

9

LEARNING OUTCOMES

After studying this module you should be able to:

- L1** Answer the Question "What's the Point of Cause and Effect?"
- L2** Question, Read, and Annotate Passages Using Cause and Effect
- L3** Prewrite a Draft of a Thesis Statement Using Cause and Effect
- L4** Prewrite to Generate Relevant Details Using Cause and Effect
- L5** Compose a Draft Using Logical Order: Cause and Effect
- L6** Revise and Proofread for Effective Language with Cause and Effect

The Cause and Effect Pattern

Understanding the relationship between cause and effect is a vital critical thinking skill used in all aspects of life. Consider the following examples. In everyday life, we consider the sources of pollution and the benefits of recycling garbage in our environment. In college classes, we analyze the causes and effects of historical events and scientific phenomena. In working life, we acquire skills that will lead to better jobs. Thinking about cause and effect points out the relationship between events based on reasons and results. The focus may be only on the causes or only on the effects, or it may include both. As a reader, you identify the writer's focus, list the given causes or effects, and comprehend the central idea supported by the writer's explanation of causes or effects. As a writer, you must choose the causes or effects on which to focus. Often, there are too many causes or effects to explain in one essay. So the writer decides which are the key causes or effects, and then establishes and explains the flow between cause and effect. A master writer presents details in a logical order that explains why each cause leads to a specific effect. Both readers and writers test the truth of each cause.

WHAT'S THE POINT of Cause and Effect?

L1

Before you study this module, predict the purpose of using cause and effect. The following photographs document a set of causes and effects. Study the images and write captions that identify the appropriate causes and effects illustrated. Answer the following question: What are the causes and effects of human motivation and achievement? Then answer the question "What's the point of cause and effect?" with a one-sentence statement of the overall main idea. *Answers may vary.*

Photographic Organizer: What Are the Causes and Effects of Human Motivation and Achievement?



Scientist or doctor using a microscope

The scientist or doctor is researching to find the cause of or cure for a disease.



Astronauts work outside the International Space Station

Astronauts explore space to learn more about the capabilities of technology and the nature of the universe.



Detail from a painting in the U.S. Capitol depicting settlers arriving at the Pacific Ocean

Settlers leave their homes to explore new territory.

What are the causes and effects of human motivation and achievement?

Humans are driven to take action by the need for survival, the need to know, or the need to experience new adventures.

What's the point of cause and effect?

This pattern allows readers and writers to identify and state reasons for events and occurrences.

L2 Question, Read, and Annotate Passages Using Cause and Effect


 PREREAD:
SURVEY/
QUESTION


 READ:
QUESTION/
ANNOTATE

A **cause** states why something happens. An **effect** states a result or outcome. At times, a single cause leads to several effects. For example, “Stress leads to both short-term and long-term effects.” Other times, several causes contribute to a single effect. For example, “Several factors contribute to success on the job.” Still other times, a chain of causes and effects occurs in a series of events known as a *causal chain*. A **causal chain** is a sequence of events in which any one event in the chain causes the next one, leading up to a final effect. For example, “A series of events led to the current conflict in Syria.” Master readers question, read, and annotate a text for use of cause and effect signal words to identify the writer’s focus and central idea. To ensure that readers grasp their focus and point, master writers often use cause and effect transitions and signal words in order to state the central point and introduce supporting details.

A **cause** is something or someone that creates an effect, brings about a result, has a consequence, or is the reason for a condition.

An **effect** is a result, condition, or consequence brought about by something or someone.

A **causal chain** is a linked sequence of events in which one event leads to the next event and continues up to a final outcome.

Transitions That Signal Cause and Effect

accordingly	consequently	hence	on account of	so
as a result	due to	if . . . then	results in	therefore
because of	for that reason	leads to	since	thus

Verbs That Signal Cause and Effect (sample list)

affect	constitute	create	force	initiate	restrain
benefit	construct	damage	harm	institute	stop
cause	contribute	determine	induce	preclude	
compose	control	facilitate	influence	prevent	

Nouns That Signal Cause and Effect (sample list)

actor	consequence	end	impact	product
agent	creation	event	influence	result
author	creator	factor	issue	source
benefit	damage	grounds	outcome	
condition	effect	harm	outgrowth	



For Module 9, assume you are taking a college course in sociology, and your class is beginning a study on the theme of human motivation and achievement. Each reading in this module follows this theme. After completing all assigned readings, you will write an essay in response to the following guiding question: "What are the causes and effects of human motivation and achievement?"

Example

Assume the following passage is your first assigned reading on the theme "human motivation and achievement." Your professor has provided before and during reading questions and guided annotations to prepare you to read about and respond to the theme. Before reading, survey the questions and skim the passage for possible answers. Next, read the passage and the annotations. As you read, add your own annotations by completing the prompts in **bold** print in the annotations. After reading, use your own words to answer the questions. Record your answers in your reading/writing journal. Finally, complete the concept maps with information from the passage.

Before and During Reading Questions:

Logical Order: Does this passage mostly focus on causes, effects, or causes and effects?

Central Idea: What is the writer's central point?

Relevant Details: How does extrinsic motivation affect human achievement?

How does intrinsic motivation influence human achievement?

How do needs and drives influence human achievement?

How does drive-reduction theory influence human achievement?

What roles do primary drives, secondary drives, and homeostasis play in drive-reduction theory?

How do the need for affiliation, the need for power, and the need for achievement influence human achievement?

Effective Language: What is the difference in meaning of *affect* and *effect* based on the writer's use of these words?

UNDERSTANDING MOTIVATION

¹The study of motivation explores reasons behind our actions. ²Motivation is the process by which activities are started, directed, and continued so that physical or psychological needs or wants are met (Petri, 1996). ³The word itself comes from the Latin word *mouere*, which means "to move." ⁴Motivation is what affects or "moves" people to do the things they do. ⁵For example, when a person is relaxing in front of the television and begins to feel hungry, the physical need for food might cause the person to get up, go into the kitchen, and search for something to eat. ⁶The physical need of hunger affected the action (getting up), directed it (going to the kitchen), and sustained the search (finding or preparing something to eat). ⁷Hunger is only one example, of

Central Idea: The central idea is the point the writer makes about the topic of the passage. The topic is *motivation*. **Underline the writer's point about the topic.**

Logical Order: The verb *cause* signals that the writer is using cause and effects. **Circle three more transitional phrases or signal words that indicate cause and effect.**

CONTINUED

EXAMPLE CONTINUED

Relevant Details: This detail answers the first prereading question about relevant details: "How does extrinsic motivation affect human achievement?"

Underline details that answer the remaining prereading questions about relevant details.

course.⁸Loneliness may lead to calling a friend or going to a place where there are people.⁹The desire to get ahead in life motivates many people to go to college.¹⁰Just getting out of bed in the morning is motivated by the need to keep a roof over one's head and food on the table by going to work.

¹¹There are different types of motivation.¹²Sometimes people are driven to do something because of an external reward of some sort (or the avoidance of an unpleasant consequence, as when someone goes to work at a job to make money and avoid losing possessions such as a house or a car).¹³In **extrinsic motivation**, a person performs an action because it leads to an effect or outcome that is separate from the person (Ryan & Deci, 2000).¹⁴Other examples would be giving a child money for every A received on a report card, offering a bonus to an employee for increased performance, or tipping a server in a restaurant for good service.¹⁵The child, employee, and server are motivated to work for the external or extrinsic rewards.¹⁶In contrast, **intrinsic motivation** is the type of motivation in which a person performs an action because the act itself is fun, rewarding, challenging, or satisfying in some internal manner.¹⁷Both outcome and level of effort can vary depending on the type of motivation.¹⁸Psychologist Teresa Amabile (Amabile et al. 1976) found that children's creativity was affected by the kind of motivation for which they worked.¹⁹Extrinsic motivation decreased the degree of creativity shown in an experimental group's artwork when compared to the creativity levels of the children in an intrinsically motivated control group.

APPROACHES BASED ON NEEDS AND DRIVES

²⁰The next approach to understanding motivation focuses on the concepts of needs and drives.²¹A **need** is a requirement of some material (such as food or water) that is essential for survival of the organism.²²When an organism has a need, it leads to a psychological tension as well as a physical arousal that motivates the organism to act in order to fulfill the need and reduce the tension.²³This tension is called a **drive** (Hull, 1943).

²⁴**Drive-Reduction Theory** proposes just this connection between internal physiological states and outward behavior; in this theory, there are two kinds of drives.

²⁵**Primary drives** are those that involve survival needs of the body such as hunger and thirst, whereas **acquired (secondary) drives** are those that are learned through experience or conditioning, such as the need for money or social approval, or the need of recent former smokers to have something to put in their mouths.

²⁶This theory also includes the concept of **homeostasis**, or the tendency of the body to maintain a steady state.²⁷One could think of homeostasis as the body's version of a thermostat—thermostats keep the temperature of a house at a constant level, and homeostasis does the same thing for the body's functions.²⁸When there is a primary drive need, the body is in a state of imbalance.²⁹This stimulates behavior that brings the body back into balance, or homeostasis.³⁰For example, if Jarrod's body needs food, he feels hunger and the state of tension/arousal associated with that need.³¹He

will then seek to restore his homeostasis by eating something, which is the behavior stimulated to reduce the hunger drive.

³²Although drive-reduction theory works well to explain the actions people take to reduce tension created by needs, it does not explain all human motivation.

³³Why do people eat when they are not really hungry? ³⁴People don't always seek to reduce their inner arousal either—sometimes they seek to increase it. ³⁵Bungee-jumping, parachuting as a recreation, rock climbing, and watching horror movies are all activities that increase the inner state of tension and arousal, and many people love doing these activities. ³⁶Why would people do such things if they don't reduce some need or restore homeostasis? ³⁷The answer is complex. ³⁸There are different types of needs, different **effects** of arousal, different incentives, and different levels of importance attached to many forms of behavior. ³⁹The following theories explore some of these factors in motivation.

Effective Language:

The words *effect* and *affect* are often confused. Though they both signal a cause/effect relationship, they express different meanings. **Double underline the writer's use of *affect* and *effect*. Predict the difference in the meanings of *effect* and *affect*.**

DIFFERENT STROKES FOR DIFFERENT FOLKS: PSYCHOLOGICAL NEEDS • WHAT ARE THE CHARACTERISTICS OF THE THREE TYPES OF NEEDS?

⁴⁰Obviously, motivation is about needs. ⁴¹Drive-reduction theory talks about needs, and other theories of motivation include the concept of needs. ⁴²In many of these theories, most needs are the effect or result of some inner physical drive (such as hunger or thirst) that demands to be satisfied, but other theories examine our psychological needs.

McClelland's Theory: Affiliation, Power, and Achievement Needs ⁴³Harvard University psychologist David C. McClelland (1961, 1987) proposed a theory of motivation that highlights the importance of three psychological needs not typically considered by the other theories: affiliation, power, and achievement.

⁴⁴According to McClelland, human beings have a psychological need for friendly social interactions and relationships with others. ⁴⁵Called the need for affiliation (abbreviated as nAff in McClelland's writings), people high in this need seek to be liked by others and to be held in high regard by those around them. ⁴⁶This makes high affiliation people good team players, whereas a person high in achievement just might run over a few team members on the way to the top.

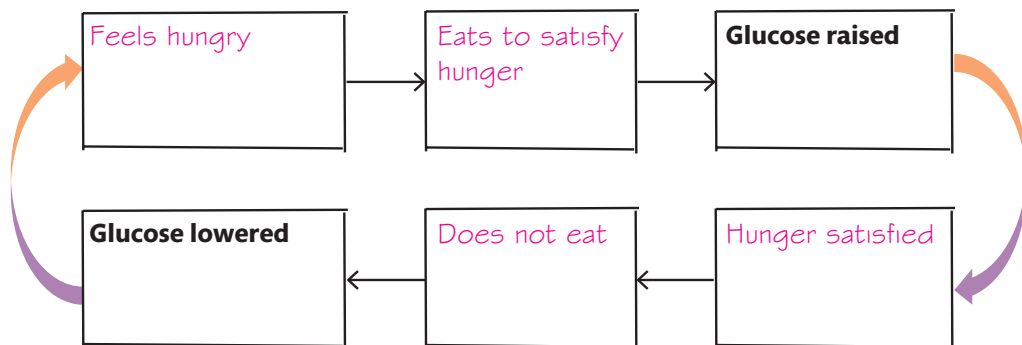
⁴⁷A second psychological need proposed by McClelland is the need for power (nPow). ⁴⁸Power is not about reaching a goal but about having control over other people. ⁴⁹People high in this need would want to have influence over others and make an impact on them. ⁵⁰They want their ideas to be the ones that are used, regardless of whether or not their ideas will lead to success. ⁵¹Status and prestige are important, so these people wear expensive clothes, live in expensive houses, drive fancy cars, and dine in the best restaurants. ⁵²Whereas someone who is a high achiever may not need a lot of money to validate the achievement, someone who is high in the need for power typically sees the money (and cars, houses, jewelry, and other "toys") as the achievement.

EXAMPLE CONTINUED

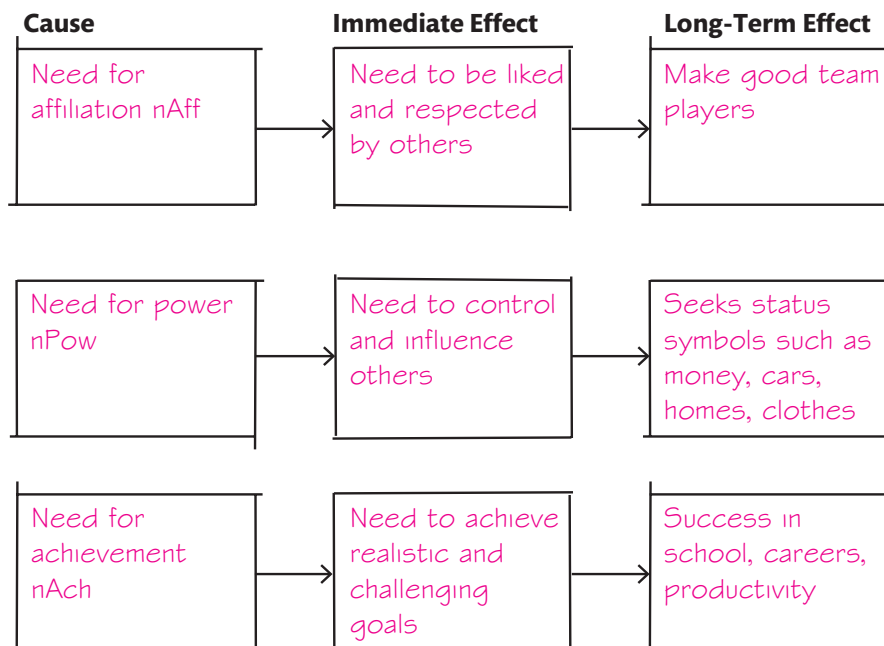
⁵³The need for achievement (nAch) involves a strong desire to succeed in attaining goals, not only realistic ones but also challenging ones. ⁵⁴People who are high in nAch look for careers and hobbies that allow others to evaluate them because these high achievers also need to have feedback about their performance in addition to the achievement of reaching the goal. ⁵⁵Although many of these people do become wealthy, famous, and publicly successful, others fulfill their need to achieve in ways that lead only to their own personal success, not material riches—they just want the challenge. ⁵⁶Achievement motivation appears to be strongly related to success in school, occupational success, and the quality and amount of what a person produces (Collins et al., 2004; Gillespie et al., 2002; Spangler, 1992).

—Adapted from Ciccarelli and White. *Psychology* 4th ed. Pearson, 2015, pp. 354–358.

The Causal Chain of Homeostasis



McClelland's Theory of Psychological Needs



Explanation

Compare your answers to the following think-aloud, completed by Alex, another student in your class.

	<p>This passage discusses both causes and effects. The writer identifies several reasons behind human motivation and also explains the effects of each reason or motivation for human behavior. The writer used cause and effect signal words such as cause, effect, reason, and motivation. In addition, the writer used verbs to indicate the cause and effect relationship, such as lead to and make. The writer's controlling point about motivation is "the study of" motivation "explores reasons behind our actions." I underlined the following details that answered the before and during reading questions:</p> <p>I underlined sentence 16, which explains intrinsic motivation and its influence on human achievement.</p> <p>To answer the question about needs and drives, I underlined the following key details in sentences 21–23:</p> <p>"A need is a requirement of some material (such as food or water) that is essential for survival; it leads to a psychological tension, physical arousal called a drive."</p> <p>I underlined sentences 24 and 25, which explain the drive-reduction theory as well as primary and secondary drives. Homeostasis is an example of the primary/secondary drives, so I underlined the following ideas in sentence 29: Homeostasis stimulates behavior that brings the body back into balance. To answer the question about the needs for affiliation, power, and achievement, I underlined the following sentences: 44–45, 47, 51, 53, and 56. I also used details from these sentences to fill in the concept map.</p> <p>The first time the writer uses affects, the word moves appeared as a synonym. Other times affect could be easily replaced with the word influence. The word effect was used with the synonym result. So affect is an action that influences and effect is a consequence.</p>
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Practice 1

Question, Read, and Annotate Passages Using Cause and Effect

Assume the following two passages are the next assigned readings on the theme “human motivation and achievement.” Your professor has provided a few questions to guide your thinking. Before reading each passage, survey the questions and skim the passage for possible answers. Then read the passage. As you read, annotate the details in the passage that answer the prereading questions. After reading, respond to the prompts that follow each passage.

Before and During Reading Questions:

Logical Order: Does this passage mostly focus on causes, effects, or causes and effects? Which transitions/signal words did the writer use?

Central Idea: What is the writer’s central point?

Relevant Details: What human needs or drives motivate space exploration? What are past achievements of space exploration? What are the current benefits of space exploration? What are the future benefits anticipated from space exploration?

Effective Language: The writer uses synonyms for cause and effect such as *create*, *inspire*, and *benefits*. What other synonyms does the writer use for cause and effect?

from *The Space Economy*

Michael D. Griffin

¹NASA opens new frontiers and creates new opportunities, and because of that is a critical driver of innovation. ²We don’t just create new jobs, we create entirely new markets and possibilities for economic growth that didn’t previously exist. ³This is the emerging Space Economy, an economy that is transforming our lives here on Earth in ways that are not yet fully understood or appreciated. ⁴It is not an economy in space. ⁵Not yet. ⁶But space activities create products and markets that provide benefits right here on Earth, benefits that have arisen from our efforts to explore, understand, and utilize this new medium.

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⁷We want better lives for our children. ⁸We want to be able to compete in the world. ⁹But economic growth and competitive success result primarily from the introduction of new products and services, or from finding more efficient ways to produce existing ones. ¹⁰Economic growth is driven by technological innovation. ¹¹Societies that foster it lead the pack, while others lag behind.

¹²But if technological innovation drives competitiveness and growth, what drives innovation? ¹³There are many factors, but the exploration and exploitation of the space frontier is one of them. ¹⁴The money we spend—half a cent of the Federal budget dollar—and the impact of what we do with it, doesn’t happen “out there.” ¹⁵It happens here, and

the result has been the Space Economy.¹⁶ So if America is to remain a leader in the face of burgeoning global competition, we must continue to innovate, and we must continue to innovate in space.

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¹⁷In celebration of its 25th birthday, *USA Today* recently offered a list of the "Top 25 Scientific Breakthroughs" which have occurred since its founding. ¹⁸Nine of them come from space, eight of them directly from NASA.

¹⁹We see the transformative effects of the Space Economy all around us through numerous technologies and life-saving capabilities.

²⁰We see the Space Economy in the lives saved when advanced breast cancer screening catches tumors in time for treatment, or when a heart defibrillator restores the proper rhythm of a patient's heart. ²¹We see it when GPS—the Global Positioning System—developed by the Air Force for military applications—helps guide a traveler to his or her destination.

²²We see it when weather satellites warn us of coming hurricanes, or when satellites provide information critical to understanding our environment and the effects of climate change. ²³We see it when we use an ATM or pay for gas at the pump with an immediate electronic response via satellite.

²⁴Technologies developed for exploring space are being used to increase crop yields and to search for good fishing regions at sea.

²⁵Sometimes a personal example carries more weight than the most comprehensive factual data. ²⁶So consider the case of Sarah Moody and her young nephew, Steve, who was born with a rare disorder. ²⁷He had no sweat glands to cool down during the summer, and his body would overheat dangerously. ²⁸After one too many close calls, Sarah thought to herself what many have thought before: if we can put a man on the Moon, why can't someone figure out a solution to Steve's problem? ²⁹So she called NASA, and was put through to what is now our Innovative Partnerships Program.

³⁰NASA scientists were able to adapt cooling technologies developed for the Apollo astronauts to create a cooling vest for Steve. ³¹It worked.

³²Sarah started a foundation that has delivered some 650 such vests to people suffering similar disorders. ³³Her foundation also turned to NASA for help with kids who had to live in dark rooms to avoid suffering tumors when exposed to ultraviolet light. ³⁴NASA's contractors helped create suits that blocked it, allowing these kids to go outside. ³⁵Sarah Moody died a few years ago, but her legacy lives on.

³⁶Gary Thompson, an athletic 50-year-old man with a family history of heart disease, was given a clean bill of health in a series of tests with several doctors a few years ago, then had a heart attack while running a marathon. ³⁷He survived, and subsequently heard of a new ultrasound imaging technology derived from algorithms used to process images of Mars at the NASA Jet Propulsion Laboratory. ³⁸He was diagnosed correctly with this new technology, something all the other tests had failed to do.

³⁹He was so impressed, he started a company, Medical Technologies International Inc., to make this new technology more widely available.

⁴⁰It is now in use across the country.

PRACTICE 1 CONTINUED

⁴¹These examples only begin to tell the story. ⁴²All of us can be proud that they exist, but equally we recognize that we wouldn't create a space program in order to get these collateral benefits. ⁴³But NASA is transformative. ⁴⁴We don't just help develop new technologies, we inspire whole new industries, revolutionize existing ones, and create new possibilities.

⁴⁵I often wonder if it might be possible to quantify the value to society of upgrading the standards of precision to which the entire industrial base of that society operates. ⁴⁶Any company bidding on space projects—anyone who wants to be a subcontractor or supplier, who even wants to supply nuts, bolts and screws to the space industry—must work to a higher level of precision than human beings have ever had to do before. ⁴⁷How do we value that asset? ⁴⁸I don't know, but I know that it is real.

⁴⁹In a related vein, another benefit of space to the economy is the way it inspires people to go into the technology sector. ⁵⁰People like Steve Jobs, Bill Gates, and Burt Rutan immediately come to mind, but it is more important to realize that a large number of technical professionals, in all fields, first got hooked on space and were then inspired to pursue technical careers. ⁵¹This is truly one of the best “spinoffs” we have, and the space exploration enterprise should receive due credit for it. ⁵²At a time when we are concerned about declining enrollments in engineering, science, and mathematics, this should be no small factor in our thinking.

⁵³Most of you know how the demands of spaceflight sparked the revolution in integrated circuitry. ⁵⁴But we didn't only get integrated circuits from the effort to master spaceflight, we got all of the other technologies that made them possible. ⁵⁵These capabilities now permeate our entire industrial base, and the use of integrated circuits is so ubiquitous, in devices whose very existence would have been almost unimaginable only a few years ago, that we no longer even notice it. ⁵⁶Cellphones are given away as a competitive inducement to select one wireless provider or rate plan over another. ⁵⁷Devices that can store gigabytes of information, a capability once beyond price, are given away as keychain fobs in promotional advertising. ⁵⁸Built into your checkbook can be a calculator that Newton or Gauss would have given years of their careers to have. ⁵⁹For a few hundred dollars, you can buy a device that will allow you to navigate to any address in the country over any road on the map. ⁶⁰And who even notices?

⁶¹Today, NASA is again among those at the forefront of microprocessor development, as evidenced by the recent demonstration of a Quantum Computer Chip—a device that operates at the limits of our understanding of the physical universe and makes use of the strange and elusive properties of quantum mechanics. ⁶²Quantum computing won't be just one more incremental improvement on present-day computing—it will revolutionize it. ⁶³It's the kind of breakthrough you get when you set the bar impossibly high, simply because the rigors of space exploration demand it.

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⁶⁴Fifty years into the Space Age, the greatest obstacle to the exploration and utilization of our solar system is the very high cost of space transportation. ⁶⁵No government effort has yet made a successful attack on this problem. ⁶⁶But when we do have it, we will find that commercially viable, low-cost space transportation will be as transformative to the economy as the transition from steam to diesel power, or the achievement of powered flight. ⁶⁷It will open up possibilities that now appear impractical, if not outlandish.

⁶⁸This takes us to the Vision for Space Exploration, laid out by the President in 2004 and enacted in the NASA Authorization Act of 2005. ⁶⁹In the wake of the Columbia tragedy, it calls for NASA to extend human and robotic presence to the Moon, Mars and beyond. ⁷⁰As the President's Science Advisor, Dr. Jack Marburger, stated in his March, 2006 speech at the Goddard Symposium, "As I see it, questions about the Vision boil down to whether we want to incorporate the Solar System into our economic sphere, or not." ⁷¹Precisely so. ⁷²Every aspect of human knowledge will be tested and advanced: physics, chemistry, biology and their practical applications in engineering, medicine, materials science, computer science, robotics, artificial intelligence, power, and many other fields—and we haven't even mentioned rocket science. ⁷³This is a legacy the crew of Columbia would be proud to know we had carried forward.

⁷⁴Reaching for the unknown, making our lives bigger and our horizons broader, achieving things never before possible, are the heart and soul of what we do at NASA. ⁷⁵By pushing beyond the frontier, by setting for ourselves seemingly impossible challenges, we are transforming our lives for the better here on Earth even as we explore new worlds in space. ⁷⁶If, as Shakespeare said, life is but a stage, then NASA takes the play to the grandest possible stage. ⁷⁷And in doing so, we create the Space Economy. ⁷⁸At NASA, we are making the future happen—now.



—Griffin, Michael D. "The Space Economy." 17 Sept. 2007. NASA.

After Reading Response: Respond to the following prompts in your reading/writing journal:

- Write a summary of the passage (see Module 1, page 34).
- Create a cause and effect concept map that answers the following prompt:
Discuss how one or more achievements of NASA's space program illustrate needs and drives (such as the need for affiliation, power, or achievement) as discussed in the passage "Understanding Motivation" on page 347. *Answers may vary.*

CONTINUED

PRACTICE 1 CONTINUED

Before and During Reading Questions:**Logical Order:** Does this passage mostly focus on causes, effects, or causes and effects?**Central Idea:** What is the writer's central point?**Relevant Details:** What human achievement does the writer seek? What needs or drives motivate the writer to take action?**Effective Language:** Why does the writer use so few cause and effect signal words such as *effect*, *affect*, *result*, or *therefore*? How does she establish cause and effect?**from *Around the World in 72 Days*****Nellie Bly, New York City, 1890**¹What gave me the idea?²It is sometimes difficult to tell exactly what gives birth to an idea. ³Ideas are the chief stock in trade of newspaper writers and generally they are the scarcest stock in market, but they do come occasionally,⁴This idea came to me one Sunday. ⁵I had spent a greater part of the day and half the night vainly trying to fasten on some idea for a newspaper article. ⁶It was my custom to think up ideas on Sunday and lay them before my editor for his approval or disapproval on Monday. ⁷But ideas did not come that day and three o'clock in the morning found me weary and with an aching head tossing about in my bed. ⁸At last tired and provoked at my slowness in finding a subject, something for the week's work, I thought fretfully:⁹"I wish I was at the other end of the earth!"¹⁰"And why not?" the thought came: "I need a vacation; why not take a trip around the world?"¹¹It is easy to see how one thought followed another. ¹²The idea of a trip around the world pleased me and I added: "If I could do it as quickly as Phileas Fogg did, I should go."¹³Then I wondered if it were possible to do the trip in eighty days and afterwards I went easily off to sleep with the determination to know before I saw my bed again if Phileas Fogg's record could be broken.¹⁴I went to a steamship company's office that day and made a selection of time tables. ¹⁵Anxiously I sat down and went over them and if I had found the elixir of life I should not have felt better than I did when I conceived a hope that a tour of the world might be made in even less than eighty days.¹⁶I approached my editor rather timidly on the subject. ¹⁷I was afraid that he would think the idea too wild and visionary.¹⁸"Have you any ideas?" he asked, as I sat down by his desk.¹⁹"One," I answered quietly.²⁰He sat toying with his pens, waiting for me to continue, so I blurted out:²¹"I want to go around the world!"²²"Well?" he said, inquiringly looking up with a faint smile in his kind eyes.

²³“I want to go around in eighty days or less. ²⁴I think I can beat Phileas Fogg’s record. ²⁵May I try it?”

²⁶To my dismay he told me that in the office they had thought of this same idea before and the intention was to send a man. ²⁷However he offered me the consolation that he would favor my going, and then we went to talk with the business manager about it.

²⁸“It is impossible for you to do it,” was the terrible verdict. ²⁹“In the first place you are a woman and would need a protector, and even if it were possible for you to travel alone you would need to carry so much baggage that it would detain you in making rapid changes. ³⁰Besides you speak nothing but English, so there is no use talking about it; no one but a man can do this.”

³¹“Very well,” I said angrily, “Start the man, and I’ll start the same day for some other newspaper and beat him.”

³²“I believe you would,” he said slowly. ³³I would not say that this had any influence on their decision, but I do know that before we parted I was made happy by the promise that if any one was commissioned to make the trip, I should be that one.

³⁴After I had made my arrangements to go, other important projects for gathering news came up, and this rather visionary idea was put aside for a while.

³⁵One cold, wet evening, a year after this discussion, I received a little note asking me to come to the office at once. ³⁶A summons, late in the afternoon, was such an unusual thing to me that I was to be excused if I spent all my time on the way to the office wondering what I was to be scolded for.

³⁷I went in and sat down beside the editor waiting for him to speak. ³⁸He looked up from the paper on which he was writing and asked quietly: “Can you start around the world day after tomorrow?”

³⁹“I can start this minute,” I answered, quickly trying to stop the rapid beating of my heart.

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⁴⁰I always have a comfortable feeling that nothing is impossible if one applies a certain amount of energy in the right direction. ⁴¹When I want things done, which is always at the last moment, and I am met with such an answer: “It’s too late. I hardly think it can be done;” I simply say:

⁴²“Nonsense! ⁴³If you want to do it, you can do it. ⁴⁴The question is, do you want to do it?”

⁴⁵I have never met the man or woman yet who was not aroused by that answer into doing their very best.

⁴⁶If we want good work from others or wish to accomplish anything ourselves, it will never do to harbor a doubt as to the result of an enterprise.

—From *Around the World in 72 Days* by Nellie Bly, New York City, 1890.

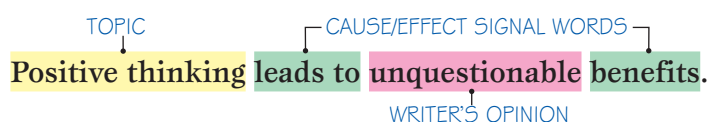
After Reading Response: Respond to the following prompts in your reading/writing journal:

- Write a summary of the passage (see Module 1, page 34).
- Create a cause and effect concept map that answers the following prompt: What motivations drive both Bly’s actions and NASA’s exploration of space? (See “Understanding Motivation,” page 347 and “The Space Economy,” page 352.) *Answers may vary*

L3 Prewrite a Draft of a Thesis Statement Using Cause and Effect



To write a cause and effect passage, limit your topic to the reasons and/or results of an action, event, condition, decision, or belief. Most likely you have an opinion or belief about this narrowed topic. Your opinion is your point or main idea. However, you also reveal your opinion by the value or importance you assign to each cause or effect you discuss. A thesis sentence states your central point. For example, the following thesis statement contains (1) a topic, (2) the writer's opinion about the topic, and (3) cause/effect signal words.



Example

Your instructor has asked you to use the readings on pages 347 and 352 to write an essay that addresses the guiding question "What are the causes and effects of human motivation and achievement?" First, you need to generate a thesis statement. Use the following steps to brainstorm your thesis statement. *Answers may vary.*

Topic: Human Motivation and Achievement

1. Narrow Topic: _____

2. Identify Cause and Effect Order Signal Words: _____

3. Identify Opinion: _____

4. Combine into a Draft of Thesis Statement: _____

Explanation

Compare your answers to Alex's think-aloud.

	The passages about human motivation and achievement
	made me think about what motivates me. The passage by
	Nellie Bly and her decision-making process inspired me
	to think about what motivates my decisions and actions.
	So I narrowed my topic to focus on a self-analysis that
	answers the question "What causes me to do things in
	my life?" I used the steps in the example to brainstorm
	my thesis statement. My narrow topic is "me." So I plan
	to use the first person pronoun I as the subject. I chose
	to use the terms internal motivations and external
	motivations from the first reading, "Understanding
	Motivation." In addition, I chose to include the cause
	and effect signal word result to state the link between
	motivation and action. I also chose to use the opinion
	word seem since one of my purposes for writing this
	essay is to discover something new about myself. My
	thesis statement is "My actions seem to be a combined
	result of internal and external motivations."

Practice 2

Prewrite a Draft of a Thesis Statement Using Cause and Effect

In your reading/writing journal, identify the steps you used to write a thesis statement using cause and effect. How did your thesis statement differ from Alex's? Did he use any methods you didn't? *Answers may vary.*

L4 Prewrite to Generate Relevant Details Using Cause and Effect



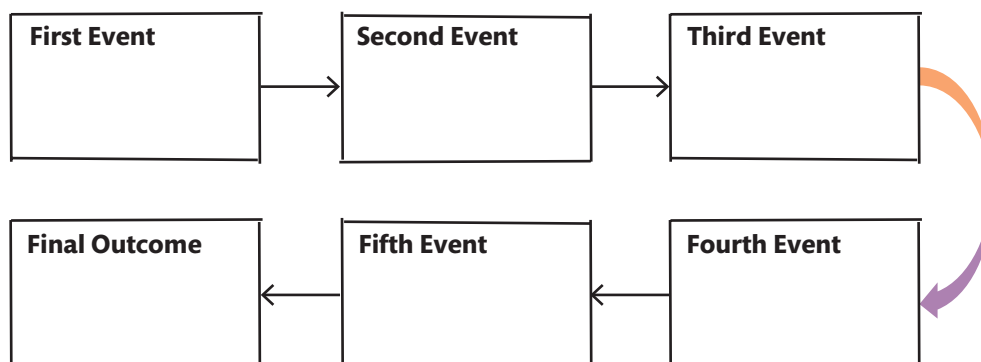
To identify and generate details based on cause and effect, readers and writers may ask the reporter's questions *why* and *what*. Why has this occurred? What are the causes? What are the effects? These questions may also focus on one or more of the following traits of causes and effects: major or minor, long term or short term, obvious or subtle. What are the major causes? What are the major effects? What are the minor causes or effects? What are the long-term causes or effects? What are the short-term or immediate causes or effects? What are the obvious or clear causes or effects? What are the subtle, unseen, or indirect causes or effects? Answers to these questions enable readers to identify and writers to generate details to explain the causes or effects of an action, event, condition, decision, or belief. Usually, cause and effect transitions and signal words introduce these details. Since causes and effects are often listed or occur in time, transitions such as *first*, *next*, and *ultimately* are also used to identify or introduce a cause or effect. Many readers and writers use a cause and effect flow chart or concept map to identify and generate details.

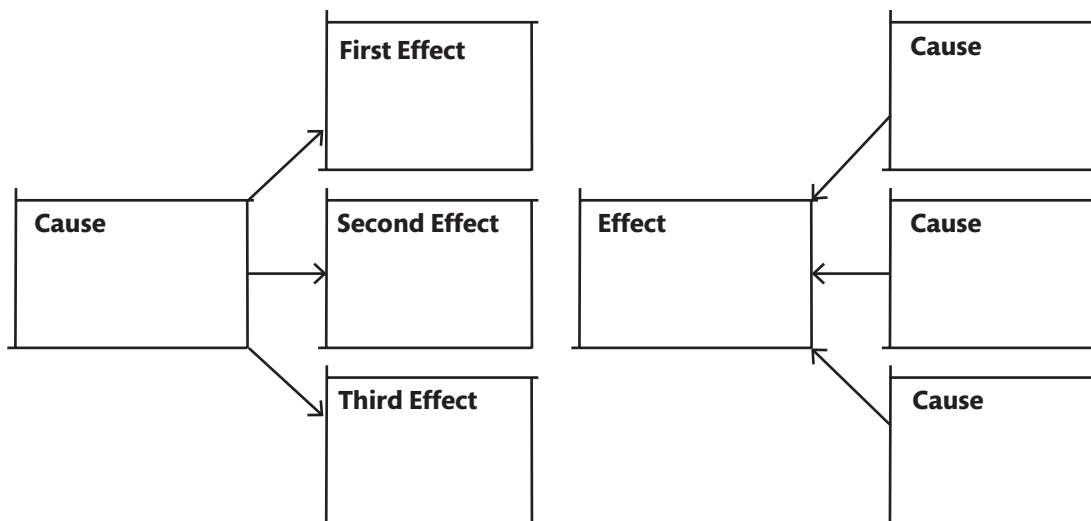


Example

Assume your class is continuing to work on the essay addressing the guiding question "What are the causes and effects of human motivation and achievement?" Now your assignment is to return to the texts to identify details that you will use in your paper and create a concept map to organize your ideas for the essay. The following graphic organizers offer you a few options for generating cause and effect details. Choose one that best suits your topic. Then, create your concept map in your journal. Finally, share and discuss your completed map with a peer or small group of classmates. *Answers may vary.*

A Causal Chain





Explanation

Compare your responses to Alex's think-aloud.

I chose to generate details using the causal chain of events to show how intrinsic and extrinsic motivations combine to affect decisions and outcomes. To make this causal chain of decisions clear, I also decided to contrast my motivations and decisions with my brother's motivations and decisions. I used the following map as a general guide.

My brother's goal: Take right classes > study, pass MCAT > go to med. school > become doctor.

My brother's possible motivations: Make money > live doctor's lifestyle; or fulfill father's dream or prove others wrong.

My goal: Live life fully: In the past, Road trips > world travel > odd jobs > no money. My possible motivations: Easily bored, rebellion against my father and the "ordinary life." Recently: Desire to settle down > to have money to have opportunities > returned to school > entered conservative corporate job force.

Practice 3

Prewrite to Generate Relevant Details Using Cause and Effect

In your reading/writing journal, identify the steps needed to create relevant details to support a thesis statement. Identify the steps Alex went through as he annotated the texts and generated details. How did your steps differ? *Answers may vary.*

L5 Compose a Draft Using Logical Order: Cause and Effect



Once you have brainstormed details to compose a passage using cause and effect, you are ready to begin the drafting process. First, review the concept map you completed with the details from the readings, along with your own insights or response. As you review your concept map, move details into the most logical order. Add details, if needed. Also, provide appropriate signal words and transitions to guide your reader through the cause and effect process. Many writers create several drafts to achieve a logical order and smooth flow of ideas.



Example

Assume you are still working toward writing an essay for a college course in psychology. Your essay answers the guiding question “What are the causes and effects of human motivation and achievement?” On your own paper, write a draft of your essay. *Answers may vary.*

Explanation

Compare your answer to Alex’s think-aloud and essay.

I decided that to fully answer the question, I needed to examine intrinsic and extrinsic motivations of my own. My essay illustrates the complex relationship between those motivations, but I decided not to use those terms to support my point. Instead, I modeled my essay on Nellie Bly’s, choosing to tell my own story and let my decisions illustrate the concepts of inner drives and the external results. Drafting a thesis statement before writing a draft kept me focused on my central point, but I chose to imply my central point rather than include the thesis statement directly.

Alex Obed
Professor Staller
Psychology 101
May 20, 2015

Let Your Life Speak

What causes some people to get up every day and go to a job, while other people choose to become entrepreneurs? Some people go to medical school and become doctors, while others steal and end up in jail? Sometimes, the motivation or “cause” appears planned; other times it appears unplanned.

Let's take my family, for example. My brother and I lived almost opposite lives growing up. From an early age, he knew that what he wanted most in life was to become a doctor. Alternatively, I had no idea what I wanted to do with my life! His path was laid out before him: take all the right classes, do well on the MCAT exam, go to medical school, complete a residency program and—voila—become a doctor! You could say that it was all planned out. He *knew* his goal, and he took the necessary steps to achieve it.

What *caused* him to want to be a doctor, though? What caused him to study practically non-stop for the past twenty years? Where did his *drive* come from?

I remember our dad telling us at an early age that if he could do it all over again he would become a doctor. He grew up poor, though, so he never was able to go to college. Is it possible that my brother was seeking to fulfill the unfulfilled dream of our father by becoming a doctor? Did my dad's words plant the seed in my brother's mind to want to become a doctor?

Maybe. But perhaps there were other extrinsic motivations at play: to become someone important in the world; to make a lot of money and have the lifestyle of a doctor (he owns a black 911 Porsche convertible). Maybe he also wanted to prove the "haters"—which included some of his teachers—wrong. Since he didn't make very good grades growing up, and learning didn't come easily to him, he may have had something to prove. In the end, I'm not sure that even my brother knows exactly why he chose to become a doctor, but a doctor he became.

I, on the other hand, didn't have to work very hard in school. I would pull "all-nighters" or do cram sessions to prepare for an exam or paper—and somehow I still seemed to always end up with great grades. Unlike my brother, I didn't have a clear sense of what I wanted to do with my life. I studied Engineering for a semester in college, but I quit that idea once I took chemistry and calculus. I thought I might want to become a school teacher, but I didn't end up doing that, either. I had a lot of *ideas* of what I might want to do, but the truth is that I got bored of them very quickly!

Although I didn't know what I wanted to *be*, I always knew that one day I would go back to school and get my Master's degree in Psychology. Every year or so I would look at the graduate programs across the country and occasionally ask a school to send me an application. However, the timing never seemed quite right. One year I tossed the application in the trash and found something else to do—ROAD TRIP!

EXPLANATION CONTINUED

I traveled around the entire United States with a good friend for six months. We took his Honda CRV and camped at parks and worked odd jobs all along the way for gas and food money. We worked at Ben & Jerry's "Scoop Shop" in Burlington, Vermont; we volunteered at a yoga center in Massachusetts for three weeks in exchange for room and board; we hiked "The Badlands" in South Dakota in the beginning of winter, sleeping in the car during freezing temperatures, wearing every piece of clothing we had just to stay warm to save money on a motel; we worked at Peet's Coffee Shop in Marin, California and hung out with his uncle who owned a recording studio; and we made friends with complete strangers throughout our trip, many of whom invited us into their homes, fed us and let us do a load of laundry. We traveled in part because we wanted to see and hike every beautiful place in this country, but also because we really didn't know what else to do with our lives. An ordinary life seemed, well . . . boring. Intrinsically, we wanted adventure! As my friend and filmmaker, Eric Saperston, who produced *The Journey* film said, "Sometimes you take a trip, and sometimes the trip takes you." For us, it was definitely a lot of both.

After our epic road trip, I traveled to Israel where I studied religion and Jewish mysticism. It wasn't my plan; it just kind of *happened*. I then moved to New York City and lived without a car, sleeping in my friend's converted closet with a bunk-bed in it (again to save money); worked as a carpenter's apprentice in beautiful Connecticut; and taught environmental education to middle school students. However, after years of constant traveling, moving from place to place to place and leaving good friends behind, I was finally ready to settle down a bit. It was time to pursue my dream of going back to school to study Psychology. I really didn't know what I was going to do with the degree, but that didn't stop me.

After finishing my program, I decided to become a Life Coach. I hadn't even heard of Life Coaches before entering the program. I started a semi-successful business as a Life Coach, while I taught Hebrew on the side to pay the bills.

Here's my point: my brother and I took radically different paths in life. He was motivated to become a doctor. He stuck to a path—and he never wavered. I floated around in life, letting the wind—and my passions—blow me from place to place. I was motivated primarily by a desire *not* to get stuck doing something that I would hate for the rest of my life—which it

seemed like everyone else was doing. I grew up watching my dad work seven days a week, serving breakfast, lunch and dinner for years in our family restaurant business. As Thoreau challenged, why spend the best years of your life preparing for your worst? I didn't want to come to the end of my life regretting that I hadn't really lived life on my terms.

Just as my brother was partially motivated by my dad's desire to become a doctor, I realized that I was partially motivated by watching my dad work. At the time, I couldn't understand why he would choose to work so much. And it hurt because it felt like he was choosing work over spending time with me. I vowed that I would never be like him. I would never trade freedom for money, and I eschewed the idea of owning my own business because I didn't want to be owned by it. So as you can probably see, our childhood experiences—my own and that of my brother's—greatly affected both of our lives, but in completely different trajectories. Same family. Same parents. Very different outcomes. Why? To sum up, I would say it's because life and human beings are complex!

If I told you what I'm doing now (and I will), many of you would laugh. I work a corporate job, sitting behind a computer from 9am-6pm. In the evening and on weekends I'm working on my own financial advising business. I can hear you saying it—*kinda boring, right?*

How *on Earth* did I get here? I've wondered that *a lot* recently.

At some point I realized that it takes more energy to resist life than it does to say, "YES" (remember, "Yes, Man!"). I thought I was so much better than everyone who lived "ordinary" lives. I had all the freedom you could imagine, but every winter when my brother invited me to go snowboarding in Colorado, I had to say no because I couldn't afford it. I got tired of continually having to say no to opportunities because I couldn't afford them. Now, I'm working my butt off because I want to create the kind of future where I can have the time *and* the freedom to do exactly what I want in the near future. I now have a plan. I guess I'm becoming more like my brother and my father. Indeed, life seems to have a sense of humor—which apparently is not so evident until we get one ourselves. I was always worried I would become a "sell-out," like everyone else. Now, I realize that I've actually *sold-in*, as I follow my own dreams and goals.

As one of my favorite authors and educators, Parker Palmer, says in *Let Your Life Speak*, "Before you tell your life what you intend to do with it, listen for what it intends to do with you." Quite imperfectly, that's how I have tried to live my life—and it has made all the difference.

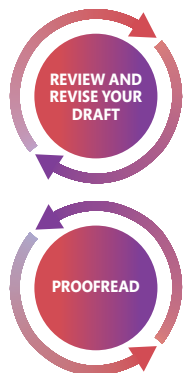
Practice 4

Compose a Draft Using Logical Order: Cause and Effect

In your reading/writing journal, identify the steps you took to write your draft. Identify the steps Alex took as he wrote his draft. How are your drafts different? How are they similar?

What can you apply from Alex's method to your own writing in the future? *Answers may vary.*

L6 Revise and Proofread for Effective Language with Cause and Effect



Effective expression reflects a writer's thoughtful choice of words to make the biggest impact on the reader. Some words, such as *affect* and *effect*, seem closely related because they are similar in their sounds and spellings. These similarities often cause confusion and lead to the misuse of the words. However, their meanings are clearly distinct, so thoughtful writers use the correct word for effective expression.

Affect is a **verb** that means **to influence** or **to cause**.

Example

Video games **affect** learning by improving concentration and visual skills.

Effect is a **noun** that means **result**.

Example

Video games have a positive **effect** on learning by improving concentration and visual skills.

Effect is a **verb** that means **to bring about** or **cause**.

Example

The new law will **effect** a change in the sentencing of sex offenders.

Master writers also avoid relying too much on the words *cause* or *effect* to avoid sounding repetitive. As you have seen in the essays, writers often use vivid synonyms for *cause* and *effect*, such as *create*, *inspire*, *benefits*, or *outcomes* to engage their readers.

Example

Assume the role of peer editor for Alex's essay, "Let Your Life Speak." Identify two sentences that would benefit from revising for proper use of *affect* and *effect* or with the use of vivid synonyms for *cause* and *effect*. Suggest possible revisions. *Answers may vary.*

1. **Original sentence:** _____

Revised sentence: _____

2. Original sentence: _____

Revised sentence: _____

Explanation

Compare your answers to the following think-aloud.

	Alex did not use the word effect in his essay. Instead, he
	listed or described the effects of his decisions. He did use
	the word cause often, and a variety of synonyms for cause .
	The one he used most often was motivated . So I chose
	one sentence to revise motivated to affected . I also would
	revise one of his uses of caused to affected in the third
	paragraph. Here are my suggestions: 1. What <u>affected</u> him to
	study practically nonstop for the past twenty years? 2. our
	childhood experiences in our family—that of my own and my
	brother— <u>affected</u> both of our lives”

Practice 5

Revise and Proofread for Effective Language with Cause and Effect

Work with the rough draft of the passage you composed in response to the question “What are the causes and effects of human motivation and achievement?” Choose two sentences and revise each one to create effective expression through the thoughtful and proper use of *affect* and *effect*. Use the following space to record your original and revised sentences. *Answers may vary.*

1. Original sentence: _____

Revised sentence: _____

2. Original sentence: _____

Revised sentence: _____



Workshop: Comprehend and Create a Cause and Effect Essay

Assume you are continuing your study of human motivation and achievement. The following passages make up a capstone reading assignment. Your capstone writing assignment is to write an essay in response to the same guiding question “What are the causes and effects of human motivation and achievement?” Skim through the prereading questions and then read the following passages. You may be asked to make connections among these passages and the ones you have already read in this module. To complete this assignment, read the following passages and complete the writing activities that follow.

Remarks by President Obama on the BRAIN Initiative and American Innovation

¹Today I’ve invited some of the smartest people in the country, some of the most imaginative and effective researchers in the country—some very smart people to talk about the challenge that I issued in my State of the Union address: to grow our economy, to create new jobs, to reignite a rising, thriving middle class by investing in one of our core strengths, and that’s American innovation.

²Ideas are what power our economy. It’s what sets us apart. It’s what America has been all about. We have been a nation of dreamers and risk-takers; people who see what nobody else sees sooner than anybody else sees it. We do innovation better than anybody else—and that makes our economy stronger. When we invest in the best ideas before anybody else does, our businesses and our workers can make the best products and deliver the best services before anybody else.

³And because of that incredible dynamism, we don’t just attract the best scientists or the best entrepreneurs—we also continually invest in their success. We support labs and universities to help them learn and explore. And we fund grants to help them turn a dream into a reality. And we have a patent system to protect their inventions. And we offer loans to help them turn those inventions into successful businesses.

⁴And the investments don’t always pay off. But when they do, they change our lives in ways that we could never have imagined. Computer chips and GPS technology, the Internet—all these things grew out of government investments

1090L/8.7 GE/969 words

THE WHITE HOUSE IS ANNOUNCING
OVER \$300 MILLION IN PUBLIC AND PRIVATE INVESTMENTS
IN SUPPORT OF THE BRAIN INITIATIVE

the WHITE HOUSE
**BRAIN
INITIATIVE**
BRAIN RESEARCH THROUGH ADVANCING
INNOVATIVE NEUROTECHNOLOGIES

Since President Obama announced the **BRAIN Initiative** in April 2013, dozens of leading technology firms, academic institutions, scientists and other key contributors to the field of neuroscience have answered his call and made significant commitments to advancing the Initiative.

**FEDERAL
COMMITMENTS**

NIH
NATIONAL INSTITUTES OF HEALTH
NIH is announcing \$46 million in new BRAIN-related grant awards, focusing on new tools and techniques

DARPA
DEFENSE ADVANCED
RESEARCH PROJECTS AGENCY
DARPA is building on four existing programs and is planning new investments in the BRAIN Initiative, with the ultimate goal of relieving and rehabilitating warfighters and civilians suffering from traumatic injury and neuro-psychiatric illness

FDA
FOOD AND DRUG ADMINISTRATION
FDA is joining the BRAIN Initiative, with the goal to enhance the transparency of the regulatory landscape for neurological medical devices

IARPA
INTELLIGENCE ADVANCED
RESEARCH PROJECTS ACTIVITY
IARPA is joining the BRAIN Initiative and will use multidisciplinary approaches to advance understanding of cognition and computation in the brain

NSF
NATIONAL SCIENCE FOUNDATION
NSF is continuing to make investments to support BRAIN Initiative by accelerating fundamental research and the development of new technologies for neuroscience and neuroengineering

Building off of \$100 million in commitments announced last year at NIH, NSF and DARPA, the BRAIN Initiative is growing to five participating federal agencies with the addition of FDA and IARPA.

in basic research. And sometimes, in fact, some of the best products and services spin off completely from unintended research that nobody expected to have certain applications. Businesses then used that technology to create countless new jobs.

⁵So the founders of Google got their early support from the National Science Foundation. The Apollo project that put a man on the moon also gave us eventually CAT scans. And every dollar we spent to map the human genome has returned \$140 to our economy—\$1 of investment, \$140 in return. Dr. Collins helped lead that genome effort, and that's why we thought it was appropriate to have him here to announce the next great American project, and that's what we're calling the BRAIN Initiative.

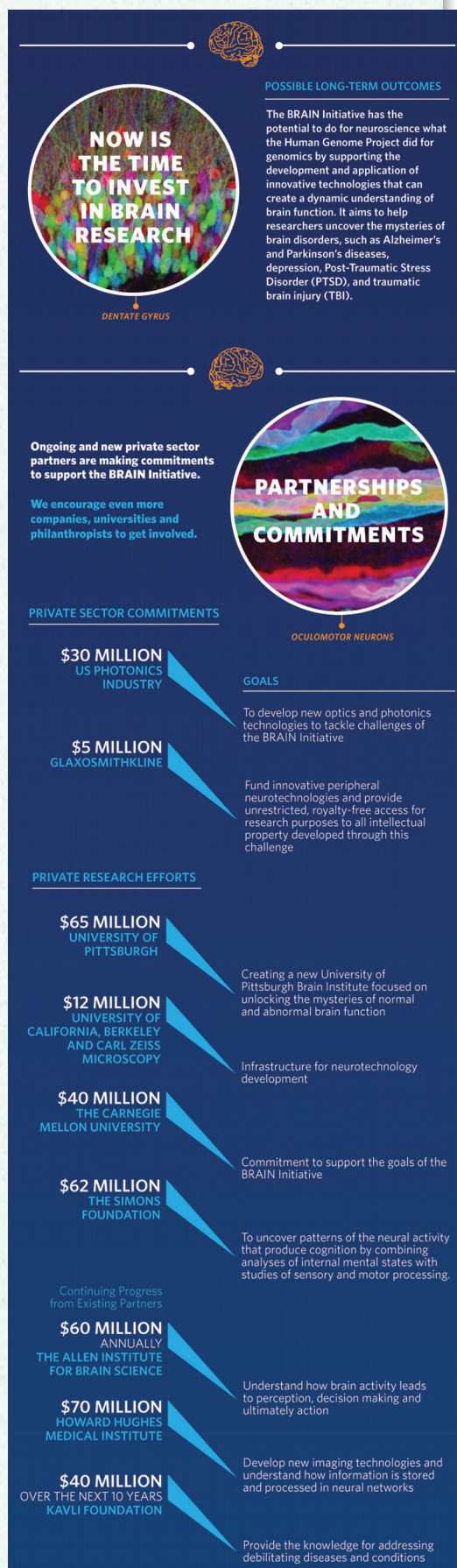
⁶As humans, we can identify galaxies light years away, we can study particles smaller than an atom. But we still haven't unlocked the mystery of the three pounds of matter that sits between our ears. (Laughter.) But today, scientists possess the capability to study individual neurons and figure out the main functions of certain areas of the brain. But a human brain contains almost 100 billion neurons making trillions of connections. So Dr. Collins says it's like listening to the strings section and trying to figure out what the whole orchestra sounds like. So as a result, we're still unable to cure diseases like Alzheimer's or autism, or fully reverse the effects of a stroke. And the most powerful computer in the world isn't nearly as intuitive as the one we're born with.

⁷So there is this enormous mystery waiting to be unlocked, and the BRAIN Initiative will change that by giving scientists the tools they need to get a dynamic picture of the brain in action and better understand how we think and how we learn and how we remember. And that knowledge could be—will be—transformative.

...

⁸We have a chance to improve the lives of not just millions, but billions of people on this planet through the research that's done in this BRAIN Initiative alone. But it's going to require a serious effort, a sustained effort. And it's going to require us as a country to embody and embrace that spirit of discovery that is what made America, America.

⁹The year before I was born, an American company came out with one of the earliest mini-computers. It was a revolutionary machine, didn't require its own air conditioning system. That was a big deal. It took only one person to operate, but each computer was eight feet tall, weighed 1,200



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WORKSHOP CONTINUED

pounds, and cost more than \$100,000. And today, most of the people in this room, including the person whose cell phone just rang—(laughter)—have a far more powerful computer in their pocket. Computers have become so small, so universal, so ubiquitous, most of us can't imagine life without them—certainly, my kids can't.

¹⁰And, as a consequence, millions of Americans work in fields that didn't exist before their parents were born. Watson, the computer that won "Jeopardy," is now being used in hospitals across the country to diagnose diseases like cancer. That's how much progress has been made in my lifetime and in many of yours. That's how fast we can move when we make the investments.

¹¹But we can't predict what that next big thing will be. We don't know what life will be like 20 years from now, or 50 years, or 100 years down the road. What we do know is if we keep investing in the most prominent, promising solutions to our toughest problems, then things will get better.

¹²I don't want our children or grandchildren to look back on this day and wish we had done more to keep America at the cutting edge. I want them to look back and be proud that we took some risks, that we seized this opportunity. That's what the American story is about. That's who we are. That's why this BRAIN Initiative is so important. And if we keep taking bold steps like the one we're talking about to learn about the brain, then I'm confident America will continue to lead the world in the next frontiers of human understanding. And all of you are going to help us get there.

MAINTAINING OUR HIGHEST ETHICAL STANDARDS

In May 2014, at the President's request, the Presidential Commission for the Study of Bioethical Issues released the first of two reports exploring core ethical standards to guide the BRAIN Initiative and other recent advances in neuroscience.

DENTATE GYRUS - HILUS

The Human Genome Project demonstrates the potential impact that ambitious research programs like the BRAIN initiative can have. From 1988-2003, the Federal Government invested \$3.8 billion in the Human Genome Project, which has since generated an economic output of \$796 billion—a return of \$141 for every \$1 invested.

LEARN MORE AT WHITEHOUSE.GOV/BRAIN

All images from: cbs.fas.harvard.edu/science/connectome-project/brainbow

—<http://www.whitehouse.gov/the-press-office/2013/04/02/remarks-president-brain-initiative-and-american-innovation>

780L/6.3 GE/648 words

Explosion of the Space Shuttle *Challenger* Address to the Nation, January 28, 1986

President Ronald Reagan

¹Ladies and gentlemen, I'd planned to speak to you tonight to report on the state of the Union, but the events of earlier today have led me to change those plans. Today is a day for mourning and remembering.

²Nancy and I are pained to the core by the tragedy of the shuttle *Challenger*. We know we share this pain with all of the people of our country. This is truly a national loss.

³Nineteen years ago, almost to the day, we lost three astronauts in a terrible accident on the ground. But we've never lost an astronaut in flight; we've never had a tragedy like this. And perhaps we've forgotten the courage it took for the crew of the shuttle; but they, the *Challenger* Seven, were aware of the dangers, but overcame them and did their jobs brilliantly. We mourn seven heroes: Michael Smith, Dick Scobee, Judith Resnik, Ronald McNair, Ellison Onizuka,

Gregory Jarvis, and Christa McAuliffe. We mourn their loss as a nation together.

⁴For the families of the seven, we cannot bear, as you do, the full impact of this tragedy. But we feel the loss, and we're thinking about you so very much. Your loved ones were daring and brave, and they had that special grace, that special spirit that says, "Give me a challenge and I'll meet it with joy." They had a hunger to explore the universe and discover its truths. They wished to serve, and they did. They served all of us.

⁵We've grown used to wonders in this century. It's hard to dazzle us. But for 25 years the United States space program has been doing just that. We've grown used to the idea of space, and perhaps we forget that we've only just begun. We're still pioneers. They, the members of the Challenger crew, were pioneers.

⁶And I want to say something to the schoolchildren of America who were watching the live coverage of the shuttle's takeoff. I know it is hard to understand, but sometimes painful things like this happen. It's all part of the process of exploration and discovery. It's all part of taking a chance and expanding man's horizons. The future doesn't belong to the fainthearted; it belongs to the brave. The Challenger crew was pulling us into the future, and we'll continue to follow them.

⁷I've always had great faith in and respect for our space program, and what happened today does nothing to diminish it. We don't hide our space program. We don't keep secrets and cover things up. We do it all up front and in public. That's the way freedom is, and we wouldn't change it for a minute.

⁸We'll continue our quest in space. There will be more shuttle flights and more shuttle crews and, yes, more volunteers, more civilians, more teachers in space. Nothing ends here; our hopes and our journeys continue.

⁹I want to add that I wish I could talk to every man and woman who works for NASA or who worked on this mission and tell them: "Your dedication and professionalism have moved and impressed us for decades. And we know of your anguish. We share it."

¹⁰There's a coincidence today. On this day 390 years ago, the great explorer Sir Francis Drake died aboard ship off the coast of Panama. In his lifetime the great frontiers were the oceans, and an historian later said, "He lived by the sea, died on it, and was buried in it." Well, today we can say of the Challenger crew: Their dedication was, like Drake's, complete.

¹¹The crew of the space shuttle Challenger honored us by the manner in which they lived their lives. We will never forget them, nor the last time we saw them, this morning, as they prepared for their journey and waved goodbye and "slipped the surly bonds of earth" to "touch the face of God."



<<http://history.nasa.gov/reagan12886.html>>

NEW AMERICA

1260L/10.5 GE/609 words

by Robert D. Ballard

¹America has had two great ages of exploration. The one that every schoolchild learns about began in 1804, when Thomas Jefferson sent Meriwether Lewis and William Clark on their epic journey across North America. The other one is just beginning. During this new age of exploration we will go farther than Lewis and Clark and learn the secrets of territories beyond even Jefferson's wildest imagination. Yet it seems safe to say that most Americans don't know anything about it.

²Few realize that the single largest addition to the American domain came on March 10, 1983, when President Ronald Reagan, with the stroke of a pen, expanded the country's sovereign rights 200 nautical miles from its shores "for the purpose of exploring, exploiting, conserving, and

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WORKSHOP CONTINUED

managing natural resources.” By establishing an exclusive economic zone (EEZ), Reagan roughly doubled the area within United States boundaries, as Jefferson had with the Louisiana Purchase.

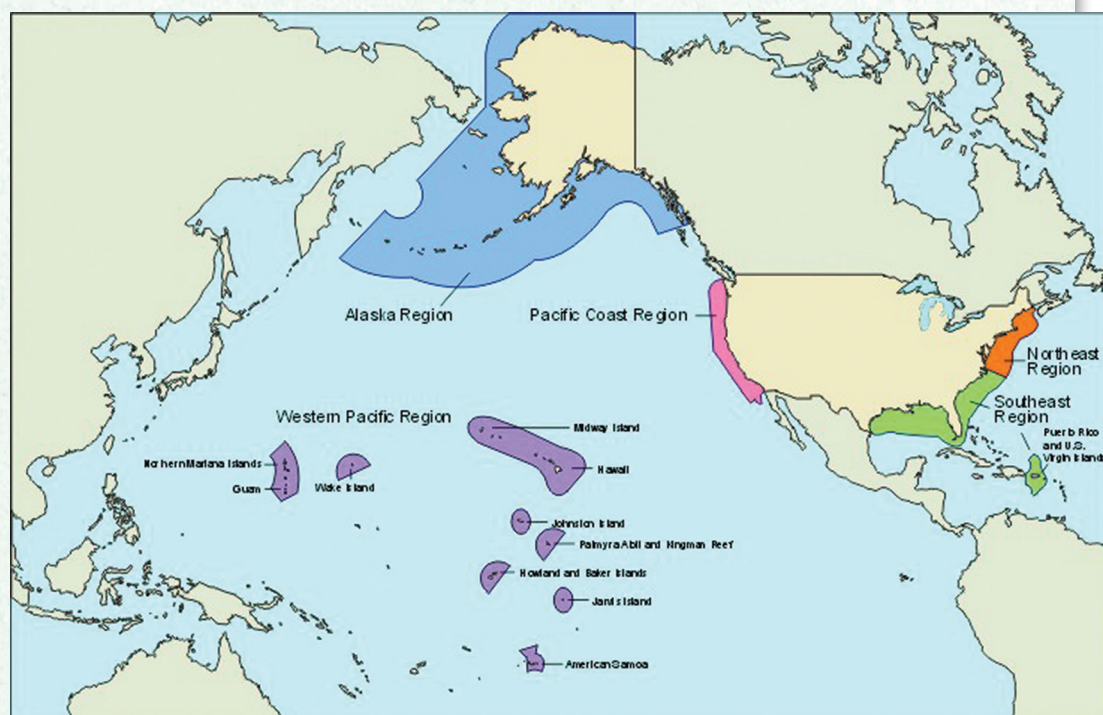
³Other countries have increased their jurisdiction over natural resources through EEZs and are eager to add more. Under the 1982 UN Convention on the Law of the Sea, which the United States has not joined, countries can claim sovereign rights over a larger region if they can prove that the continental shelf—the submerged portion of a continent—extends beyond their EEZ and meets certain other conditions. The United States potentially has one of the largest continental shelves in the world.

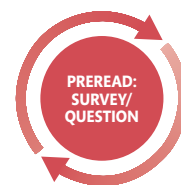
⁴A lot is at stake. Just like the land that Lewis and Clark explored, the ocean floor contains natural resources, many of them untapped. Vast oil and gas deposits lie under the waves. So do hydrothermal vents, where copper, lead, silver, zinc, and gold have been accumulating for hundreds of millions of years. By some estimates there are more than 100,000 seamounts containing minerals critical for national defense. That’s not all that lies beneath. These watery zones encompass fisheries that nations rely on for sustenance, shipwrecks that may reveal lost chapters of history, and habitats that need to be preserved as marine sanctuaries.

⁵Most of the U.S. EEZ hasn’t been explored. In 1803, with the territory from the Louisiana Purchase newly in hand, Jefferson instructed expedition leader Lewis to “take observations on . . . the soil & face of the country, its growth & vegetable productions . . . the mineral productions of every kind . . . volcanic appearances [and] climate as characterized by the thermometer.”

⁶Reagan did not follow Jefferson’s example. To this day we have better maps of Venus, Mars, and the far side of the moon than we do of much of underwater America. But now it’s time for a new epic journey. Last June the United States’ only dedicated ships of exploration launched a joint, concentrated effort to find out what lies within the country’s EEZ. The National Oceanic and Atmospheric Administration’s *Okeanos Explorer* mapped some of the New England Seamount chain near Rhode Island, among other places, while my vessel—the Ocean Exploration Trust’s *Nautilus*—mapped portions of the Gulf of Mexico and the Caribbean. Both ships use multibeam sonars mounted on their hulls, which enable the creation of maps in three dimensions.

⁷Lewis and Clark traveled for more than two years and had to wait until their return home to share their discoveries with an expectant nation. Although the ocean depths plumbed by these modern expeditions are more remote than the land Lewis and Clark charted, we are in constant communication with oceanographers and other experts on shore. The moment a discovery is made, scientists can step aboard either of the two ships virtually, take over operations, and share findings in real time with a plugged-in world. This is a voyage of discovery everyone can make.





Preread: Survey and Question

According to President Obama, how have government initiatives affected the economy?

How do the details in the article “The Space Economy” (page 352) support Obama’s assertion about the impact of scientific exploration?

Why does President Obama support the BRAIN Initiative? What are the proposed benefits?

How does the BRAIN Initiative illustrate a primary drive as described in “Understanding Motivation” (page 347)?

How is Nellie Bly’s motivation to go around the world in 72 days similar to or different from an astronaut’s desire to explore space?

In his address to the nation about the explosion of the *Challenger*, President Reagan speaks of the “hunger to explore.” How does McClelland’s theory of needs (page 347) explain this hunger?

How is this “hunger to explore” illustrated by the BRAIN Initiative?

What is the exclusive economic zone (EEZ), and why did Reagan establish this zone?

How is the “hunger to explore” illustrated by Ballard’s desire to map the ocean floor in the EEZ?

What are possible benefits of exploring the EEZ?



Read and Annotate

As you read, annotate key ideas, particularly those details that answer your prereading questions.



Recite, Review, and Brainstorm

Recite and **Review** the information. Paraphrase ideas. Summarize the most important parts. **Brainstorm** ideas for your written response to the passage. Answer your prereading questions. *Freewrite* or *map* the relationship among answers to questions or ideas you have annotated in the text. *Outline* or *list* key ideas and details in blocks of thought. Identify the central point you want to make. Use your own paper.



Write a Draft of Your Response

Using the ideas you generated by brainstorming, compose a draft of your response. Use your own paper.



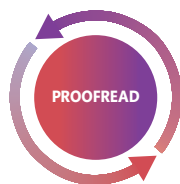
Revise Your Draft

Once you have created a draft of a cause and effect essay, read the draft to answer the questions in the “Questions for Revising a Cause and Effect Essay” box that follows. Indicate your answers by annotating your paper. If you answer “yes” to a question, underline, check, or circle examples. If you answer “no” to a question, write needed information in the margins and draw lines to indicate the placement of additional details. Revise your essay based on your reflection. (*Hint*: Experienced writers create several drafts as they focus on one or two questions per draft.)

Step by Step: Questions for Revising a Cause and Effect Essay



- ☐ Have I stated or implied a focused main idea?
- ☐ Have I stated or implied the specific points of cause and effect?
- ☐ Is the order of specific points clear? Have I used strong transitions of cause and effect?
- ☐ Have I used concrete details to make my point?
- ☐ Have I made my point with adequate details?
- ☐ Have I included only the details that are relevant to my thesis statement?
- ☐ Have I correctly used *affect* and *effect*?



Proofread Your Draft

Once you have made any revisions to your essay that may be needed, proofread your essay to eliminate careless errors.

Reading and Writing for Everyday Life

Assume you write a blog that has a following of several hundred people from all walks of life. Read the following passage and write an entry to motivate your readers to set realistic goals.

THE POWER OF SETTING GOALS

Why Set Goals? If you can learn the best way to set goals, you can map out your personal and professional success. Research shows that people who effectively set goals concentrate better, show more self-confidence, feel more motivated, and focus on tasks better. To turn your dreams into reality, goals will help you by giving you an action plan with specific deadlines.

What Are Goals? Goals are what we aim for, the things we want to achieve in our lives. Goals motivate us and help navigate our journey to success. You may have already chosen your educational goal and can use goal setting to help you achieve it. If you haven't yet chosen your educational program, you can use goal setting to help you determine your career path. Developing goals will help you to decide where you want to go and actually get you there. The key factor on your journey to success is to set SMART goals: **S**pecific, **M**easurable, **A**chievable, **R**ealistic, **T**ime frame. Let's look at each of these characteristics in a little more depth.

SPECIFIC. Your goal must be to the point, as if you are aiming at the bulls-eye of a target, as opposed to just getting your dart to stick. For example, let's say your goal is to "to lose weight." This is too vague. How much weight? If you say "I want to lose 10 pounds this month," you now have a specific goal to reach for. You will know for sure if you achieved the goal or not by the end of the month. The more specific your goal, the easier it is to measure.

MEASURABLE. When you can measure something it becomes concrete. Being able to do this with your goal aids in bringing it to life, making it more real rather than keeping it an abstract concept in your mind. Measuring means you are taking responsibility for its *progress* by asking the question "How?" How will your goal come to life? How will you choose the steps to take and what will they be? How will you chart its progress and how often? Finding ways to measure your goal every step along the way will certainly keep you on track toward its success.

ACHIEVABLE. You must be able to see yourself achieving this goal, and therefore it must be within your reach. This does not mean you should set easy goals. In fact, every goal you set should be a challenge to a certain degree. If your goal is simply living up to your current standard, then you are limiting your own growth. For example, in sports it is easier to play against weak competition and look really good. However, to improve,

CONTINUED

you should play against people who are actually better than you. Many coaches say, “You’re only as good as your competition.” Become your own competition by choosing a goal that will challenge you.

REALISTIC. On the other hand, if you create goals that are unrealistic and simply out of your reach, you may be setting yourself up for disappointment. You must be able to *believe* you can achieve it and have the resources available to help you. Remember, each time you accomplish a new goal, you are setting the bar a little higher and therefore expanding on what is achievable and realistic for you. You have to determine where that bar will be placed. If you *do* try to jump too high and end up on the ground, simply get back up and readjust!

TIME FRAME. Many of us need deadlines in order to accomplish a task. Goals are no different. When a time frame is deliberately chosen for your goal, it becomes set in motion. Ask yourself when, realistically, you want to complete your goal. Which of the following categories does it fall under?

- Short-range goal: tomorrow, next week, next month
- Medium-range goal: 1 to 6 months or so
- Long-term goal: 1 year or more

Although the time frame of *completion* is key, you will also want to set checkpoints along the way, as a form of *measuring* your progress. For instance, if you have a medium-range goal of being able to run a half-marathon in 6 months, you must certainly check in with your progress at least every month to make sure you are on track. Creating a schedule of mini-deadlines within your ultimate time frame can combat procrastination by keeping you motivated along the way.

Consider the Following When Setting Goals. Always use *positive language* when stating a goal. For example, stating, “I will plan healthy menus each week,” is much better than “I will not eat junk food anymore.” It is better to say what you *will* do than to focus on what you will *avoid* doing. Along with being positive, affirm your goal by stating it firmly: “I *will* exercise three times a week” rather than hedging by saying “I will *try* to exercise.”

Be sure the goals you set are *self-chosen*. Do you think you will better commit to a goal someone else sets for you or one you create that is in line with your own *values*? Several well-meaning people in your life may have your best interests at heart and attempt to set goals for you. Although you should consider their thoughts, your ultimate goals must be chosen by you. This gives you ownership and responsibility for your goals.

Often we forget to use our past successes as motivation to continue our personal progress. When coming up with new goals it may be helpful to take a minute and reflect upon what you have already accomplished. Remember and visualize that feeling of success and use it as inspiration

—Adapted from Colbert, *Navigating Your Future Success*, 2nd ed., Pearson, 2015. pp. 29–31.

Reading and Writing for College Life

Assume your academic counselor has suggested that you consider applying to a study abroad program. To be accepted and gain funding for the program, you must write an essay that explains why you want to study abroad. Read the following passage. Then draft an essay that explains what you hope to get from studying abroad.

WHY STUDY ABROAD

The number of study abroad programs, particularly in currently under-served areas of the world including most of Africa, most of Asia, and most of Latin America is expanding and offers exciting opportunities for undergraduate and graduate students to study abroad. Moreover, significant funding opportunities exist through the Fulbright-Hays Group Projects Abroad programs and other Title VI grants to fund support for students to study abroad. The importance of study abroad experience for our students, our colleges and universities, and our nation can be summarized with four widely recognized benefits:

- Study abroad programs provide young citizens with cognitive and affective competencies necessary for them to thrive in a global economy, while concurrently providing the nation with a citizenry that is economically competitive and politically savvy; necessary skills for the maintenance of national interests, security, and the ability to effectively respond to political instability, including threats of terrorism.
- International experience and competency contributes to a comprehensive liberal arts education. There is a substantive research literature that demonstrates that some of the core values and skills of a liberal arts education are enhanced by participation in study abroad programs. These values and skills include:
 - Critical thinking skills;
 - Ability to communicate in more than one language;
 - Ability to communicate across cultural and national boundaries;
 - Ability to make informed judgments on major personal and social issues based on the analysis of various perspectives.
- Study abroad programs can provide specialized training not available at home institutions such as:
 - Advanced level foreign language competency courses;
 - Specialized courses in disciplines such as archeology, art, international business, development studies, education, engineering, nursing/allied health, performance, and world music.
- Study abroad experiences promote personal growth, development and maturity among participating students.

Reading and Writing for Working Life

Assume you are the manager of a sales team at a local car dealer, and you have noticed that several team members engage in negative self-talk that is affecting morale and sales. You are facilitating a workshop to identify the negative effects of self-talk and ways to reduce its impact. Read the passage and create a multimedia presentation about the causes and effects of self-talk.

THE EFFECT OF SELF-TALK

So, how can you control your thoughts so as to reduce your stress? The first step is to discover the ways in which your “self-talk” contributes to your stress. Self-talk is verbalizing, either out loud or to ourselves, inner messages. We can use self-talk to improve the way we think about other potentially stressful events. Consider how these different ways of thinking about the same event, shown in the table, can increase or reduce stress.

Situation	Self-Talk Increasing Stress	Self-Talk Decreasing Stress
Romantic	I'll never find someone like him or her again.	I enjoyed my time with him or her and I know there's someone else out there.
Failing a test	I'm so stupid. I won't pass.	I can take other actions to bring up my class grade. I can study differently next time.
Getting a speeding ticket	Everyone was speeding. Why me?	I was going over the speed limit. I intend to concentrate more on my driving.

Helpful self-talk is rational. Three unhelpful kinds of statements are “shoulds,” “awfuls,” and “overgeneralizations.” “Shoulds” have to do with the expectations we have for ourselves, for others close to us, and for the world in general. “Should” statements also contain words like “ought,” “must,” and “have.” Some of the shoulds are unreasonable, and create expectations that are impossible to meet. Another kind of negative self-talk includes “awful” statements. When people talk about how horrible their circumstances are, or the fact that it is simply unbearable, it is pretty easy to start thinking that nothing can change. Continuing self-talk that makes change seem unlikely probably results in situations that do not change. The final means of negative self-talk, “overgeneralizations” contains words like “always,” “never,” “everyone,” and “no one.” Overgeneralizations happen when people think one event is indicative of their entire life. You failed a test, so you're a complete failure. Someone didn't listen to you in this one instance, and that person never listens to you, and so on. Negative self-talk is a poor means of controlling your thoughts in a situation. It leads to stress, and the need for more self-talk. Recognize that you have control over your responses.

Review Test

MySkillsLab™
Complete this Exercise
on myskillslab.com

Cause and Effect

Score (number correct) _____ x 10 = _____ %

Read the following passage, and then answer the questions.

1170L/11.5 GE/251 words

What Risks are Involved in Tattooing?



¹Despite the obvious popularity of body art, several complications can result from tattooing. ²Tattooing can cause infections. ³Unsterile tattooing equipment and needles can transmit infectious diseases, such as hepatitis; thus the American Association of Blood

Banks requires a one-year wait between getting a tattoo and donating blood. ⁴Even if the needles are sterilized or never have been used, the equipment that holds the needles may not be sterilized reliably due to its design. ⁵In addition, a tattoo must be cared for properly during the first week or so after the **pigments** are injected.

⁶Tattooing involves removal problems. ⁷Despite advances in laser technology, removing a tattoo is a painstaking process, usually involving several treatments and considerable expense. ⁸Complete removal without scarring may be impossible.

⁹Although allergic reactions to tattoo pigments are rare, when they happen they may be particularly troublesome because the pigments can be hard to remove. ¹⁰Occasionally, people may develop an allergic reaction to tattoos they have had for years.

¹¹Tattoos may also result in granulomas and keloids. ¹²Granulomas are nodules that may form around material that the body perceives as foreign, such as particles of tattoo pigment. ¹³If you are prone to developing keloids—scars that grow beyond normal boundaries—you are at risk of keloid formation from a tattoo. ¹⁴Keloids may form any time you injure or traumatize your skin. ¹⁵According to experts, tattooing or micropigmentation is a form of trauma, and keloids occur more frequently as a consequence of tattoo removal.

Vocabulary

1. The best meaning of the word **pigments** as used in sentence 5 is
- a. infections.
 - b. protections.
 - ☒ c. dyes.
 - d. skin.

Inference

2. Based on information in the passage, we may infer that
- a. most tattoo artists do not properly sterilize their instruments.
 - b. the government certifies tattoo artists.
 - ☒ c. clients should question tattoo artists about their procedures.

Central Idea

3. The sentence that best states the central idea of the passage is
- ☒ a. sentence 1.
 - b. sentence 2.
 - c. sentence 5.
 - d. sentence 12.

Transitions

4. The relationship between sentences 11 and 12 is one of
- ☒ a. definition.
 - b. cause and effect.
 - c. time order.
 - d. addition.

Transitions

5. The relationship of the ideas within sentence 3 is
- a. definition.
 - ☒ b. cause and effect.
 - c. time order.
 - d. comparison and contrast.

Thought Patterns

6. What is the overall thought pattern of the passage?
- a. comparison and contrast
 - ☒ b. cause and effect
 - c. time order
 - d. definition

Supporting Details

7. Sentence 6 is a
- a. main idea.
 - b. major supporting detail.
 - c. minor supporting detail.

Purpose/Tone

8. The author's main purpose in the passage is
- a. to inform with objective details.
 - b. to entertain with graphic details.
 - c. to persuade with pessimistic details.

9–10. Complete the outline below with information from the passage.

Central idea: Several complications can result from tattooing.

- I. Tattooing can cause infections.
- II. Tattooing involves removal problems.
- III. Tattooing may cause allergic reactions.
- IV. Tattooing may result in granulomas and keloids.

Summary Response

Restate the author's central idea in your own words. Begin your summary response with the following: *The central idea of "What Risks Are Involved in Tattooing?" is . . .*

What Do You Think?

The passage above details some of the causes and effects of health risks associated with tattooing. In your experience, what are some of the social causes and effects of body modification, such as tattooing and piercing? Do you have tattoos or piercings, and if so, why did you get them? If not, why did you choose not to?

Academic Learning Log: Module Review

Summary of Key Concepts of Cause and Effect

Assess your comprehension of the cause and effect pattern.

L1 L2 L3 L4

- To read or write a cause and effect essay, you analyze the reasons for the results of an action, event, condition, decision, or belief.
- The focus of the essay may only be on the causes, only on the effects or may include both.
- A cause states why something occurs.
- An effect states the result or outcome.
- A causal chain is a sequence of events in which any one event in the chain causes the next one, leading up to a final effect.
- Signal words for cause and effect may be transitions, verbs, or nouns.
- Transitions for cause and effect include accordingly, as a result, consequently, if...then, and therefore.
- Verbs that signal cause and effect include affect, benefit, lead to, contribute, and influence.
- To identify and generate details based on cause and effect, readers and writers may primarily ask the reporter's questions why and what.

L5

- Affect* is a verb that means to influence or to cause. *Effect* is a noun that means result. *Effect* may also be a verb that means to bring about or cause.

Test Your Comprehension of the Cause and Effect Pattern

Respond in your own words to the following questions and prompts. *Answers may vary.*

L1 L2

In your own words, answer the following questions. Give examples from readings or your observations as supporting details.

1. What is the difference between cause and effect?

A cause is the reason something happens or why someone does something. For example, hard work often leads to success. Eating nourishing foods and getting regular exercise results in better health.

2. What is a causal chain?

A causal chain is a series of events that leads up to a final result. The first event results in the second event, which causes the third event, and so on until the final outcome occurs. For example, a sleep disorder, such as apnea, keeps a person from getting enough sleep over a long period of time, which leads to extreme fatigue, which causes the person to fall asleep at the wheel while driving, which causes a vehicular accident.

L1 L2 L3 L4 L5 L6

1. **How will I use what I have learned?** In your notebook, discuss how you will apply to your own reading/writing strategy what you have learned about the cause and effect pattern. When will you apply this knowledge to your reading/writing strategy?
2. **What do I still need to study about the cause and effect pattern?** In your notebook, discuss your ongoing study needs. Describe what, when, and how you will continue studying and using the cause and effect pattern.

MySkillsLab™

Complete the Post-test for Module 9 in MySkillsLab.