reduction of a nation's military forces and equipment
4. an inspection of an area to gather military information
5. to position troops or equipment in readiness for combat

 **VOCABULARY PRACTICE**  
For more practice, go to the **Vocabulary Center** at **ClassZone.com**.

## Reading-Writing Connection

Explore the message in “On Nuclear Disarmament” by responding to these prompts. Then use **Revision: Grammar and Style** to improve your writing.

WRITING PROMPTS	SELF-CHECK
<p><b>A. Short Response: Write Across Texts</b></p> <p>Is the world a safer place today than it was when Sagan gave his speech? Use Sagan’s speech and the nuclear weapons chart on page 603 to write a <b>one- or two-paragraph response</b>.</p>	<p><b>A thoughtful response will . . .</b></p> <ul style="list-style-type: none"><li>• compare current security risks with the situation Sagan describes in his speech</li><li>• synthesize ideas and information from the speech and chart</li></ul>
<p><b>B. Extended Response: Explain Views</b></p> <p>There are often disagreements about the best ways to maintain national and international <b>security</b>. In <b>three to five paragraphs</b>, explain your own views on this topic.</p>	<p><b>A strong explanation will . . .</b></p> <ul style="list-style-type: none"><li>• express clear opinions on maintaining security</li><li>• discuss how your own views compare with those of Sagan</li></ul>

### REVISION: GRAMMAR AND STYLE

**USE RHETORICAL DEVICES** Review the **Grammar and Style** note on page 597.

Using **repetition**, as Sagan does in his speech, can reinforce important messages and ideas. Use these techniques to revise your responses to the prompts:

1. **Repeat powerful words or phrases that will draw attention to a key point.** In this example, Sagan repeats the participial phrase “divided against itself” to stress the necessity of nations working together:


... “A house divided against itself cannot stand.” Let me vary it a little:  
*A species divided against itself cannot stand. A planet divided against itself cannot stand.* (lines 122–124)

2. **Use repetition to link related ideas.** Repeating important words or phrases in a persuasive essay or speech can indicate to readers that ideas appearing at different points in the piece are related.

Notice how the revisions in red strengthen the message in this first draft.

#### STUDENT MODEL

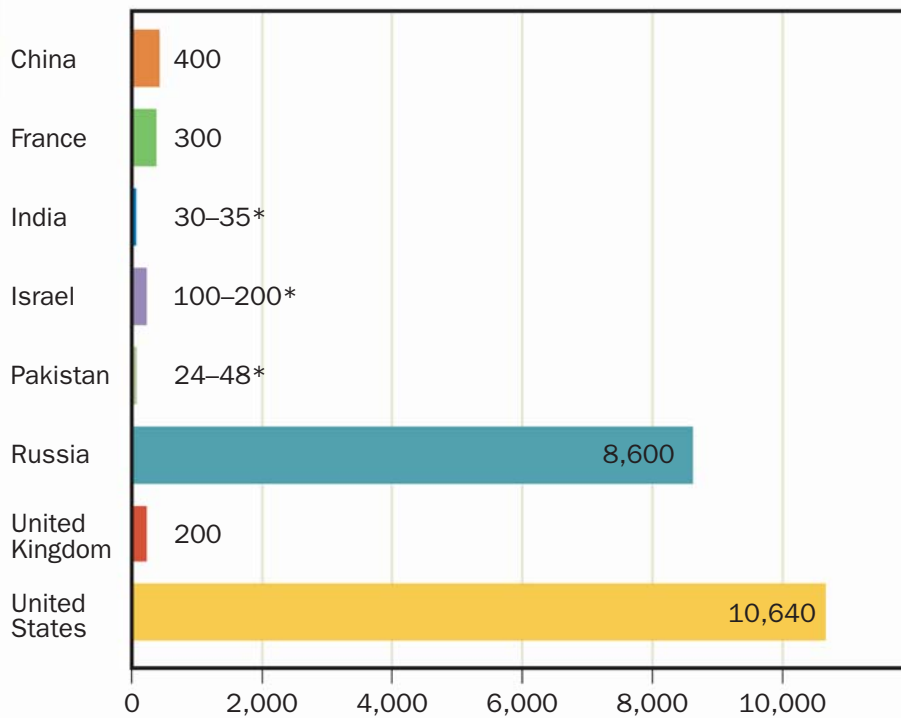
Sagan believes it is a <sup>foolish</sup> mistake to seek safety in terrible weapons, <sup>foolish to</sup> trust politicians to make the right decisions, and <sup>foolish to</sup> set nation against nation.

 **WRITING TOOLS**  
For prewriting, revision, and editing tools, visit the **Writing Center** at **ClassZone.com**.

## Reading for Information

**STATISTICAL ILLUSTRATION** When Carl Sagan delivered his speech “On Nuclear Disarmament” in 1988, the United States and the Soviet Union had about 60,000 nuclear weapons pointed at each other. This chart shows estimated amounts of nuclear weapons 14 years later. Note that the end of the cold war led to reductions in some nuclear stockpiles.

### Stockpiles of Nuclear Weapons,



Source: National Resources Defense Council

\*Estimates of the nuclear stockpiles of these countries are much harder to make because the countries have never joined with other nations in signing the Treaty on the Non-Proliferation of Nuclear Weapons, which was established to limit the spread of nuclear weapons.



## I Acknowledge Mine

Essay by Jane Goodall

# *Do animals have* **RIGHTS?**

**KEY IDEA** People express their love for animals in a variety of ways, such as pampering pets or contributing money to protect natural habitats. But we often buy products that were tested on animals, and such tests can cause suffering or even death. In this selection, Jane Goodall raises questions about our moral responsibility toward chimpanzees used in medical labs and the importance of **animal rights**.

**DEBATE** Should our society recognize animal rights? With a group of classmates, list the reasons for your position on the issue. Then debate the topic with another group.



## ELEMENTS OF NONFICTION: PERSUASIVE TECHNIQUES

Writers use **persuasive techniques** to help convince readers about an issue. Such techniques include **emotional appeals**—statements intended to stir up strong feelings. In the following example, Jane Goodall includes disturbing details and emotionally charged words to arouse pity in readers:

*... young chimpanzees, in similar tiny prisons, rocked back and forth or from side to side, far gone in misery and despair.*

Emotional appeals can be an important element of an effective argument. However, writers sometimes exaggerate problems or use appeals to cover up flawed reasoning. As you read “I Acknowledge Mine,” notice Goodall’s use of emotional appeals.

## READING STRATEGY: SUMMARIZE

When you **summarize** an argument, you briefly restate the text’s main ideas and important information. Summarizing can help you understand and remember what you read. When you summarize, you should

- present ideas and information in the same order in which they appear in the text
- leave out examples and details that are not essential for understanding the writer’s key points

As you read, use a chart like the one shown to help you summarize important ideas and information.

Main Idea	Details
<i>Chimpanzees in the lab suffered from overcrowding and isolation.</i>	<i>The youngest were kept in pairs in small, dark cages. Older ones lived alone, without any companionship or stimulation.</i>

## VOCABULARY IN CONTEXT

To see how many vocabulary words you know, substitute a different word or phrase for each boldfaced word.

1. Criminals feared the **stark** prison.
2. The crowd was loud and **boisterous**.
3. This pill can **alleviate** pain.
4. Must you disagree so **stridently**?
5. I admit my **complicity** in the error.

### Call of the Wild

Beginning in 1960, British naturalist and author Jane Goodall devoted herself to observing the behavior of wild chimpanzees in the Gombe Stream Chimpanzee Reserve in Tanzania. There, Goodall made some startling discoveries. For example, she saw chimpanzees make and use tools, disproving the theory that only humans use them. She also observed a chimpanzee “adopt” a younger, orphaned chimpanzee.



Jane Goodall  
born 1934

**Championing Chimps** Goodall’s observations over several decades support her belief that chimpanzees are highly intelligent creatures capable of feeling emotions and forming long-term relationships. As a leading authority on chimpanzee behavior, Goodall has written dozens of books, ranging from scholarly works to illustrated children’s books. Today, she dedicates her time to lecturing about wildlife conservation and animal welfare.



### MORE ABOUT THE AUTHOR

For more on Jane Goodall, visit the Literature Center at [ClassZone.com](http://ClassZone.com).

### Background

**Chimpanzees and Research** Because about 98 percent of chimpanzees’ genetic material is identical to ours, they have long been used by researchers for studying the progression and treatment of human diseases. In recent years, they have been used in the study of hepatitis C and HIV. The use of chimpanzees in research has grown increasingly controversial, however, and has been banned in some nations, including Great Britain, Sweden, and New Zealand.

# I Acknowledge Mine

Jane Goodall

It was on December 27, 1986, that I watched the videotape that would change the pattern of my life. I had spent a traditional Christmas with my family in Bournemouth, England. We all sat watching the tape, and we were all shattered. Afterward, we couldn't speak for a while. The tape showed scenes from inside a biomedical research laboratory, in which monkeys paced round and round, back and forth, within incredibly small cages stacked one on top of the other, and young chimpanzees, in similar tiny prisons, rocked back and forth or from side to side, far gone in misery and despair. I had, of course, known about the chimpanzees who were locked away in medical research laboratories. 10 But I had deliberately kept away, knowing that to see them would be utterly depressing, thinking that there would be nothing I could do to help them. After seeing the video I knew I had to try. . . . **A**

*The videotape had revealed conditions inside Sema, a federally funded laboratory in Maryland. Goodall took action, criticizing Sema for violating government standards and causing psychological harm to chimpanzees. The president of Sema denied these charges. Several months after Goodall first viewed the videotape, she received permission to visit the laboratory.*

Even repeated viewing of the videotape had not prepared me for the **stark** reality of that laboratory. I was ushered, by white-coated men who smiled 20 nervously or glowered, into a nightmare world. The door closed behind us. Outside, everyday life went on as usual, with the sun and the trees and the birds. Inside, where no daylight had ever penetrated, it was dim and colorless. I was led along one corridor after another, and I looked into room after room

## ANALYZE VISUALS

What aspects of this photograph give it an emotional appeal?

## **A** SUMMARIZE

How would you summarize the information in lines 1–12?

**stark** (stärk) *adj.*  
harsh or grim



lined with small, bare cages, stacked one above the other. I watched as monkeys paced around their tiny prisons, making bizarre, abnormal movements.

Then came a room where very young chimpanzees, one or two years old, were crammed, two together, into tiny cages that measured (as I found out later) some twenty-two inches by twenty-two inches at the base. They were two feet high. These chimp babies peered out from the semidarkness of their tiny cells as the doors were opened. Not yet part of any experiment, they had been waiting in their cramped quarters for four months. They were simply objects, stored in the most economical way, in the smallest space that would permit the continuation of life. At least they had each other, but not for long. Once their quarantine was over they would be separated, I was told, and placed singly in other cages, to be infected with hepatitis or AIDS or some other viral disease. And all the cages would then be placed in isolettes.

What could they see, these infants, when they peered out through the tiny panel of glass in the door of their isolette? The blank wall opposite their prison. What was in the cage to provide occupation, stimulation, comfort? For those who had been separated from their companions—nothing. I watched one isolated prisoner, a juvenile female, as she rocked from side to side, sealed off from the outside world in her metal box. A flashlight was necessary if one wanted to see properly inside the cage. All she could hear was the constant loud sound of the machinery that regulated the flow of air through vents in her isolette. **B**

A “technician” (for so the animal-care staff are named, after training) was told to lift her out. She sat in his arms like a rag doll, listless, apathetic. He did not speak to her. She did not look at him or try to interact with him in any way. Then he returned her to her cage, latched the inner door, and closed her isolette, shutting her away again from the rest of the world.

I am still haunted by the memory of her eyes, and the eyes of the other chimpanzees I saw that day. They were dull and blank, like the eyes of people who have lost all hope, like the eyes of children you see in Africa, refugees, who have lost their parents and their homes. Chimpanzee children are so like human children, in so many ways. They use similar movements to express their feelings. And their emotional needs are the same—both need friendly contact and reassurance and fun and opportunity to engage in wild bouts of play. And they need love.

Dr. James Mahoney, veterinarian at the Laboratory for Experimental Medicine and Surgery in Primates (LEMSIP), recognized this need when he began working for Jan Moor-Jankowski.<sup>1</sup> Several years ago he started a “nursery” in that lab for the infant chimpanzees when they are first taken from their mothers. It was not long after my visit to Sema that I went for the first of a number of visits to LEMSIP.

Once I was suitably gowned and masked and capped, with paper booties over my shoes, Jim took me to see his nursery. Five young chimps were there at the time, ranging in age from about nine months to two years. Each one was

**B PERSUASIVE TECHNIQUES**

Reread lines 37–44. Why might Goodall have chosen to include rhetorical questions—questions that do not require answers—in her appeal to the reader’s sympathy?

**C GRAMMAR AND STYLE**

Reread lines 50–53. Notice how Goodall uses imagery and figurative language—comparing the chimpanzees to orphaned refugee children—to convey a sad tone.

1. Jan Moor-Jankowski: director of LEMSIP.

dressed in children's clothes—"to keep their diapers on, really," said the staff member who was with them. (Someone is always with them throughout the day.) The infants played vigorously around me as I sat on the soft red carpet, surrounded by toys. I was for the moment more interesting than any toy, and almost immediately they had whisked off my cap and mask. Through a window these infants could look into a kitchen and work area where, most of the time, some human activity was going on. They had been taken from their mothers when they were between nine and eighteen months old, Jim said. He brings them into the nursery in groups, so that they can all go through the initial trauma together, which is why some were older than others. And, he explained, he tries to do this during summer vacation so that there will be no shortage of volunteer students to help them over their nightmares. Certainly these **boisterous** youngsters were not depressed.

I stayed for about forty minutes, then Jim came to fetch me. He took me to a room just across the corridor where there were eight young chimpanzees who had recently graduated from the nursery. This new room was known as "Junior Africa," I learned. Confined in small, bare cages, some alone, some paired, the youngsters could see into the nursery through the window. They could look back into their lost childhood. For the second time in their short lives, security and joy had been abruptly brought to an end through no fault of their own. Junior Africa: the name seems utterly appropriate until one remembers all the infants in Africa who are seized from their mothers by hunters, rescued and cared for in human families, and then, as they get older, banished into small cages or tied to the ends of chains. Only the reasons, of course, are different. Even these very young chimpanzees at LEMSIP may have to go through grueling experimental procedures, such as repeated liver biopsies<sup>2</sup> and the drawing of blood. Jim is always pleading for a four-year childhood before research procedures commence, but the bodies of these youngsters, like those of other experimental chimps, are rented out to researchers and pharmaceutical companies. The chimpanzees, it seems, must earn their keep from as early an age as possible.

During a subsequent visit to LEMSIP, I asked after one of the youngsters I had met at the nursery, little Josh. A real character he had been there, a born group leader. I was led to one of the cages in Junior Africa, where that once-assertive infant, who had been so full of energy and zest for life, now sat huddled in the corner of his barred prison. There was no longer any fun in his eyes. "How can you bear it?" I asked the young woman who was caring for him. Her eyes, above the mask, filled with tears. "I can't," she said. "But if I leave, he'll have even less."

This same fear of depriving the chimpanzees of what little they have is what keeps Jim at LEMSIP. After I had passed through Junior Africa that first day, Jim took me to the windowless rooms to meet ten adult chimps. No carpets or toys for them, no entertainment. This was the hard, cold world of the adult research

**boisterous** (boi'star-əs)  
*adj.* noisy and lacking in restraint or discipline



2. **biopsies:** removals of tissue samples from a living body for examination.

110 chimps at LEMSIP. Five on each side of the central corridor, each in his own small prison, surrounded by bars—bars on all sides, bars above, bars below. Each cage measured five feet by five feet and was seven feet high, which was the legal minimum cage size at that time for storing adult chimpanzees. Each cage was suspended above the ground, so that feces and food remains would fall to the floor below. Each cage contained an old car tire and a chimpanzee. That was all.

JoJo's cage was the first on the right as we went in. I knelt down, new cap and mask in place, along with overalls and plastic shoe covers and rubber gloves. I looked into his eyes and talked to him. He had been in his cage at least ten years. He had been born in the African forest. . . . Could he remember, I  
120 wondered? Did he sometimes dream of the great trees with the breeze rustling through the canopy, the birds singing, the comfort of his mother's arms? Very gently JoJo reached one great finger through the steel bars and touched one of the tears that slipped out above my mask, then went on grooming the back of my wrist. So gently. Ignoring the rattling of cages, the clank of steel on steel, the violent sway of imprisoned bodies beating against the bars, as the other male chimps greeted the veterinarian.

His round over, Jim returned to where I still crouched before JoJo. The tears were falling faster now. "Jane, please don't," Jim said, squatting beside

A chimpanzee greets Jane Goodall at the Laboratory for Experimental Medicine and Surgery in Primates.



me and putting his arm around me. “Please don’t. I have to face this every  
130 morning of my life.” **D**

I also visited [the pharmaceutical company] Immuno’s two labs in  
Austria. The first of these, where hepatitis research is conducted and where  
chimpanzees are used to test batches of vaccine, was built some time ago.  
There I got no farther than the administration building. I was not allowed  
into the chimpanzee rooms because I had not had a hepatitis shot. And—how  
unfortunate!—the closed-circuit TV monitors could not, for some reason, be  
made to work that day. In the lobby, though, there were two demonstration  
cages, set there so the public could see for itself the magnificent and spacious  
housing that Immuno was planning for its chimpanzee colony. (This they  
140 felt was necessary because of all the criticisms that were being made about  
the small size of the existing cages, dangerous criticisms leading to expensive  
lawsuits.) The present cages, I knew, were not very large. The new ones looked  
identical to those at LEMSIP. . . .

To my mind, it should be required that all scientists working with laboratory  
animals, whatever the species, not only know something about the animals  
and their natural behavior, but see for themselves how their protocols<sup>3</sup> affect  
individual animals. Researchers should observe firsthand any suffering they  
cause, so that they can better balance the benefit (or hoped-for benefit) to  
humanity against the cost in suffering to the animal. Laboratory chimpanzees  
150 are prisoners, but they are guilty of no crimes. Rather, they are helping—  
perhaps—to **alleviate** human suffering. Yet in some of the labs I have described,  
and in others around the world, they are subjected to far harsher treatment than  
we give to hardened criminals. Surely we owe them more than that. **E**

Even if all research labs could be redesigned to provide the best possible  
environment for the chimpanzee subjects, there would still be one nagging  
question—should chimpanzees be used at all? . . . Of course I wish I could  
wave a wand and see the lab cages standing empty. Of course I hate the  
suffering that goes on behind the closed doors of animal labs. I hate even more  
the callous attitude that lab personnel so often show toward the animals in  
160 their power—deliberately cultivated, no doubt, to try to protect themselves  
from any twinge of guilt. . . . Our children are gradually desensitized to  
animal suffering. (“It’s all right, darling; it’s only an animal.”) The process  
goes on throughout school, culminating in the frightful things that zoology,  
psychology, veterinary, and medical students are forced to do to animals in  
the process of acquiring knowledge. They have to quell empathy if they are to  
survive in their chosen fields, for scientists do things to animals that, from the  
animals’ point of view, are torture and would be regarded as such by almost  
everyone if done by nonscientists.

Animals in labs are used in different ways. In the quest for knowledge,  
170 things are done to them to see what happens. To test the safety of various  
products, animals are injected with or forced to swallow different amounts

#### **D PERSUASIVE TECHNIQUES**

Reread lines 116–130.  
What details help make  
this passage a powerful  
**emotional appeal?**

**alleviate** (ə-lē’vê-āt’) v.  
to make easier or  
provide relief

#### **E SUMMARIZE**

Briefly restate the key  
point that Goodall makes  
in lines 144–153.

---

3. **protocols** (prō’tē-kôlz’): plans for scientific experiments.



to see how sick they get, or if they survive. The effectiveness of medical procedures and drugs are tried out on animals. Surgical skills are practiced on animals. Theories of all sorts, ranging from the effects of various substances to psychological trauma, are tested on animals. What is so shocking is the lack of respect for the victims, the almost total disregard for their living, feeling, sometimes agonizing bodies. And often the tortures are inflicted for nothing. There is an angry debate, ongoing and abrasive, about the role of animals in medicine. Even though I am not qualified to judge a dispute of this  
180 magnitude, which has become so polarized, it seems obvious that extremists on both sides are wrong. The scientists who claim that medical research could never have progressed at all without the use of animals are as incorrect as the animal-rights activists who declare **stridently** that no advances in medicine have been made due to animal research.

Let me return to chimpanzees and to the question of whether we are justified in using them in our search for medical knowledge. Approximately three thousand of them languish in medical research laboratories around the world, somewhat more than half this number (about one thousand eight hundred) in the United States. Today, as we have seen, they are primarily  
190 used in infectious-disease research and vaccine testing; even though they have seldom shown even minor symptoms of either AIDS or hepatitis, the experimental procedures are often stressful, the conditions in which they are maintained typically bleak. . . .

Humans are a species capable of compassion, and we should develop a heightened moral responsibility for beings who are so like ourselves. Chimpanzees form close, affectionate bonds that may persist throughout life. Like us, they feel joy and sorrow and despair. They show many of the intellectual skills that until recently we believed were unique to ourselves. They may look into mirrors and see themselves as individuals—beings who have consciousness  
200 of “self.” Do they not, then, deserve to be treated with the same kind of consideration that we accord to other highly sensitive, conscious beings—ourselves? Granted, we do not always show much consideration to one another. That is why there is so much anguish over human rights. That is why it makes little sense to talk about the “rights” of chimpanzees. But at least where we desist from doing certain things to human beings for ethical reasons, we should desist also from doing them to chimpanzee beings. We no longer perform certain experiments on humans, for ethical reasons. I suggest that it would be logical to refrain also from doing these experiments on chimpanzees. **F**

Why do I care so much? Why, in order to try to change attitudes and  
210 actions in the labs, do I subject myself repeatedly to the personal nightmare of visiting these places, knowing that I shall be haunted endlessly by memories of my encounters with the prisoners there? Especially in their eyes, those bewildered or sad or angry eyes. The answer is simple. I have spent so many years in the forests of Gombe, being with and learning from the chimpanzees. I consider myself one of the luckiest people on earth. It is time to repay something of the debt I owe the chimpanzees, for what they have taught me

**stridently** (strīd'nt-lē) *adv.*  
harshly; conspicuously

**F SUMMARIZE**

Summarize Goodall's proposal for determining whether experiments on chimpanzees are justified.




about themselves, about myself, about the place of humans and chimpanzees in the natural world.

When I visit JoJo in his tiny steel prison I often think of David Greybeard,  
220 that very special chimpanzee who, by his calm acceptance of my presence, first helped me to open the door into the magic world of the chimpanzees of Gombe. I learned so much from him. It was he who introduced me to his companions, Goliath and Mike and the Flo family and all the other unique, fascinating personalities who made up his community at that time. David even allowed me to groom him. A fully adult male chimpanzee who had lived all his life in the wild actually tolerated the touch of a human hand.

There was one especially memorable event. I had been following David one day, struggling through dense undergrowth near a stream. I was thankful when he stopped to rest, and I sat near him. Close by I noticed the fallen red fruit of  
230 an oil nut palm, a favorite food of chimpanzees. I picked it up and held it out to David on the palm of my hand. For a moment I thought he would ignore

my gesture. But then he took the nut, let it fall to the ground and, with the same movement, very gently closed his fingers around my hand. He glanced at my face, let go of my hand, and turned away. I understood his message: “I don’t want the nut, but it was nice of you to offer it.” We had communicated most truly, relying on shared primate signals that are deeper and more ancient than words. It was a moment of revelation. I did not follow David when he wandered off into the forest. I wanted to be alone, to ponder the significance of what had happened, to enshrine those moments permanently in my mind.

240 And so, when I am with JoJo, I remember David Greybeard and the lessons he taught me. I feel deep shame—shame that we, with our more sophisticated intellect, with our greater capacity for understanding and compassion, have deprived JoJo of almost everything. Not for him the soft colors of the forest, the dim greens and browns entwined, or the peace of the afternoon when the sun flecks the canopy and small creatures rustle and flit and creep among the leaves. Not for him the freedom to choose, each day, how he will spend his time and where and with whom. Nature’s sounds are gone, the sounds of running water, of wind in the branches, of chimpanzee calls that ring out so clear and rise up through the treetops to drift away in the hills. The comforts  
250 are gone, the soft leafy floor of the forest, the springy branches from which sleeping nests can be made. All are gone. Here, in the lab, the world is concrete and steel; it is loud, horrible sounds, clanging bars, banging doors, and the deafening volume of chimpanzee calls confined in underground rooms. It is a world where there are no windows, nothing to look at, nothing to play with. A world where family and friends are torn apart and where sociable beings are locked away, innocent of crime, into solitary confinement. **G**

It is we who are guilty. I look again into JoJo’s clear eyes. I acknowledge my own **complicity** in this world we have made, and I feel the need for forgiveness. He reaches out a large, gentle finger and once again touches the  
260 tear trickling down into my mask. 

*Some of the laboratories discussed in this selection have changed their practices, partly in response to Jane Goodall’s criticism and recommendations. For example, Sema, which is now called Diagon, no longer keeps chimpanzees in isolettes. The chimpanzees now live in more spacious, well-lit cubicles, and they are sometimes allowed to have contact with other chimpanzees.*

### **G PERSUASIVE TECHNIQUES**

Reread lines 240–256. What words and images in this passage appeal to your emotions?

**complicity**  
(kəm-plī’s’ī-tē) *n.*  
association or partnership in a crime or offense

## Comprehension

1. **Recall** What made Goodall decide to investigate research laboratories?
2. **Recall** What conditions did she find in the laboratories that she visited?
3. **Recall** How did the chimpanzee named David Greybeard behave when he came in contact with Goodall in the forests of Gombe?
4. **Clarify** Why does Goodall believe it is important for scientists who work with laboratory animals to know about their natural behavior?

## Critical Analysis

5. **Examine an Argument** Review the chart you created as you read. How would you **summarize** Goodall's proposals to improve the treatment of chimpanzees in laboratories?
6. **Interpret a Statement** Reread lines 194–208. How do you interpret Goodall's remarks about human rights and the **rights** of chimpanzees?
7. **Analyze Support** How does the example of Goodall's experiences with David Greybeard support her argument?
8. **Make Inferences** How does Goodall seem to feel about James Mahoney, the veterinarian who guided her visit to LEMSIP?
9. **Identify an Author's Perspective** What beliefs, values, and feelings influence the way Goodall views experimentation on chimpanzees? Support your answer with evidence.
10. **Draw Conclusions** Does Goodall think that chimpanzees should be treated differently from other animals used in laboratory experiments? Cite evidence to support your conclusion.
11. **Evaluate Persuasive Techniques** Does Goodall use **emotional appeals** appropriately in her argument, or are these appeals exaggerated or excessive? Provide examples to support your opinion.

# Vocabulary In Context

## VOCABULARY PRACTICE

Decide whether each statement is true or false.

1. To **alleviate** a problem is to make it worse.
2. A **boisterous** child may disrupt a quiet restaurant.
3. If you have **complicity** in a crime, you had involvement in it.
4. An elegantly decorated room can be described as **stark**.
5. To speak **stridently** is to ask in a sweet, quiet manner.

### WORD LIST

alleviate  
boisterous  
complicity  
stark  
stridently

## VOCABULARY IN WRITING

Using at least two vocabulary words, write about an issue that has inspired public debate. Here is an example of how you might begin.

### EXAMPLE SENTENCE

*For years politicians have **stridently** debated how to limit our country's dependence on imported fuel.*


## VOCABULARY STRATEGY: ANALOGIES

Analogies express relationships between pairs of words. Some common relationships are described in the chart.

Type	Relationship
Object to purpose	is used for
Synonyms	means the same as
Antonyms	means the opposite of
Cause to effect	results in or leads to
Grammar	is grammatically related to

**PRACTICE** Complete each analogy by choosing the appropriate vocabulary word. Identify the kind of relationship on which the analogy is based.

1. generosity : gratitude :: \_\_\_\_\_ : guilt
2. grateful : gratefully :: strident : \_\_\_\_\_
3. selfish : generous :: calm : \_\_\_\_\_
4. alarm : protect :: aspirin : \_\_\_\_\_
5. practical : useful :: bleak : \_\_\_\_\_

 **VOCABULARY PRACTICE**  
For more practice, go to the Vocabulary Center at [ClassZone.com](http://ClassZone.com).

## Reading-Writing Connection

Deepen your understanding of “I Acknowledge Mine” by responding to these prompts. Then use **Revision: Grammar and Style** to improve your writing.

WRITING PROMPTS	SELF-CHECK
<p><b>A. Short Response: Write a Speech</b> Suppose that Jane Goodall received an award for her efforts to help chimpanzees. Write a <b>one- or two-paragraph acceptance speech</b> for her, referring to experiences she describes in the selection.</p>	<p><b>A strong speech will . . .</b></p> <ul style="list-style-type: none"><li>• summarize Goodall’s observations of chimpanzees in laboratories</li><li>• reflect the values she reveals in her essay</li></ul>
<p><b>B. Extended Response: Analyze an Argument</b> Write a <b>three-to-five-paragraph personal response</b> in which you analyze Goodall’s argument and explain how it affected your view on <b>animal rights</b>.</p>	<p><b>A thoughtful analysis will . . .</b></p> <ul style="list-style-type: none"><li>• clearly state a personal opinion on animal rights</li><li>• evaluate Goodall’s use of emotional appeals</li></ul>

### REVISION: GRAMMAR AND STYLE

**SET THE TONE** Review the **Grammar and Style** note on page 608. **Tone** is a writer’s attitude toward a subject—humorous, angry, or sarcastic, for example—as expressed through **word choice**, **imagery**, and **formal** or **informal language**. In her writing, Goodall uses imagery and figurative language to express sadness and outrage over the treatment of chimpanzees. Note how she effectively uses nouns, adjectives, and participles to create disturbing images in the following example:

*Here, in the lab, the world is concrete and steel; it is loud, horrible sounds, clanging bars, banging doors, and the deafening volume of chimpanzee calls confined in underground rooms. (lines 251–253)*

Notice how the revisions in red help to establish tone in this first draft. Revise your responses to the prompts by making sure your choice of language and use of imagery match the tone you want to convey.

**STUDENT MODEL**

These chimpanzees spend all day and night in confinement, *small, dark* *they can only* *, like prisoners.*  
When they look out from their cages, *see a blank wall.* ~~there is nothing to provide~~  
~~them with stimulation.~~

**WRITING TOOLS**  
For prewriting, revision, and editing tools, visit the **Writing Center** at [ClassZone.com](http://ClassZone.com).

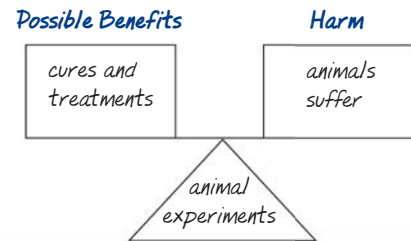
## Use of Animals in Biomedical Research

Position Paper by the American Medical Association

# *Do the ENDS justify the means?*

**KEY IDEA** You have read about Jane Goodall’s objections to some aspects of **animal research**. In “Use of Animals in Biomedical Research,” the American Medical Association addresses the issue of whether improving human health outweighs the suffering of animals in medical laboratories.

**DISCUSS** Think of a situation in which an unpleasant or disturbing action may lead to a worthy outcome. Create a balance scale like the one shown. Jot down the possible benefits of the action in one box and the harm caused by it in the other. Share your balance scale with your classmates, and discuss whether the possible benefits outweigh the harm.



## ● ELEMENTS OF NONFICTION: COUNTERARGUMENTS

Although the American Medical Association is firmly in favor of using animals in research, it does not ignore the views of opponents. Instead, it states the opponents' views and then disputes them with **counterarguments**. As you read "Use of Animals in Biomedical Research," use a chart like the one shown to keep track of counterarguments in the selection.

<i>Opposing Viewpoint</i>	<i>Counterargument</i>	<i>Support for Counterargument</i>
<i>Animal experimentation isn't needed.</i>	<i>Most modern medical advances have required such experiments.</i>	<i>Many Nobel Prizes have been awarded for medical research involving animals.</i>

## ● READING STRATEGY: MONITOR

When you **monitor** as you read, you check your comprehension and use strategies to improve it. For example, if you find an argument difficult to follow, you might slow your reading pace. The following strategies may be helpful for reading "Use of Animals in Biomedical Research":

- Ask questions about ideas in the text, and read to find the answers.
- Reread difficult passages. Paraphrase if necessary.

As you read, note passages or words that are unclear to you, and use these strategies to increase your understanding.

## ▲ VOCABULARY IN CONTEXT

Figure out the meaning of each word from the context provided, and write a sentence that shows your understanding.

1. support from a **proponent** of this plan
2. a **speculative** and unreliable conclusion
3. a speech full of insincere **rhetoric**
4. obstacles that **impede** our progress

## Background

### American Medical Association

Founded in Philadelphia in 1847, the American Medical Association (AMA) is the largest professional organization for physicians in the United States. The AMA identifies its core purpose as the promotion of "the science and art of medicine and the betterment of public health." The AMA formulates policies on a wide range of health care and ethical issues, such as tobacco use and discrimination against AIDS patients. Many important studies have been published in the prestigious *Journal of the American Medical Association*.

### Animal Rights Versus Animal Welfare

Discussions of animal protection often distinguish between the animal rights and animal welfare movements. Animal rights advocates believe that all experimentation on animals is wrong, even if it relieves human suffering. According to People for the Ethical Treatment of Animals (PETA), the world's largest animal rights organization, "animals, like humans, have interests that cannot be sacrificed or traded away just because it might benefit others. . . . Animals are not ours to use for food, clothing, entertainment, or experimentation." Animal welfare advocates, on the other hand, do not entirely rule out the use of animals in research, but they believe that the animals should be treated as humanely as possible. The animal welfare movement also calls for a reduction in the numbers of animals used in research and for the development of experimental procedures that do not require animals.





# Use of Animals in Biomedical Research

American Medical Association

Animals have been used in experiments for at least 2,000 years, with the first reference made in the third century B.C. in Alexandria, Egypt, when the philosopher and scientist Erisistratus used animals to study body functions.

Five centuries later, the Roman physician Galen used apes and pigs to prove his theory that veins carry blood rather than air. In succeeding centuries, animals were employed to discover how the body functions or to confirm or disprove theories developed through observation. Advances in knowledge made through these experiments included Harvey's demonstration of the circulation of blood in 1622, the effect of anesthesia on the body in 1846, and the relationship between bacteria and disease in 1878.

Today, animals are used in experiments for three general purposes: (1) biomedical and behavioral research, (2) education, (3) drug and product

testing. . . . Biomedical research increases understanding of how biological systems function and advances medical knowledge. . . . Educational experiments are conducted to educate and train students in medicine, veterinary medicine, physiology,<sup>1</sup> and general science. In many instances, these experiments are conducted with dead animals. . . . Animals also are employed to determine the safety and efficacy<sup>2</sup> of new drugs or the toxicity<sup>3</sup> of chemicals to which humans or animals may be exposed. Most of these experiments are conducted by commercial firms to fulfill government requirements. . . .

## Use of Animals Rather than Humans

A basic assumption of all types of research is that man should relieve human and animal suffering. One objection to the use of animals in

### A MONITOR

What additional information might help you understand lines 20–39?

1. **physiology** (fīz'ē-ōl'ə-jē): a branch of biology that deals with the functioning of organisms.
2. **efficacy** (ēf'ī-kə-sē): the capacity to produce a desired effect.
3. **toxicity** (tōk-sī's'ī-tē): the quality of being poisonous or harmful.

biomedical research is that the animals are used as surrogates for human beings. This objection presumes the equality of all forms of life; animal rights advocates argue that if the tests are for the benefit of man, then man should serve as the subject of the experiments. There are limitations, however, to the use of human subjects both ethically, such as in the testing of a potentially toxic drug or chemical, and in terms of what can be learned. The process of aging, for instance, can best be observed through experiments with rats, which live an average of two to three years, or with some types of monkeys, which live 15 to 20 years. Some experiments require numerous subjects of the same weight or genetic makeup or require special diets or physical environments; these conditions make the use of human subjects difficult or impossible. By using animals in such tests, researchers can observe subjects of uniform age and background in sufficient numbers to determine if findings are consistent and applicable to a large population. **B**

Animals are important in research precisely because they have complex body systems that react and interact with stimuli much as humans do. The more true this is with a particular animal, the more valuable that animal is for a particular type of research. One important property to a researcher is discrimination—the extent to which an animal exhibits the particular quality to be investigated. The greater the degree of discrimination, the greater the reliability and predictability of the information gathered from the experiment.

For example, dogs have been invaluable in biomedical research because of the relative size of their organs com-

pared to humans. The first successful kidney transplant was performed in a dog, and the techniques used to save the lives of “blue babies,” babies with structural defects in their hearts, were developed with dogs. Open-heart surgical techniques, coronary bypass surgery,<sup>4</sup> and heart transplantation all were developed using dogs.

Another important factor is the amount of information available about a particular animal. Mice and rats play an extensive role in research and testing, in part because repeated experiments and controlled breeding have created a pool of data to which the findings from a new experiment can be related and given meaning. Their rapid rate of reproduction also has made them important in studies of genetics and other experiments that require observation over a number of generations. Moreover, humans cannot be bred to produce “inbred strains”<sup>5</sup> as can be done with animals; therefore, humans cannot be substituted for animals in studies where an inbred strain is essential. **C**

Scientists argue repeatedly that research is necessary to reduce human and animal suffering and disease. Biomedical advances depend on research with animals, and not using them would be unethical because it would deprive humans and animals of the benefits of research. . . .

### Benefits of Animal Experimentation

The arguments advanced by animal rights activists in opposing the use of animals in biomedical research . . . are scientific, emotional, and philosophic. . . . The scientific challenge raised by animal rights activists goes to the heart

4. **coronary bypass surgery:** open-heart surgery to improve the blood supply to the heart.

5. **inbred strains:** groups of animals produced by the mating of siblings over at least 20 generations, resulting in individuals as genetically similar as possible.

**B COUNTERARGUMENTS**  
What counterargument is given to dispute the view that humans should be the subjects of experiments that benefit humans?

**C MONITOR**  
How would you paraphrase the main idea in lines 110–114?

of the issue by asking whether animal  
130 experiments are necessary for scientific  
and medical progress and whether all  
the experiments being performed and  
all the animals being used are justified  
and required. Scientists insist that they  
are; animal rights activists insist that  
they are not.

Scientists justify use of animals in  
biomedical research on two grounds: the  
contribution that the information makes  
140 to human and animal health and welfare,  
and the lack of any alternative way to  
gain the information and knowledge.  
Animal rights activists contest experi-  
ments that utilize animals on both these  
grounds and assert that this practice no  
longer is necessary because alternative  
methods of experimentation exist for  
obtaining the same information. **D**

**D MONITOR**

Reread lines 137–148.  
What questions do you  
have about the ideas in  
this passage?

In an appearance on the *Today* show  
150 in 1985, Ingrid Newkirk, representing  
People for the Ethical Treatment of  
Animals (PETA), stated: “If it were such  
a valuable way to gain knowledge, we  
should have eternal life by now.” This  
statement is similar in spirit to one made  
in 1900 by an antivivisectionist<sup>6</sup> who  
stated that, given the number of experi-  
ments on the brain done up to then, 200  
the insane asylums of Washington, D.C.  
160 should be empty.

Scientists believe that such assertions  
miss the point. The issue is not what  
*has not* been accomplished by animal  
use in biomedical research, but what *has*  
been accomplished. A longer life span  
has been achieved, decreased infant  
mortality<sup>7</sup> has occurred, effective treat-  
ments have been developed for many  
diseases, and the quality of life has been  
170 enhanced for mankind in general.

One demonstration of the criti-  
cal role that animals play in medical  
and scientific advances is that 54 of  
76 Nobel Prizes awarded in physiolo-  
gy or medicine since 1901 have been  
for discoveries and advances made  
through the use of experimental ani-  
mals. Among these have been the Prize  
awarded in 1985 for the studies (using  
180 dogs) that documented the relation-  
ship between cholesterol and heart  
disease; the 1966 Prize for the studies  
(using chickens) that linked viruses  
and cancer; and the 1960 Prize for  
studies (using cattle, mice, and chicken  
embryos) that established that a body  
can be taught to accept tissue from dif-  
ferent donors if it is inoculated<sup>8</sup> with  
different types of tissue prior to birth  
190 or during the first year of life, a finding  
expected to help simplify and advance  
organ transplants in the future. Studies  
using animals also resulted in success-  
ful culture of the poliomyelitis<sup>9</sup> virus;  
a Nobel Prize was awarded for this  
work in 1954. The discovery of insulin  
and treatment of diabetes, achieved  
through experiments using dogs, also  
earned the Prize in 1923.

In fact, virtually every advance in  
200 medical science in the 20th century,  
from antibiotics and vaccines to anti-  
depressant drugs and organ transplants,  
has been achieved either directly or indi-  
rectly through the use of animals in labo-  
ratory experiments. The result of these  
experiments has been the elimination  
or control of many infectious diseases—  
smallpox, poliomyelitis, measles—and  
the development of numerous life-saving  
210 techniques—blood transfusions, burn  
therapy, open-heart and brain surgery.

6. **antivivisectionist** (än'tê-vîv'î-sëk'shən-îst): someone opposed to the act of operating on live animals for science experiments.

7. **infant mortality**: the death rate during the first year of life.

8. **inoculated** (î-nök'yə-lā'tîd): injected.

9. **poliomyelitis** (pô'lê-ô-mî'ə-lî'tîs): a highly infectious viral disease that generally affects children and may lead to paralysis and deformity. Also called *polio*.



A boy is vaccinated for polio in 1955 under the gaze of his sister, who became paralyzed from a polio infection. The first polio vaccine was developed through experiments on animals.

This has meant a longer, healthier, better life with much less pain and suffering. For many, it has meant life itself. Often forgotten in the **rhetoric** is the fact that humans *do* participate in biomedical research in the form of clinical trials.

They experience pain and are injured, and in fact, some of them die from this participation. Hence, scientists are not asking animals to be “guinea pigs” alone for the glory of science. . . . **E**

Scientists feel that it is essential for the public to understand that had scientific research been restrained in the first decade of the 20th century as antivivisectionists and activists were then and are today urging, many millions of Americans alive and healthy today would never have been born or would have suffered a premature death. Their parents or grandparents would have died from diphtheria, scarlet fever, tuberculosis, diabetes, appendicitis, and countless other diseases and disorders. . . .

### The Danger of Restricting Research

The activities and arguments of animal rights and animal welfare activists and organizations present the American people with some fundamental decisions that must be made regarding the use of animals in biomedical research.

The fundamental issue raised by the

philosophy of the animal rights movement is whether man has the right to use animals in a way that causes them to suffer and die. To accept the philosophical and moral viewpoint of the animal rights movement would require a total ban on the use of animals in any scientific research and testing. The consequences of such a step were set forth by the Office of Technology Assessment (OTA) in its report to Congress: “Implementation of this option would effectively arrest most basic biomedical and behavioral research and toxicological testing in the United States.” The economic and public health consequences of that, the OTA warned Congress, “are so unpredictable and **speculative** that this course of action should be considered dangerous.” **F**

No nation and no jurisdiction within the United States has yet adopted such a ban. Although . . . laws to ban the use of animals in biomedical research have been introduced into a number of state legislatures, neither a majority of the American people nor their elected representatives have ever supported these bills.

Another aspect of the use of animals in biomedical research that has received little consideration is the economic consequences of regulatory change. Clearly, other nations are not curtailing the use of animals to any significant degree. Some of these, like Japan, are major competi-

**rhetoric** (rĕt'ər-ĭk) *n.*  
grand but empty talk

**E COUNTERARGUMENTS**  
What opposing viewpoints are disputed in lines 200–223?

**speculative**  
(spĕk'yə-lə-tĭv) *adj.* based on guesses and theories rather than fact

**F MONITOR**  
What strategy would you use to gain a deeper understanding of lines 251–262?

## G GRAMMAR AND STYLE

Reread lines 313–325. Because this is a paper written for a professional audience, it contains elements of **formal language**, including complex vocabulary and sentence structure, standard punctuation, and a lack of contractions.

**proponent** (prə-pō'nent)  
*n.* a person who pleads for or supports a cause

**impede** (ĩm-pēd') *v.* to obstruct or hinder

## H COUNTERARGUMENTS

What counterargument is made in response to the animal welfare movement in lines 326–336?

tors of the United States in biomedical research. Given the economic climate  
280 in the United States, our massive trade imbalance, and our loss of leadership in many areas, can the United States afford not to keep a leading industry, i.e., biomedical science, developing as rapidly as possible? Many nations are in positions to assume leadership roles, and the long-term economic impact on our citizens could be profound. This economic impact would be expressed in  
290 many ways, not the least of which would certainly be a reduction in the quality and number of health services available for people who need them.

Through polls and by other means,  
the American people have indicated that they support the use of animals in research and testing. At the same time they have expressed a strong wish that the animals be protected against  
300 any unnecessary pain and suffering. The true question, therefore, is how to achieve this without interfering with the performance of necessary research. Scientists already comply with a host of federal, state, municipal, and institutional guidelines and laws. However, in this era of cost containment, they fear that overregulation will become so costly that research progress will suffer.  
310 Scientists emphasize that a reasonable balance must be achieved between increased restrictions and increased cost.

What must be recognized, say  
scientists, is that it is not possible to protect all animals against pain and still conduct meaningful research. No legislation and no standard of humane care can eliminate this necessity. The only alternative is either to eliminate  
320 the research, as animal rights adherents urge, and forego the knowledge and the benefits of health-related research that would result, or to inflict the pain

and suffering on human beings by using them as research subjects. G

The desire by animal welfare **proponents** to ensure maximum comfort and minimal pain to research animals is understandable and appeals  
330 to scientists, the public, and to legislators. But what also must be recognized and weighed in the balance is the price paid in terms of human pain and suffering if overly protective measures are adopted that **impede** or prevent the use of animals in biomedical research. H

In short, the American people should not be misled by emotional appeals and philosophic rhetoric on this issue.  
340 Biomedical research using animals is essential to continued progress in clinical medicine. Animal research holds the key for solutions to AIDS, cancer, heart disease, aging, and congenital defects.<sup>10</sup> In discussing legislation concerning animal experimentation, the prominent physician and physiologist Dr. Walter B. Cannon stated in 1896 that “. . . the antivivisectionists are the second of the  
350 two types Theodore Roosevelt described when he said, ‘Common sense without conscience may lead to crime, but conscience without common sense may lead to folly, which is the handmaiden of crime.’”

The American Medical Association has been an outspoken proponent of biomedical research for over 100 years, and that tradition continues today.  
360 The Association believes that research involving animals is absolutely essential to maintaining and improving the health of the American people. The Association is opposed to any legislation or regulation that would inappropriately limit such research, and actively supports all legislative efforts to ensure the continued use of animals in research, while providing for their humane treatment.

10. **congenital defects:** defects present at birth.

### Comprehension

1. **Recall** What is the AMA's position on the use of animals in medical research?
2. **Recall** How important has **animal research** been to medical science?
3. **Clarify** How do the animal rights and animal welfare movements differ from each other?
4. **Summarize** According to the AMA, what consequences will result from banning or restricting the use of animals in medical experiments?

### Critical Analysis

5. **Recognize Monitoring Techniques** Identify the passage in the selection that you found most difficult to understand. Discuss how one or more strategies helped you monitor your comprehension of the passage.
6. **Interpret Statements** Reread lines 301–336. Does the AMA favor any changes in current practice to minimize the pain and suffering of research animals? Give reasons for your interpretation.
7. **Draw Conclusions** What values have influenced the AMA's position on animal research? Cite evidence to support your conclusion.
8. **Make Judgments** Does the AMA fairly represent the opposing viewpoints of the animal rights movement in this paper? Explain why or why not.
9. **Evaluate Support** Consider the **reasons** and **evidence** that the AMA gives to support the view that animal research is necessary for medical science. Does the AMA provide sufficient support for its claim? Explain your opinion.
10. **Evaluate Counterargument** Supporters of animal rights argue that it is morally wrong for humans to use animals in a way that causes them to suffer or die. Review the chart you created as you read. Does the AMA offer a satisfactory counterargument to this viewpoint? Cite evidence to support your opinion.
11. **Compare Texts** The AMA's position on animal research differs greatly from the views expressed by Jane Goodall in "I Acknowledge Mine." Compare and contrast the techniques that the AMA and Goodall use to persuade readers.