



Second Edition

**The Community
College Experience
PLUS**

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Pulaski Technical College

Prentice Hall
Upper Saddle River, New Jersey
Columbus, Ohio

Library of Congress Cataloging-in-Publication Data

Baldwin, Amy.

The community college experience plus / Amy Baldwin.—2nd ed.

p. cm.

Includes bibliographical references and index.

ISBN-13: 978-0-13-502275-7 (pbk.)

ISBN-10: 0-13-502275-4 (pbk.)

1. College student orientation—United States. 2. Community colleges—United States.
3. College students—Conduct of life. I. Title.

LB2343.32.B24 2010

378.1'543—dc22

2008045160

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Publishing Services, LLC

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Courier/Kendallville. The cover was printed by Phoenix Color Corp./Hagerstown.

Photo credits: Candace Rowley/Merrill, pp. 2, 26, 48, 72, 98, 120, 144, 166, 186, 212, 236,
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Pearson Education Upper Saddle River,
New Jersey

Prentice Hall
is an imprint of



www.pearsonhighered.com

10 9 8 7 6 5 4 3 2 1
ISBN-13: 978-0-13-502275-7
ISBN-10: 0-13-502275-4



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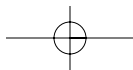
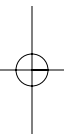
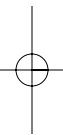
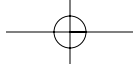
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Preface

Nothing is more rewarding than teaching in a community college, especially working with students who are new to college and maybe even the first in their family to earn a college degree. At times, though, the work can be challenging because there is so much we feel they need to know to be successful. We mean well, but it is often hard to teach them everything that we think is important. Enter *The Community College Experience PLUS*. The idea behind the book was to address that very dilemma. I found that my students needed to know much more than “traditional four-year university students” (What is “traditional” anyway?). There were so many things that even I didn’t know they didn’t know! This book was written to provide that basic information to these students as well as a realistic picture of what it will take to succeed in college. There is no candy-coating or hand-holding in these pages. Why? Because these students are successful in their own right already—many of them hold down full-time jobs, take care of their family, and participate actively in their communities. They just need a little more—a little more basic information that we often take for granted they know (What is a credit hour?); a little more realism (Your relationships *will* change when you are in college, and sometimes it is not for the better); and a little more support (You already are an effective time manager, so let’s build on that foundation with these tips!).

The first edition of *The Community College Experience PLUS* was an effort to provide more practical information to students who are new to college; the “plus” was additional topics and opportunities for reflection and critical thinking. The “plus” is still part of this edition, but it is a more streamlined “plus” in that only the essential information for student success has been kept. The extras, such as exercises, tables, and in-depth topics, can be found in the Instructor’s Manual.

The second edition of *The Community College Experience PLUS* is organized around three principles: acclimating/relating, learning, and planning. These three principles are key to our students’ success and they mirror the stages students go through in their first semester. Several of the chapters have been combined into one and moved ahead to coincide with the time in the semester when students will most need the information and skills. Most significantly, there is more information on time management strategies that are crucial to students’ success from day one. The students have spoken: Time management is a major issue for them, and they will find more ideas for improving time management in Chapter 4.

Another notable addition is the section on memory and learning in Chapter 6, which is based on recent brain research. Readers can learn more about how they learn—and how to improve their learning in and out of class. The other chapters have been streamlined to present the essentials of student success and updated to provide the latest information.

New Features

- **Student stories** is a new feature that replaces the Community College Student Profiles. In these vignettes, readers are provided with a true-to-life short narrative of four students' experiences in college that illustrate common challenges, dilemmas, and situations that can be explored further in the PLUS critical thinking exercises.
- **My Story** is another new feature that allows students to relate their own story to the chapter's topics.

Returning Features

- **Collaboration, Critical Thinking, and Reflection exercises** are included in each chapter so that students can take some time to think about, talk about, and reflect on what they have learned. The most effective exercises have been retained for this edition, while the ones that appeared in the first edition will be available in the Instructor's Manual.
- **The PLUS critical thinking exercises** tie to each chapter's opening story by asking readers to determine the best course of action for the main character. In addition, readers are asked to apply what they have learned about personality and learning styles to their own situation.
- **Integrity Matters** will continue to provide students with a look at how integrity plays a part in their success in college and life.
- **Path of Discovery Journal** topics give students a way to connect with the material in the chapter.
- **Chapter Review Questions** provide students with a way to check reading comprehension and understanding.

Acknowledgements

I would like to acknowledge my family for their love and support. Thank you, Kyle, Emily, and Will.

Thank you also to Jeffrey Johnston, Sande Johnson, Jennifer Gessner, Amy Judd, Kerry Rubadue, and Lynda Cramer for their enormous help and support. The people at Pearson are the most generous souls. In addition, thanks to Shawnie Shade, Tanika Henderson, David Ploskonka, James Garza, Diane Lorenzo, Candace Rowley, and Kerry Rubadue for their assistance with the photo shoot.

In addition, I appreciate the feedback from the various students, faculty, and administration who helped shape this second edition: Allison Perrin, South Plains College; Ellen Vician, College of DuPage; and Rick Woodard, Rose State College.



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Chapter features to support your course objectives:

- **Pre-Assessment**—Students have the opportunity to take a pre-test before reading each chapter. Their test results identify chapter topics they must master. The assessment feedback identifies students' strengths and weaknesses so they can learn more effectively.
- **E-book with multimedia**—*The Community College Experience PLUS*, Second Edition, is available on this site with MSSL links embedded throughout for ease of use. Gain access to content, including interactive chapter features, video, weblinks, journal prompts, self-assessments, chapter exercises, and more.
- **Interactive Case Studies**—Students can practice their decision-making skills with these interactive cases. Each case requires them to apply skills and strategies they've learned in the chapter—such as time management, critical thinking, and listening—to solve problems. At the end of the scenario, students receive constructive feedback relating to each choice they made as they worked through the case.
- **Goal Setting and Journaling tool**—Our unique Goal Setting and Journaling tool will help your students learn to set “SMART” long-term and short-term goals as they move through each chapter—and keep track of how well they are meeting those goals. The journaling activity will help them discover obstacles preventing them from attaining their objectives—and what will help them succeed. This tool's features allow you and your students to monitor their progress and identify areas for potential improvement. As the instructor, you also have the option of reviewing their journals for completion or content.
- **Comprehension test**—After reading a chapter, students take a post-test to check comprehension. Choose from multiple choice, true/false, fill in the blank, short answer, and essay questions, and results will be imported to Gradetracker.
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- **Weblinks**—Looking for current issues in student success and career development? Weblinks offer quick access to relevant, reliable links that update course content.

NOTE—A way to search for ALL media within the site is to use the *Index of Multimedia*. Students can choose from many icons, such as *Explore* or *Watch*. *Explore* refers to Interactive features such as our Time Management Activity: Interactive calendar; *Watch* links to Videos. Videos include study skills, workplace tips, and role-playing videos to help students see how other students cope with the demands of college or show how the course content relates to this class and beyond.

MyStudentSuccessLab is integrated into the text to reinforce the content! Wherever the MSSL icons appear in the margins, your students can follow the link instructions to

access the **MyStudentSuccessLab** resource that corresponds with the chapter content. *Activities & Exercises* are assignable and give students the opportunity to understand each chapter's material by applying content in an engaging way.

Margin Note Icons for Exercises include:

- **Practice** identifies opportunities for students to demonstrate skill level and reflect on the reading.
- **Explore** points to multimedia interactive exercises that reinforce the material.
- **Interactive Reading** highlights features where students read and respond to specific material.
- **Case Study** spotlights features that focus on student real world scenarios with probing questions.
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MyStudentSuccessLab is available as a supplemental package option, as well as for stand-alone purchase. It is available in CourseCompass, Blackboard, and WebCT course management platforms, as well as a version to use for other learning platforms.

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Are you teaching online, in a hybrid setting, or looking to infuse exciting technology into your classroom for the first time?



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Prentice Hall Reference Library: Life Skills Pack, 0-13-127079-6, contains all 4 videos, or they may be requested individually as follows:

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- Critical and Creative Thinking, 0-13-028504-8
- Relating to Others, 0-13-028511-0
- Personal Wellness, 0-13-028514-5

[Prentice Hall Reference Library: Study Skills Pack](#), 0-13-127080-X, contains all 6 videos, or they may be requested individually as follows:

- Reading Effectively, 0-13-028505-6
- Listening and Memory, 0-13-028506-4
- Note Taking and Research, 0-13-028508-0
- Writing Effectively, 0-13-028509-9
- Effective Test Taking, 0-13-028500-5
- Goal Setting and Time Management, 0-13-028503-X

[Prentice Hall Reference Library: Career Skills Pack](#), 0-13-118529-2, contains all 3 videos, or they may be requested individually as follows:

- Skills for the 21st Century—Technology, 0-13-028512-9
- Skills for the 21st Century—Math and Science, 0-13-028513-7
- Managing Career and Money, 0-13-028516-1

[Complete Reference Library - Life/StudySkills/CareerVideoPackonDVD](#), 0-13-501095-0

- Our Reference Library of thirteen popular video resources has now been digitized onto one DVD so students and instructors alike can benefit from the array of video clips. Featuring Life Skills, Study Skills, and Career Skills, they help to reinforce the course content in a more interactive way.

Faculty Video Resources

- Teacher Training Video 1: Critical Thinking, 0-13-099432-4
- Teacher Training Video 2: Stress Management & Communication, 0-13-099578-9
- Teacher Training Video 3: Classroom Tips, 0-13-917205-X
- Student Advice Video, 0-13-233206-X
- Study Skills Video, 0-13-096095-0
- Faculty Development Workshop (DVD), 0-13-227192-3

Current Issues Videos

- ABC News Video Series: Student Success 2/E, 0-13-031901-5
- ABC News Video Series: Student Success 3/E, 0-13-152865-3

[MyStudentSuccessLab PH Videos on DVD](#), 0-13-514249-0

- Our six most popular video resources have been digitized onto one DVD so students and instructors alike can benefit from the array of video clips. Featuring Technology, Math and Science, Managing Money and Career, Learning Styles and Self-Awareness, Study Skills, and Peer Advice, they help to reinforce the course content in a more interactive way. They are also accessible through our MSSSL and course management offerings and available on VHS.

*“Through partnership opportunities, we offer a variety of **assessment options!**”*

LASSI—The LASSI is a 10-scale, 80-item assessment of students’ awareness about and use of learning and study strategies. Addressing skill, will, and self-regulation, the focus is on both covert and overt thoughts, behaviors, attitudes, and beliefs that relate to successful learning and that can be altered through educational interventions. Available in two formats: Paper, 0-13-172315-4, or Online, 0-13-172316-2 (Access Card).

xx SUPPLEMENTAL RESOURCES

Noel Levitz/RMS—This retention tool measures Academic Motivation, General Coping Ability, Receptivity to Support Services, PLUS Social Motivation. It helps identify at-risk students, the areas with which they struggle, and their receptiveness to support. Available in Paper or Online formats, as well as Short and Long versions. Paper Long Form A: 0-13-0722588; Paper Short Form B: 0-13-079193-8; Online Forms A, B & C: 0-13-098158-3.

Robbins Self Assessment Library—This compilation teaches students to create a portfolio of skills. S.A.L. is a self-contained, interactive, library of 49 behavioral questionnaires that help students discover new ideas about themselves, their attitudes, and their personal strengths and weaknesses.

Readiness for Education at a Distance Indicator (READI)—READI is a Web-based tool that assesses the overall likelihood for online learning success. READI generates an immediate score and a diagnostic interpretation of results, including recommendations for successful participation in online courses and potential remediation sources. Please visit www.readi.info for additional information. 0-13-188967-2.

Pathway to Student Success CD-ROM, 0-13-239314-X The CD is divided into several categories, each of which focuses on a specific topic that relates to students and provides them with the context, tools and strategies to enhance their educational experience.

*“Teaching tolerance and discussing **diversity** with your students can be challenging!”*

Responding to Hate at School—Published by the Southern Poverty Law Center, the Teaching Tolerance handbook is a step-by-step, easy-to-use guide designed to help administrators, counselors, and teachers react promptly and efficiently whenever hate, bias, and prejudice strike.

*“For a terrific one-stop shop resource, use our **Student Success Supersite!**”*

Supersite—www.prenhall.com/success—Students and professors alike may use the Supersite for assessments, activities, links, and more.

*“For a truly tailored solution that fosters campus connections and increases retention, talk with us about **custom publishing.**”*

Pearson Custom Publishing—We are the largest custom provider for print and media shaped to your course’s needs. Please visit us at www.pearsoncustom.com to learn more.

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Tools to help make the grade now, and excel in school later.

*“Today’s students are more inclined than ever to use **technology** to enhance their learning.”*



Refer to the **MyStudentSuccessLab** section of this Preface to learn about our revolutionary resource that **helps students build college success and career**

development skills, and to *apply* what they learn. MyStudentSuccessLab (www.mystudentsuccesslab.com) offers students a self-paced, interactive, virtual lab designed to offer *application* and *practice* of their skills. By developing strategies that work best for them, students experience greater relevance, motivating them to achieve success.

“Time management is the #1 challenge students face.” We can help.

Prentice Hall Planner—A basic planner that includes a monthly and daily calendar plus other materials to facilitate organization. Paperback, 8 1/2 x 11.

Premier Annual Planner—This specially designed, annual 4-color collegiate planner includes an academic planning/resources section, monthly planning section (2 pages/month), and weekly planning section (48 weeks; July start date), which facilitate short-term as well as long-term planning. Spiral bound, 6 x 9. Customization is available.

“Journaling activities promote self-discovery and self-awareness.”

Student Reflection Journal—Through this vehicle, students are encouraged to track their progress and share their insights, thoughts, and concerns. Paperback, 8 1/2 x 11. 90 pages.

“Our Student Success Supersite is a one-stop shop for students to learn about career paths, self-awareness activities, cross-curricular practice opportunities, and more!”

Supersite —at www.prenhall.com/success.

“Learning to adapt to the diverse college community is essential to students’ success.”

10 Ways to Fight Hate —Produced by the Southern Poverty Law Center, the leading hate-crime and crime-watch organization in the United States, this guide walks students through 10 steps that they can take on their own campus or in their own neighborhood to fight hate everyday. 0-13-028146-8

“The Student Orientation Series includes short booklets on specialized topics that facilitate greater student understanding.”

S.O.S. Guides help students understand what these opportunities are, how to take advantage of them, and how to learn from their peers while doing so. They include:

- Connolly: *Learning Communities*, 0-13-232243-9
- Hoffman: *Stop Procrastination Now! 10 Simple and SUCCESSFUL Steps for Student Success*, 0-13-513056-5
- Watts: *Service Learning*, 0-13-232201-3
- Jabr: *English Language Learners*, 0-13-232242-0



Introduction

What Does the Community College Student Look Like?

What is a typical community college student like? Well, a “typical” community college student is hard to find. In fact, community colleges enjoy a richly diverse student body, perhaps more diverse than in any other type of higher education institution, because their programs, services, and reputations appeal to many people at different times in their lives. To see for yourself, walk into the student center or pass by a study area, and you may overhear a similar conversation between four new friends—students who have formed a study group—about how they chose to attend a community college.

Evan, 20, tells the group that he chose a community college because of its reputation for caring faculty and rigorous core classes that will prepare him for an engineering career. He plans to complete his associate of science degree first, because he can apply for a scholarship when he transfers if he keeps his grades up. Evan also reveals that he made good grades in high school and could have attended a four-year university out of state. However, he liked what his community college had to offer and preferred sitting in a small class that offered individual attention rather than getting lost in a sea of 200 students listening to a lecture.

For Laura, 31, the community college was a logical choice because of the learning support it offers and the flexible scheduling. She shares with the group that after her youngest son started kindergarten, she enrolled in a community college, because she envisioned something better for herself and her future. Not knowing what she wanted to do, she took classes that interested her and fulfilled the requirements for an associate of arts degree. At the end of last semester, she was inspired by her teachers to pursue social work, and she now has a “thirst for knowledge.” With the help of counselors and instructors and the learning support staff, she has overcome a learning difficulty and enjoys the fact that she serves as a role model to her children when she sits down to study and complete assignments.

Michael, 42, has served in the military and has a wealth of work experience and knowledge, but he has lacked a degree and a career that he feels is his life’s purpose. He tells the study group that his girlfriend convinced him to check out the nursing program at the community college, because the graduates always found high-paying jobs and were known for being well prepared for jobs. Before Michael can gain acceptance into the nursing program, he has to complete a developmental math course, which is why he asked his fellow students to form a study group. Michael has learned quickly that he can be more successful if he studies with others.

Juanita, 18, is the youngest of the group, but she is the most experienced community college student at the table, because she has been taking concurrent classes through her high school for over a year. Juanita’s high school counselor first told her about the program that provides college-level classes to high school students so that they can earn college credits while still in high school. As Juanita explains to the study group, she chose

to take concurrent classes because she wants to earn a master's degree, and the sooner she can reach her goal, the more time she will have for a family and a career. However, she admits that it has been challenging to keep up with the demands of her classes. She is expected to read, write, and study more than she has done in her high school classes that were not taught at the college level.

These stories are representative of students who attend community colleges everywhere. Enrollments nationwide are skyrocketing, changing the face of the college graduate. Today's college students come from a wide variety of backgrounds, represent numerous ethnicities, and possess various abilities.

What do all these people have in common with you? They discovered that an education is key to realizing dreams and achieving goals. They know, as you do too, that the first step to a satisfying career and a life filled with possibilities is enrolling in college. In addition, like you, they chose to start their academic careers at a community college.

The reasons that students like you are choosing to enroll in a community college are just as diverse as the community-college population. A resounding reason, though, is that community colleges offer services, classes, and an intense level of personal attention not typically found at a four-year institution. You will see these "extras" in the types of classes and degrees offered, as well as in the personalized attention and assistance you will receive.

No doubt, you have your own story as to why you are attending a community college, but the common denominator you share with your classmates and the students profiled in this text is that you all took an important step to improving your lives through education. With guidance, determination, and hard work, you will succeed in your quest.

Why Choose a Community College?

Whatever your reason for starting your education at a community college, The College Board lists its own reasons to attend a community college, which are adapted and added to in the list below:*

You are excited about your community college. You know your community college well—it has a great reputation for academics and professional services and you want to go there. This is what attracted Michael to his community college: a strong program that will prepare him for a job.

You don't want to pay a lot for college. Historically, community colleges' costs have averaged less than four-year universities' tuition and fees, in part because their missions include providing education to people who cannot afford to go to a four-year institution.

You don't want to pay a lot when you get to a four-year institution. Many four-year colleges and universities offer generous transfer scholarships for students who earn high grades at the community college. This is what Evan wants to earn when he completes his associate of science degree, and he knows that the four-year institution of his choice will accept all of his courses at the community college because of a strong articulation agreement.

*"Six Benefits of Community Colleges." Copyright © 2008 The College Board, www.collegeboard.com. Reproduced with permission.

You took a few concurrent classes in high school and loved the experience.

More and more, high school students are enrolling in community colleges before they reach 18 years of age—just as Juanita did before she started taking college classes on campus. These classes, often called concurrent or dual-enrollment classes, allow students to earn college credit before they graduate from high school. Juanita is an example of such a student.

You are not sure what degree you want or if you even want to get a degree.

Community colleges are a great place to start taking classes if you are unsure of your future goals. Because community colleges offer technical, business, and industrial classes as well as a university-transfer curriculum, you have more options to choose from. You can take classes in computers, music appreciation, welding, and business communication—all in the same semester. If you decide that college is not for you, you won't have a large tuition bill looming over you.

You want to work on improving your academic skills and your grades.

Community colleges are well known for their open admission policies, smaller classes (one-on-one attention), and student services. Thus, a community college is the best place to improve your reading, writing, and math abilities, because you have more contact with your instructors and the opportunity to take classes that help you refine basic skills.

You need a flexible schedule because of work and family responsibilities. Just as community colleges cater to students who need help developing their skills and students who cannot afford high-priced colleges and universities, community colleges are also more likely to offer classes that fit the busy schedule of a working student. Many community colleges offer online courses; telecourses; early-morning, evening, and weekend classes; and accelerated classes. Laura has chosen to attend the community college because the classes can be taken around her family's schedule.

Other reasons you decided to enroll in a community college may include:

- The college is near your workplace, which makes it easier to get to class and back to work.
- The school has on-site day care that is affordable and accredited.
- You know someone who went to a community college, and now she has a great job.
- You took one class for fun, such as creative writing, and now you want to take more.
- You received a scholarship to attend.
- You want a “practical” degree.
- The college is closer to home so you can spend more time with your family.
- The community college has fewer distractions, such as fraternities and sororities, so you can concentrate on academics.

The Benefits of Higher Education

Certainly, the list could continue, and you will definitely find that there are many more reasons to love your experience in college, but consider for a moment what your experience can do for you personally and professionally.

Perhaps the most important reason people enroll in college is to get a better job. No doubt, higher education can help you find career success, but there are other reasons completing a degree (or just taking a few classes) can improve your life. The more formal education you have, the more likely you are to earn more money. Earning more money allows you to provide better for yourself and your family. Education can improve your life by increasing your understanding of yourself and the world around you. The more you know and understand other people, other cultures, and yourself, the better able you are to influence your community in a positive way. Knowing more about yourself also improves your self-esteem and personal happiness. Moreover, higher education gives you the lifelong learning skills necessary for your health and well-being. Life, liberty, and the pursuit of happiness may be a cliché these days, but they are the primary results of an education.

- Going to college improves your life through a better career, more money, and better lifestyle choices, because you are more informed.
- Going to college improves your freedom to make those choices—the more you know, the better choices you make, and the more liberty you have to make those choices.
- Going to college makes you more satisfied with your life, because you feel proud of your achievements.

Why Read This Book?

After reading the reasons why over five million students are attending a community college, you may be able to add a few more. But whatever your reason, you can be sure that you made the right choice. Your community college experience will enrich your life regardless of how long you stay, what degree or certificate you complete, or where you go afterward.

The purpose of this book, then, is to help you make the most of your community college experience. In the chapters, you will find information about college life and culture, the expectations of professors, study and test-taking skills, and managing your financial and educational future. You will also discover practical information to help you prepare to transfer to a four-year college or university or enter the workforce directly.

Remember, though, that this book is only one source of assistance for you as you make your way through decisions and deadlines. You can also look to your instructors, peers, counselors, advisors, friends, and family to help you with all of the challenges of being in college while juggling work, family, and extracurricular activities.

Remember, you are not alone: More than five million other students are experiencing what you are going through—the anxiety, the uncertainty, the exhilaration, and the pride that come from starting on such an important and life-changing journey. No matter how many classes you take or what degree you finally complete, you have now taken the first step to bettering yourself by improving your education.

Reference

The College Board. (2008). Six benefits of community colleges: It might be the right path for you. Retrieved February 20, 2008, from <http://www.collegeboard.com/student/csearch/where-to-start/8169.html>



Read This First

Welcome to college! You have made the first step on the journey to realizing your dreams and achieving your goals. For sure, it is a time to be excited and maybe even a little nervous, but you are in good hands.

Before you begin reading the chapters in this book, take about 20 minutes to read and complete the following inventory that will help you determine how and under what conditions you best like to learn. The information you provide will be used to build an individualized learning plan that you can use throughout this course—and beyond.

To see how this works, Chapter 1 will introduce you to four students with certain learning preferences, and you will see how that information affects their unique situations and the choices they will need to make. Throughout the chapter, by completing the chapter exercises, you can explore how you and your classmates think about certain topics and reflect on your own experiences. You will also be able to answer specific questions related to learning preferences with the PLUS exercises (Personality + Learning Preference = Understanding Situation) within each chapter. Finally, at the end of each chapter, you have the opportunity to create your own story by completing the individualized learning plan so that you can move from where you are now to where you want to be.

Learning Plan Inventory

There are numerous ways to see yourself and understand your behavior in certain situations, and many education specialists and psychologists have provided theories on how we think, different inventories, and personality profiles for enhancing your understanding of yourself. Theories about the two hemispheres of our brain, known as the left brain and the right brain, have given us insight into how people think, learn, and see the world. People who have strong left-brain tendencies are more likely to be logical, to see the parts rather than the whole, and to prefer to do activities step by step. They are also more analytical, realistic, and verbal than their right-brained companions. The right-brain preference shows up in the preference to see the whole picture rather than the details, to work out of sequence, and to bring ideas together.

The Myers-Briggs Type Indicator® (MBTI®), on the other hand, is a personality test that provides you with information about how you prefer to think and act. For example, one dimension of the personality test asks you how outgoing or extroverted you are in certain situations or how reserved or introverted you are in social settings. These questions indicate whether you are Extroverted (E) or Introverted (I). There are 16 type combinations, which are explored further in Chapter 2.

Other inventories, such as both the Dunn and Dunn Learning Styles Assessment and the PEPS Learning Styles Inventory, focus not only on how a person prefers to take in information, but also on a person's social and environmental learning preferences. These types of inventories provide a thorough view of how you prefer to learn, whether it is the temperature of the room, the amount of light and sound, or the preference for moving about as you learn.

TABLE 1 Learning Plan Categories

Time of Day Preferences: morning, afternoon, night
Intake Preferences: visual, auditory, kinesthetic
Social Preferences: individual, peer(s), mentor (professor, expert, leader, etc.)
Task Management Preferences: logical/analytical, spontaneous/creative

The following inventory is adapted from the models discussed above. It will help you discover your learning style preference in four areas: task management, time of day, intake, and social learning (see Table 1). The purpose of the inventory is to provide you with a basic understanding of how you learn so that you can use that information to create an individualized and flexible learning plan for the various tasks and assignments that you will experience while you are in college.

To complete the inventory (Table 2), read each statement in each category and circle the number that corresponds most closely to how much you identify with the statement. The number 1 means the statement is least like you while the number 5 means that the statement is most like you. You will calculate your answers after the inventory.

TABLE 2 Learning Plan Inventory

Time of Day Preference						
	Read each statement and circle the number on the scale that best represents you.	Scale 1 (Least like me)–5 (Most like me)				
1	I feel most energized in the morning.	1	2	3	4	5
2	My energy level soars late at night.	1	2	3	4	5
3	I get more accomplished in the afternoon.	1	2	3	4	5
4	I concentrate best before noon.	1	2	3	4	5
5	Late at night is my most productive time.	1	2	3	4	5
6	Afternoon is the best time for me to complete important tasks.	1	2	3	4	5
Intake Preference						
	Read each statement and circle the number on the scale that best represents you.	Scale 1 (Least like me)–5 (Most like me)				
1	When I am trying something new, I like to “see” it in my head before doing it.	1	2	3	4	5
2	I can understand a concept best when I hear it explained.	1	2	3	4	5
3	I don’t really understand something unless I do it or experience it myself.	1	2	3	4	5
4	I explain my ideas best by talking through them.	1	2	3	4	5
5	I figure out what I think about a topic by experiencing it firsthand.	1	2	3	4	5
6	I like to draw out what I’m thinking so others will understand.	1	2	3	4	5

(continued)

TABLE 2 Continued

Social Learning Preference						
	Read each statement and circle the number on the scale that best represents you.	Scale 1 (Least like me)–5 (Most like me)				
1	I work best alone.	1	2	3	4	5
2	I feel comfortable asking my boss/professor questions when I'm not sure what to do.	1	2	3	4	5
3	I rely on friends or coworkers to help me complete work or figure out what to do when I am stuck on a task.	1	2	3	4	5
4	I need little interaction with others to complete a task.	1	2	3	4	5
5	I'm most comfortable working in groups on a project.	1	2	3	4	5
6	I'm most at ease working on a task that my supervisor monitors closely.	1	2	3	4	5

Task Management Preferences						
	Read each statement and circle the number on the scale that best represents you.	Scale 1 (Least like me)–5 (Most like me)				
1	I enjoy thinking up and starting new projects.	1	2	3	4	5
2	It is easy for me to complete important tasks.	1	2	3	4	5
3	I like to be spontaneous when I work on a project; I go wherever the mood takes me.	1	2	3	4	5
4	I like to have a detailed schedule before I begin a project.	1	2	3	4	5
5	I like to have a general idea of the main goal and then discover what needs to be done as I work toward the goal.	1	2	3	4	5
6	I like to consider the steps to a project first before thinking about the overall picture.	1	2	3	4	5

Calculating Your Score

For each learning preference category, write the number you circled for each statement. Then, add up the numbers for each type of question. The higher numbers will indicate your preferences.

Time of Day Preference		
STATEMENT	YOUR NUMBER	TYPE
1		Morning
2		Night
3		Afternoon
4		Morning
5		Night
6		Afternoon
Total Morning _____	Total Night _____	Total Afternoon _____

Intake Preference		
STATEMENT	YOUR NUMBER	TYPE
1		Visual
2		Auditory
3		Kinesthetic
4		Auditory
5		Kinesthetic
6		Visual
Total Visual _____	Total Kinesthetic _____	Total Auditory _____

Social Learning Preference		
STATEMENT	YOUR NUMBER	TYPE
1		Individual
2		Mentor
3		Peer
4		Individual
5		Mentor
6		Peer
Total Individual _____	Total Mentor _____	Total Peer _____

Task Management Preference		
STATEMENT	YOUR NUMBER	TYPE
1		Spontaneous/creative
2		Logical/analytical
3		Spontaneous/creative
4		Logical/analytical
5		Spontaneous/creative
6		Logical/analytical
Total Spontaneous/creative _____	Total Logical/analytical _____	

Your highest numbers will be where your preferences are strongest. Complete the Table 3, “My Learning Preferences.” You will use this information to complete your own learning plans.

Learning Plan in Action

Table 4 shows a learning plan in action for a student who works best at night, who is both a strong visual and auditory learner, who works best with her peers, and who prefers to break down assignments into manageable parts. Once you have determined your learning style, you, too, can use the Learning Plans at the end of each chapter to create a plan for tasks that you will need to complete.

xxx READ THIS FIRST

TABLE 3 My Learning Preferences

Time of Day
Intake
Social
Task Management

TABLE 4 Learning Plan Example

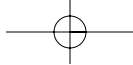
Learning Task: Study for biology midterm	
Time of Day	Night—after dinner
Intake	Visual and auditory—review notes and talk through them with study group
Social	Peers—biology study group
Task Management	Sequence, parts, and starter—go in order of the chapters and work with classmate who can tell me what steps I may have missed.

Final Thoughts on Learning Styles

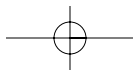
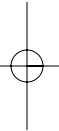
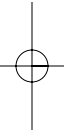
There are many ways of viewing yourself and creating a plan of action for your work in college, but no single inventory, assessment, or work plan will reflect the exceptional person you are or your unique circumstances. The goal, then, of this learning plan is to provide you with an adaptable, flexible model for putting your learning style preference into action. It also gives you a roadmap for accomplishing the many goals that you will set for yourself. When reading this book and learning more about the characters whose stories begin each chapter, take time to reflect on how you would act in the same situation and consider how you will meet similar challenges. Reflecting on who you are and how you will get where you want to go will help you create your own story of success.

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The Community College Experience **PLUS**



6 Learning, Memory, and Thinking



Michael's Story

Michael can shoot the cap off a bottle of beer at 100 yards; he can hike 12 miles in a hot sandstorm with 30 pounds of equipment on his back; and he can build a jungle gym out of scrap wood for his two nieces. What Michael can't do, he thinks as he rubs his head, is understand algebra. He shifts his backpack to his other shoulder and looks at the sign on the door. He is in the right place—the tutoring center—but he doesn't know if he really belongs here.

Inside the student center, Michael sits back down on a chair outside the large window that overlooks the lot where his truck is parked, and he opens his math notebook where he has scrawled a few notes from the last class.

"The order of operations is F-O-I-L: first, outer, inner, last. But after that, I don't know what to do," he thinks to himself.

He writes on the red cover of his notebook, "F-O-I-L. F-O-O-L. F-A-I-L." He just knows that he will fail the class because he can't keep factoring polynomials and solving absolute value equations straight. If his professor would just slow down and allow students to "get it" before moving on to the next unit, he wouldn't feel so stressed. It doesn't help his nerves to know that when another student asked the professor to slow down, he told the class that they needed to get a tutor if they couldn't keep up.

"Isn't teaching me algebra *his* job, not a tutor's?" Michael asks the bulletin board that lists the tutoring center's hours. He notices that in 30 minutes, the tutor for algebra will be leaving and his hope of getting any help will be over. Before he decides to leave, his girlfriend Michelle calls him.

"Will you be home by the time I get off work?" she asks. "I need you to pick up something for dinner."

"Unless I can understand my algebra homework, I don't know when I will be home," he jokes.

"Did you do what I told you? Did you see Tamara in the tutoring center?" she asks.

"I'm standing right in front of it. But I can't make myself go in. It reminds me of being put in the 'dummy class' in junior high school because I couldn't get fractions," he tells her.

Michael's teenage difficulty in learning coupled with his military background makes it difficult for

him to seek help on his own. By the time he got to high school, he was able to slide by, and in the military his superiors ordered everything he did. It is strange for him to complete homework that is not turned in or to get help from a peer who has only recently completed the class and who is 20 years younger than he. Plus, he has accomplished so much in his life on his own that he feels awkward asking someone for help. If he can't do it on his own, he thinks, maybe he can't do it at all. His girlfriend's voice shatters the silence.

"Michael, do you remember when I struggled through biology? I wanted to be a nurse so much, but I didn't think I had what it took if I couldn't pass one of the first classes," she says.

"Yeah, I do. I remember helping you study before tests."

"Do you remember how much better I did after I went to the tutoring center? I found someone who helped me take better notes and organize my studying time. Plus, she helped me figure out a study strategy that helped me deal with the huge amount of written material I had to remember for the tests."

Michael doesn't say anything in response, but remembers how she struggled. He feels a little guilty that he can remember that he tried to get her to quit school once because she seemed so stressed out all the time and never wanted to do fun things with him. Glad that she stuck it out, Michael suddenly feels competitive. If she can make it through biology and become a nurse, he can surely get through algebra—and with a better grade.

Michael pulls out a square of gum, a habit he developed after quitting smoking two years ago, and responds to Michelle.

"This may be the only time I will say this," he jokes, "but you are right. I need to see what kind of help I can get. I'll call you before I leave."

With a little more confidence, Michael digs around in his dusty backpack, grabs his calculator and a mechanical pencil, and walks through the double swinging doors into the tutoring center.

In This Chapter

Michael's story illustrates a typical situation in which a student struggles with learning on his own. For Michael, remembering the order of operations in algebra is part of his challenge. He is also unsure of reaching out for help to supplement what he can do on his own. Many other new students ask the same questions: "Isn't my professor supposed to make sure I master the material in class?" and "If I have trouble keeping up with the work, does this mean I will never be successful?" Experienced students know that most of the required work and learning expected of them will occur *outside* the classroom, and that often means working with others, either in a study group or at a tutoring center, to be successful *inside* the classroom.

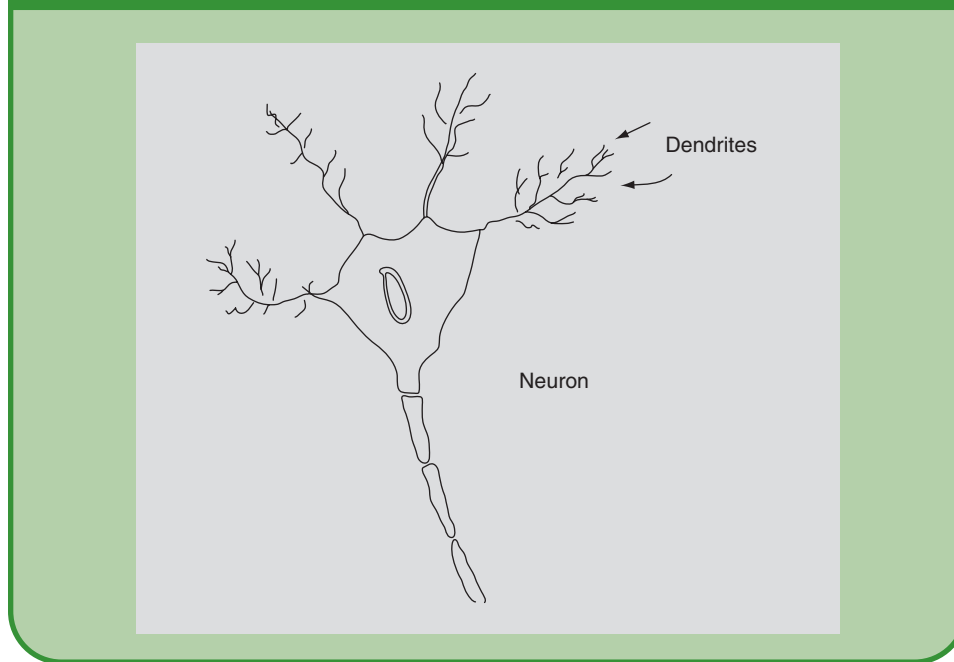
To help you improve your learning, no matter where it happens, this chapter focuses on the latest brain research as it relates to learning and memory. It also explains the importance of active learning. Finally, the different types of thinking that will be required of you are explored at the end of the chapter. By the time you finish reading this chapter, you will be able to:

- Describe the stages of learning.
- Identify the importance of active learning.
- Explain how memory is created and what that means for learners.
- Define different types of thinking.
- Describe the processes of creative and analytical thinking.
- Follow the critical thinking steps to problem solving.

This Is Your Brain . . . in College

Seems like there are dozens of bumper stickers and T-shirts that broadcast what people are born to do. "Born to Run," "Born to Shop," and "Born to Boogie" are just a few that you may see. But could you add "Born to Learn" to the list? All of us, researchers say, are indeed born to learn. Babies do it without giving the process any thought. The process is simple: The more you do something, say Angus Gunn, Dr. Robert W. Richburg, and Dr. Rita Smilkstein (2007), the more you create connections in the brain that not only help you remember how to do something, but also help you get better at whatever it is you are learning to do. These brain researchers call this process "growing dendrites." Dendrites are the "tree-like" structures on the ends of neurons, or nerve cells in the brain. The more you practice something, the more those dendrites grow, improving the connections between the neurons in your brain (Figure 6.1).

In their book, *Igniting Student Potential*, Gunn, Richburg, and Smilkstein divide learning into six stages that begin with being curious and motivated to learn something new, move to practicing and refining the new skill, and then end with mastery of the skill (Table 6.1). If you think about anything that you are good at, you should recognize the same process that you went through to get better and better at it. We often recognize the need to practice sports and musical instruments, but sometimes we don't make the same connections with other skills such as writing, reading, and math. Michael would feel more confident about seeing a tutor if he realized that learning algebra is a process that involves time for practice. How much time is

FIGURE 6.1 Dendrites

needed will be different for different people, but, brain researchers contend, your skills will increase just as your dendrites will grow.

What happens when you can't get motivated to learn a new skill and make it past the first stage in learning? Dr. Carol Dweck (2006) refers to people who lose interest when learning “get[s] too challenging—when they are not feeling smart or talented” as having a “fixed mindset” (p. 22). People who “thrive when stretching themselves” have a “growth mindset” (p. 22). In her book *Mindset: The New*


TABLE 6.1 Six Stages of Learning a New Skill

Stage 1	Motivation: Responding to stimulus. Not knowing how to do it or how it works, just trying it.
Stage 2	Beginning practice: Doing it (“practice, practice, practice”), learning from one’s own mistakes. Starting to get the feel for it.
Stage 3	Advanced practice: Increase of skill and confidence through more practice, more trial and error, getting comfortable.
Stage 4	Skillfulness: More practice, doing it one’s own way, deviating from the norm, taking risks, creativity, branching out. Building understanding, skill, and confidence.
Stage 5	Refinement: Activity becoming second nature, creativity, learning new methods, strong satisfaction.
Stage 6	Mastery: Increased creativity, broader application, teaching it, continuing improvement, expert.

Source: Adapted from Smilkstein, R. (2003). *We're born to learn: Using the brain's natural learning process to create today's curriculum*. Thousand Oaks, CA: Corwin Press. Used with permission.

Psychology of Success, Dweck asserts that people with a fixed mindset believe that they are either born smart or not, that there is no changing their “fixed” state of intelligence. People with a growth mindset, on the other hand, believe they can develop talents and skills; even if they fail at a task, they see it as an opportunity to learn more and improve on what they know about the task.


In the story at the beginning of the chapter, you learn that Michael knows how to do many things, which no doubt came from a belief that he could improve on his skills; however, he seems to have a fixed mindset about algebra. Sometimes one bad experience or several in a row can influence how we see ourselves as learners and masters of a skill. Dweck wants us to know that believing in our ability to learn will result in learning and mastery of whatever task we set our “growth” minds to.



Reflection

EXERCISE 6.1

Think of something you know how to do well. Describe the process by which you mastered the skill. Follow the six steps that are outlined in Table 6.1 and detail what you did at each step. Then, identify a skill or task at which you don't think you could get better. Considering Dweck's theory of the growth mindset, write down a plan for practicing and learning more about how to master the skill or task.

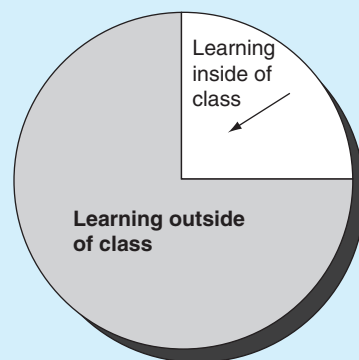


Learning in College

How does the information about brain research and learning translate to what you are doing in college? It may be helpful first to identify where, how, and with whom learning can take place. If you think about a clock face in which the big hand is pointing to the 12 and the little hand is pointing to the 3, you can see that for a 3-credit-hour class you will be spending 3 hours learning in the classroom (Exhibit 6.1). As stated in Chapter 4, this means that you will need to spend 3 times more time learning outside of class.

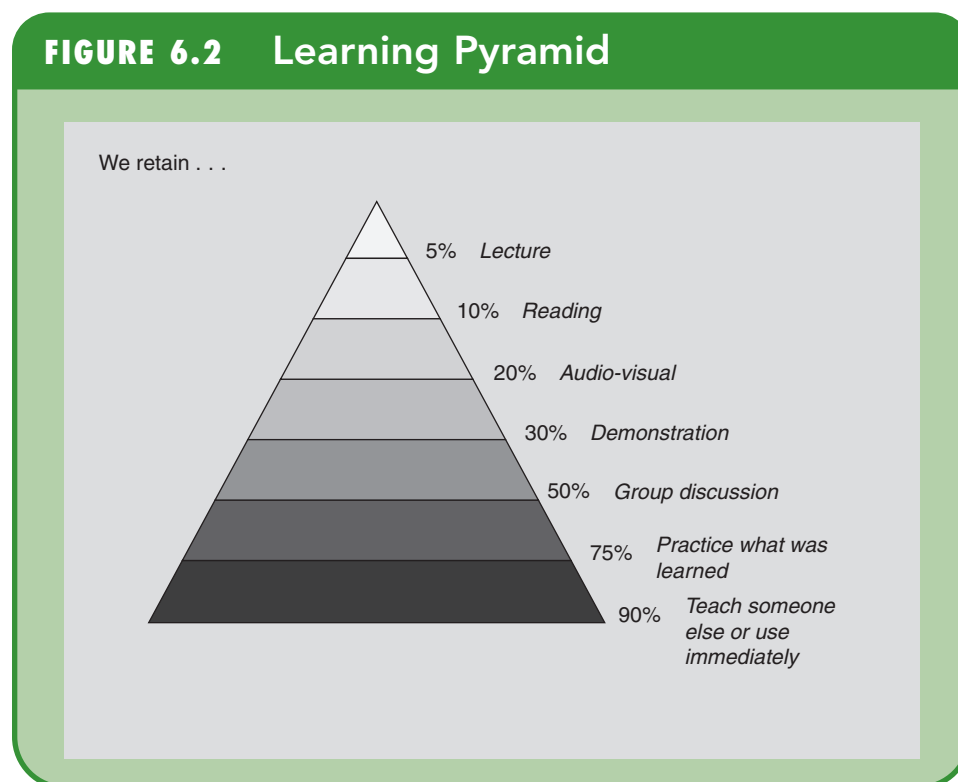
You could easily spend those 9 hours a week per class reading the textbook and studying your notes. However, you may have to engage in a variety of activities that

EXHIBIT 6.1



contribute to learning. Researching and writing papers, completing homework, visiting with your professor outside of class, studying with a classmate or in a group, working with a tutor, or tutoring someone else are activities from which you will benefit. Why do you need to do all of that to learn when listening in class, taking notes, and reviewing them before the test worked before? The answer is because in college, you will be responsible for more than just memorizing material and restating it on a test or in a paper. Instead, you will be asked to apply (use information in a new situation), analyze (break information down into its parts and examine it), synthesize (create new information based on what you have learned), and evaluate (judge the information), and you will be graded on your ability to do all of those activities well.

To see an illustration, look at the Learning Pyramid in Figure 6.2. Notice that listening to a lecture results in only 5% retention of the material. In other words, what you hear will be forgotten over time at an enormous rate! What does that mean for students who have an aural learning preference, like Laura, or students whose instructors rely on lecture to convey information in class? It means that whether you are an aural learner or a student in a lecture class, you will need to do more than just listen passively. You may need to record the lecture and listen to it again later; discuss the lecture with classmates; and help others understand it once you have mastered the material. Of course, you may need to read, take notes, and rewrite them as well. The goal for you, regardless of your learning style preference, is to move from learning passively—merely taking in the information through listening or reading—to learning actively—applying, discussing, evaluating, and making new information.



Source: NTL Institute for Applied Behavioral Science, 1901 S. Bell Street, Suite 300, Arlington, VA 22202. 1-800-777-5227.

The Memory Game

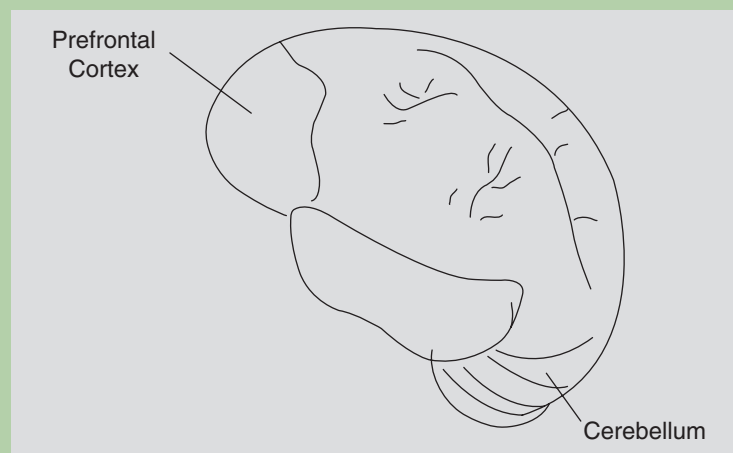
The good news about brain research is that spending more time actively learning a subject can translate into deeper learning, and a positive attitude toward challenging learning environments will enable you to learn more. Thus, you will be more likely to remember what you have learned because you have moved it from your short-term memory to your long-term memory. Memory is divided into two types—short-term memory and long-term memory. When you meet someone for the first time, you will keep that person's name and face in your short-term memory; in fact, according to Harvard psychologist George Miller (2008), you can only store 5–9 items in your short-term memory. If you try to put too many items in there, you will find that some of them slip away. Try this by glancing at the following list for 30 seconds. Then, cover up the list and write down the words you remember in the space provided; the words do not have to be in the order that you see them.

cup	paper	pencil	magnet	ruler	scissors
spoon	towel	tape	apple	knife	straw

How well did you do? If you remembered 5–9 items, then you can consider your memory average. It takes some work, though, to transfer information from your short-term memory to your long-term memory.

Figure 6.3 shows what areas of the brain are used in memory. Your long-term memory is responsible for storing things like names and dates as well as skills such as tying your shoe. People can have well-developed memory storage for images (visual), sounds (aural), words (read/write), and processes (kinesthetic).

FIGURE 6.3 The Brain and Prefrontal Cortex



In the article “Remember This,” Joshua Foer (2007) states, “It’s hard for us to imagine what it must have been like to live in a culture before the advent of printed books or before you could carry around a ballpoint pen and paper to jot notes” (p. 49). We could add cell phones that take pictures and record video and voice to the list of technologies that keep us from having to remember every single detail of an event. All of these options for creating artificial memory are what Mary Carruthers, author of *The Book of Memory*, refers to when she states that “[a]ncient and medieval people reserved their awe for memory. Their greatest geniuses [are the people] they describe as people of superior memories” (in Foer, p. 49).

Today the information is at our fingertips and we don’t have to memorize the ever-increasing amount of information that is generated daily. But memory played a significant role in ancient and not-so-distant history. Those who could remember significant events, poetry, and songs were revered for their gifts of memory. In many cultures, remembering was essential to surviving and thriving. People remembered the stories of celebrated heroes and the markings of poisonous plants. They couldn’t just type key terms into a search engine and learn about them at their convenience!

Mnemonic Devices

Mnemonic devices are memory aids or strategies that help you remember items, concepts, or a series of events. Usually, mnemonic devices are *not* used for deep learning, but there will be times during college that remembering the names, for example, of all the bones in the body or all the constitutional amendments must be conquered before deeper learning can happen. Thus, you may find yourself using mnemonic devices as part of your learning process.

Let’s go back to the list above and figure out how you could remember all of the items. Ancient Romans are credited with being able to remember significant amounts of information by using the Roman Room or loci method. This visualization technique can be useful when trying to remember a string of seemingly unrelated items or complex material that needs to be pulled together.

To create a Roman Room, visualize a familiar place, such as a room in your house. If your room is connected to other rooms, then you will have more “places” to put ideas. When you visualize your room, pay particular attention to the items that are already in the room, such as furniture or favorite pictures, and unique details, such as peeling paint. The more vivid the visualization, the better able you will be to remember the items you place there.

To see the Roman Room or loci method in action, take another look at the list.

cup	paper	pencil	magnet	ruler	scissors
spoon	towel	tape	apple	knife	straw

Can you place these items in your kitchen? Put the straw in the cup and place it in the cabinet. Tape the paper on the front of the cabinet. Place the towel on the counter next to the apple, spoon, and knife. Then, put the pencil, ruler, magnet, and scissors in the drawer.

Take 30 seconds to review the room above or visualize your own Roman Room with the items listed. Then, cover up both the list and the description of

the room and see how many you can remember. Write the words in the space provided here.

Did you remember more words this time? If not, then visualization strategies may not be the only type of mnemonic device you need to help you remember lots of information. There are other mnemonic strategies that may benefit different learning style preferences. Acrostic sentences and acronyms are just two methods that may help students with a read/write learning style preference.

Take the first letter of items in a series to form sentences that help you remember the items and their order—acrostic sentences. For example, music students remember the order of the treble clef staff, E, G, B, D, F, with the sentence “Every Good Boy Does Fine.” To recall the order of biological groupings used in taxonomy, just remember “Kids Prefer Cheese Over Fried Green Spinach” (Kingdom, Phylum, Class, Order, Family, Genus, Species).

Take the first letter of items in a series and spell another word to create acronyms. Here are a few examples of acronyms that we use every day: AIDS (acquired immune deficiency syndrome), SADD (Students Against Drunk Driving), REM (rapid eye movement), and SCUBA (self-contained underwater breathing apparatus).

Although there are too many words in the list above to create an acronym, you can create an acrostic sentence (or two) with the letters of each word. Because the order of the items is not important, feel free to rearrange the letters to make your sentence(s).

C	P	P	M	R	S
S	T	T	A	K	S

While a little more difficult to compose than acronyms and acrostics, rhymes and songs, which often appeal to aural learners, are another type of mnemonic device. Who doesn't remember, “Thirty days hath September . . .” and “In 1492, Columbus sailed the ocean blue”? Again, simple information works best for these memory strategies. It will take more work to remember the economic effects of Columbus' discovery of the New World.

When you have the time to explore the variety of memory strategies, try them out until you find the one that works best for the subject matter and your learning style. However, many students who need a memory strategy need it to work quickly as they are cramming before a test. Those students may be successful in remembering it when they get to the test the next day, but the possibility of their remembering it weeks, months, or even a year later is slim. That is why professors and tutors discourage students from cramming—it may work some of the time, and it is better than not studying at all for a test, but it often produces more anxiety and stress, and the material less likely to be in your long-term memory when you need it later.

With that warning, there will be times, nonetheless, when despite your best intentions, you will need a fail-safe memory technique to help you remember key concepts in a short period of time. One method, called *chunking*, was developed by

Dr. George Miller, the same person who discovered that the human brain can only hold “seven, plus or minus two” items in short-term memory. Chunking is similar to the Roman Room or loci method in that items are grouped together to allow the brain to make connections with the items. This will make it easier to recall the information later.

To see chunking in action, consider the following 10-digit number:

5114796210

It may be easier to chunk the numbers the way a phone number is divided:

511-479-6210

You probably don’t realize that you chunk any time you memorize a phone number or Social Security number. In other words, you are taking the seemingly random numbers and putting them together in groups. The goal in chunking is to reduce a large number of items into only 5–9 items. To practice this mnemonic technique, use the following list of key terms: acrostic, acronym, chunking, cramming, loci method, long-term memory, mnemonic device, rhyme, Roman Room, short-term memory, teaching others.

First, make sure that you know the definitions of each term. Record your definition next to each term below:

Acrostic
 Acronym
 Chunking
 Cramming
 Loci method
 Long-term memory
 Mnemonic device
 Rhyme
 Roman Room
 Short-term memory
 Teaching others

Critical Thinking

EXERCISE 6.2

After reviewing the mnemonic devices, determine which ones would work best for you. Use them to create a memory strategy study sheet to help you remember the major ideas in this chapter.



Next, group the items together logically. Then complete the chunking with the remaining terms.

For example, one way to group some of the terms could be:

Mnemonic devices are strategies for remembering items and they include **acrostics**, **acronyms**, **rhymes**, and **Roman Rooms**.

How else could the terms be grouped together? Use the spaces below to group them.

- _____
- _____
- _____



Participating in creative thinking, no matter what your age or what the situation, is a great way to stretch your mind and improve your thinking overall.

questions and ideas for further research. In fact, this book has been designed so that instead of passively taking in the information, you are actively engaged in thinking it through and creating knowledge.

The same activities that have brought you to this point in the book are the ones you are currently practicing in your classes as well. You are moving beyond only taking information in to send it back out in the same form for a test or paper. Instead, you are building creative, analytical, and critical thinking skills with each course. Strong critical thinking skills will set you apart in the classroom and the workplace: You will be better informed, because you will know to seek out the information you need; you will make better choices, because you have thought through all the possibilities; and you will continue to improve upon your chosen solutions, because you will understand that evaluating your solution is the key to making better future choices.

Creative Thinking

Creative thinking, or the act of creating ideas for solving problems, is an integral part of education. Without creative thinking, there would be no inventions, new formulas, breakthroughs in technology and science, new art movements, advances in design and architecture—the list is endless. Without creative thinking, there would be no electricity, no indoor plumbing, no automobiles, and no zippers in our clothes. Just getting to your classes would be a totally different experience.

In his book, *Creative Problem Solving*, Robert Harris (2002) contends that creative thinking is a skill, a process, and an attitude (pp. 1–2). In other words, creative thinkers are not born with special powers of the imagination; they just use their imaginations more regularly than others. The good news is that you can learn to think creatively by following some basic guidelines.

- *Improve your imagination.* Find ways to keep your mind sharp and your imagination flourishing. Turning off the TV and picking up a book is another easy way to stimulate your imagination. If you enjoy kinesthetic activities, create something to get your mind active.
- *Think in all directions.* Thinking in all directions means that you consider ideas that have worked before, have not worked before, have worked for other

Think About It

Think about it. Those are three simple words that you have been asked to do before, but have you ever thought about how you are thinking? The term for thinking about thinking is *metacognition*, or the act of being aware of your own thought processes. So far in this book, you have thought about what you value, how you spend your time, what college culture is, and how you relate to others. You have also been asked to think about what you are reading and learning, whether it has been through the reflection and critical thinking exercises or the end-of-chapter

problems, and have not been paired with another idea. Some of the most creative ideas have taken ordinary solutions and have reapplied them to other problems. Creative thinking will demand that all angles be considered as you generate ideas.

- *Suspend judgment.* For creative thinking, evaluation is not necessary—save it for critical thinking and problem solving. The focus should be on getting ideas down, not on judging them for their practicality or judging yourself as not capable of being creative. “There is no wrong answer” is a common phrase at this point to keep you generating thoughts.
- *Keep it up.* One main difference between people who think creatively and those who choose not to is perseverance, or the determination to see ideas through—and to keep generating them when the ones you come up with don’t work.

Robert Harris states, “Creative thinking creates the ideas with which critical thinking works” (p. 5). To improve your critical thinking and problem-solving abilities, you will need to consider the guidelines above, find ways to practice them, and maintain your curiosity and a positive attitude.

Critical Thinking

The term *critical thinking* is difficult to define, but it has a long tradition. Critical thinkers such as Socrates and Thomas Aquinas, to name only two, have had a tremendous effect on the way we think about the world. But what makes them critical thinkers? What is a critical thinker? Sherry Diestler (1998), in her book *Becoming a Critical Thinker*, defines a critical thinker as “someone who uses specific criteria to evaluate reasoning and make decisions” (p. 2). In other words, someone who thinks critically does not take information at its face value; instead, the information is reviewed for accuracy, authority, and logic before it is considered useable.

Chapter 7 discusses how to read critically, and that certainly is a start to making informed decisions about what you read, but you can also use critical thinking in other parts of your everyday life. Sometimes you will need to make an important decision, and you will need to use critical thinking in order to make the best choice.

To illustrate the importance of using critical thinking skills, consider this first scenario: Michael receives an email message from a friend who claims that she has sent him a virus unknowingly. Her email message instructs him to search for the offending file and delete it immediately. Unaware of any problems that are usually associated with viruses, he searches for the file and finds it, exactly where his friend said it would be on his computer. Michael’s friend is a trustworthy person and he values her advice, so he deletes the file. He gets an email message the next day from her that says she is sorry that she sent him a hoax. Thus, he has deleted a perfectly normal file on his computer.

Now, consider this second scenario: Juanita sends Evan a link to a pop-up blocker because she knows that he hates those annoying intrusions while surfing the

Critical Thinking

EXERCISE 6.3

This chapter uses several figures to illustrate key concepts: a neuron, a Learning Pyramid, and the brain. Review each one and determine which ones are most helpful in conveying the information and which ones are least helpful. Choose the one that is least helpful to you and redraw it or add or delete information to make it more effective in communicating the information.



Internet. Because Evan has been deceived by free software before, he decides to search several reputable sites that are devoted to reviewing new software. Evan finds that the pop-up blocker is a fraud; instead, if he were to click on the link that Juanita has sent, his computer would have been overrun with pop-up advertisements of questionable origins.

In the first scenario, two people, at least, have been deceived by what appears to be legitimate and helpful information. Who doesn't want to rid her computer of a potentially dangerous virus? Unfortunately, Michael and his friend did not question the information. In the second scenario, however, Evan has encountered false claims before and realizes that he must check out every piece of information that comes to him, regardless of the friendly source. Evan is a critical thinker. Thinking critically allowed him to review the information he was sent and to search for authoritative sources that provided reliable information so that he could make a decision about what action to take.

As the Information Age evolves, critical thinking skills are not just advantageous; they are essential to survival. Not only do you need to possess these skills, but you also need others to possess them as well so that you will not constantly have to evaluate every piece of information that you receive. Can you imagine a world in which everything that you read is suspect and there is no sure way of finding out what is true and accurate and what is not? For people who do not think critically, that imagined world is a reality.

Edward de Bono's Six Hats Thinking[®]

One method of critical thinking is Edward de Bono's Six Hats Thinking[®]. De Bono (2008) has identified six different ways you can approach a problem or situation; each way is color coded and represents a different view of the issue. Figure 6.4 shows what each hat means.

To put the Six Hats into practice, review the following issue. Then, use Figure 6.5 to determine how each "hat" would see or discuss the issue.

Issue: The Student Government Association wants to offer and promote a money management workshop for students. They have had difficulty in the past getting students, who mostly drive to campus for classes and then leave immediately to go to work or to take care of children, to attend lectures, workshops, and special events.

Now it is your turn. Go back to Michael's dilemma regarding going to a tutor to help him with his algebra. How many different ways can he approach the decision to get help from a tutor? If Michael were to put on each hat, how would his view change? In Activity 6.1, fill in the blanks next to each hat according to each color's characteristics.

Critical Thinking/Problem-Solving Connection

Although not all critical thinking leads to solving a problem, problem solving relies on critical thinking as well as creative and analytical thinking. In order to think critically to solve a problem, you will need to go through a process within a group or as an individual. Remember that the more minds working on a problem, the more likely that all sides of the problem can be addressed, which may make the solution better.

FIGURE 6.4 Edward de Bono's Six Hats Thinking®



The White Hat

- The White Hat calls for information known or needed.



The Red Hat

- The Red Hat signifies feelings, hunches, and intuition.



The Black Hat

- The Black Hat is judgment—the devil's advocate or why something may not work.



The Yellow Hat

- The Yellow Hat symbolizes brightness and optimism.



The Green Hat

- The Green Hat focuses on creativity: the possibilities, alternatives, and new ideas.



The Blue Hat

- The Blue Hat is used to manage the thinking process.

Source: <http://www.debonothinkingsystems.com/tools/6hats.htm>







Edward de Bono's "Six Thinking Hats" © 1985 reprinted with the permission of The McQuaig Group Inc. All rights reserved. No electronic reproduction or photocopying permitted without prior consent.

You may not always have an opportunity to work in a group on a problem, but you may be able to ask others for their advice during the process.

Here are the basic steps of using critical thinking to solve a problem:

- Clearly identify the problem.
- Brainstorm possible solutions to the problem.
- Analyze the possible solutions for their viability.
- Think through each solution and determine the benefits and drawbacks to each.
- Choose the solution that potentially works the best.
- Evaluate the solution after it is in place.

FIGURE 6.5 Six Hats® and Student Government Association Issue







Hat	View of Issue
WHITE 	It is important to find out what we have offered in the past and how many people have attended.
RED 	The money management workshop is a great idea because so many students talk about how hard it is to pay for college and work enough hours to pay their bills.
BLACK 	Because students have so many other responsibilities and priorities, they are not going to stay after a long day to participate in a workshop about something boring like money management.
YELLOW 	If we offer free pizza and a drawing for free textbooks, then we will easily have 200 students attend.
GREEN 	What if we offer money makeovers to select students and give away copies of a popular money management book?
BLUE 	Let's put all these ideas together and figure out which ideas will work and what we need to do to make this workshop successful.

Step 1: Identify the Problem

Sometimes we assume we know what the problem is, and we try to fix it only to find out that our solution doesn't work because we were fixing the wrong problem. Consider a crying baby who last ate two hours ago. If faced with the problem of the crying baby, you may assume that the baby is still hungry and wants more to eat. When you try to feed the baby, he rejects the food. Now what? Is the baby not hungry? Have you offered something the baby doesn't like? Is the baby sick, too hot, too cold, tired? You can imagine how much time and energy you will spend trying to find the solution to the problem.

Identifying the problem's cause is the first logical step before you can begin to solve it. If you do not identify the cause—or at least eliminate possible causes—before starting the next step, either you won't solve the problem or you might create a whole new problem to solve.

ACTIVITY 6.1 Using Six Hats®

HAT	VIEW OF ISSUE
WHITE 	
RED 	
BLACK 	
YELLOW 	
GREEN 	
BLUE 	

Step 2: Generate Ideas

This is the step where creative thinking will kick in. When you generate ideas, there are no rules except not to eliminate any ideas because they are too far-fetched or too odd. The goal for this step is to get the ideas recorded, and the more you can think “outside the box,” the more likely you are considering all possibilities.

When generating ideas, consider using brainstorming, free writing, clustering, and role playing (if you are able to work with another person) to get ideas flowing. This is a good time to use your learning style strength to stretch your imagination.

Step 3: Assess the Possibilities

More creative and analytical thinking, or breaking down the different ideas, will help you at this stage. What are the different parts of the possibilities? Are there any that are impossible, impractical, and illogical? Determine what the least viable solutions are and eliminate them from the list.

Step 4: Think Through Solutions

Thinking through each solution will involve exploring their benefits and drawbacks. Consider the possibilities, but don't completely discard them after the next step. You may need them after you evaluate your final solution and find it to be ineffective.

Step 5: Choose the Best Solution

When choosing the best solution, consider the effects of the solution. Will it cause another problem? What kind of emotional, physical, and financial investment will it take? What will you need to do to implement the solution correctly? Creative thinking to consider all sides of the implementation of the solution will be needed before you make a final decision. Analytical thinking can help you put all the possibilities in a table so you can examine the consequences.

Collaboration

Working in a group, discuss some issues on your campus that need to be solved. Use the critical thinking process to develop a viable solution. Share your ideas with the class.

EXERCISE 6.4

Step 6: Evaluate the Solution

The final stage of problem solving is evaluation. The ability to evaluate allows you to use what you have learned in the process of solving the problem to solve other problems. Ask yourself if the problem was adequately resolved. Did the solution only partly solve the problem or was it a complete solution? What, if anything, would you do differently if you experience the same problem again?

Putting Critical Thinking into Practice

What do you do in the following situations?

- You have an exam at 9:00 a.m. and you get into your car at 8:20 to get to class on time. Your car won't start.
- You need a math tutor to help you get through elementary algebra successfully. The tutoring center's hours are not convenient for you because you work every evening that the center is open late.
- You are worried that you may not be able to purchase your textbooks for next semester because the bookstore's prices are higher than you had anticipated.

If your car won't start and you have to get to an exam, would you be likely to give up and go back into the house, hoping that you can make up the exam? If you cannot find a tutor for elementary algebra, would you plod through the course and pray that you make it? If you are not able to afford textbooks next semester, would you see how far you can get without buying them? What are the other possible solutions to these problems? If you use the critical thinking steps for problem solving, you may realize that there are other alternatives, or possible solutions, to your predicaments.

Here are one student's problem-solving steps for the first scenario:

1. **Clearly identify the problem.** I have two problems. The first is that my car won't start, and the second is that I need to get to school to take an exam.
2. **Brainstorm possible solutions to the problem.** To address my more immediate problem, getting to school to take my test, I can do one or more of the following:
 - Call a friend to pick me up.
 - Call a cab to take me to school.
 - Take a train, plane, or bus.
 - Call my instructor to ask about taking a makeup exam.
 - Run to school.
 - Walk to school.
3. **Evaluate the possible solutions for their viability.**
 - Call a friend—I can get Jessica to pick me up, but she will then be late for work.
 - Call a cab—It will cost \$20 and I won't be able to get to school until 9:15 a.m.
 - Catch a train, plane, or bus—There are no trains or planes available. I don't know the bus schedule and will have to walk 1.2 miles to get to the bus stop.
 - Call my instructor—She may not allow me to make up the exam; I may not be able to get a message to her.
 - Run to school—I am not in shape to make it all the way.
 - Walk to school—The distance to school is 3.5 miles. It will take me at least an hour to get there, which will give me only 30 minutes to take my exam.
4. **Think through each solution and determine the benefits and drawbacks to each.** I have eliminated walking to school and catching the bus. I am left with three possible solutions: (1) Call my friend Jessica to pick me up; (2) call a cab; and (3) call my instructor about making up the exam.
 - *Option 1:* The benefit of calling Jessica is that she is a friend and would help me out. I would also be able to make it to the exam on time. Drawbacks to calling Jessica is that she would be late to work if she took me to school and I would still have trouble getting to work.
 - *Option 2:* The benefit of calling a cab is that I would definitely get to school. A drawback is that it would cost me \$20, which I don't need to spend. Also, I wouldn't be able to get to school until 9:15. And how would I get to work after my classes?
 - *Option 3:* The benefit of calling my instructor is that I could explain why I could not make it to class, and she might be sympathetic to my dilemma.

Another benefit is that she might allow me to make up the exam.

A drawback is that I might not be able to get a message to her that I am having car trouble, or she might not allow me to make up the exam.

5. **Choose the solution that potentially works the best.** My solution is to call my friend Jessica because it is the easiest solution. I won't have to pay to get to school, and I can get there on time. She may, though, be irritated at me for asking for a favor at the last minute. Then again, she may be very glad to be able to return a favor for me.
6. **Evaluate the solution after it is in place.** After I have Jessica take me to school, I will be able to evaluate whether or not the solution worked. If Jessica can get me to school on time without being late for work, then the solution will be a success. If she has trouble picking me up or if she gets mad at me because I have made her late, then I will have to consider other solutions if I have car trouble again.

PLUS

EXERCISE 6.5

(Personality + Learning Style = Understanding Situations)

Let's revisit Michael's dilemma. He is a visual learner and extroverted with friends, but introverted when he is around people he just met. Michael prefers structured learning environments, ones in which he is told exactly what he needs to do and what he needs to study. What learning and thinking strategies can he use to improve his learning and retention both in and out of the class?

Now, considering your own learning style, personality type, and special circumstances, what would you do to feel comfortable with keeping up with your classes and studying when you are challenged by the material?

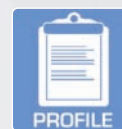


MY STORY

Learning Plan

Directions: Using what you have learned in this chapter and what you know about your learning preferences, choose a task or assignment that needs to be completed soon and create a learning plan that will help you accomplish this task. Then write your *My Story* Summary, a one-sentence synopsis that crystallizes your newly created plan.

LEARNING TASK	
Time of Day	
Intake Preference	
Social Preference	
Task Management Preference	



MY STORY SUMMARY:

Path of Discovery

Journal Entry

How will practicing critical thinking steps affect future decisions? Do you think you will be better prepared to solve problems and make better choices, or do you think you will be more confused about the choices you have?





From College to University

Different Types of Thinking Will Be Needed to Continue Your Learning

When you transfer to a university, you will continue to use creative, analytical, and critical thinking skills in upper-level classes. In upper-level classes, your professors will move away from the knowledge and comprehension to synthesis and evaluation. You will spend more time doing research and determining if the sources you find are reliable and accurate. You will also use those sources to support your own new ideas, developed through creative thinking, about current issues in your major. All in all, you will be more responsible for the depth and breadth of your education, and strong thinking skills will help you deepen your learning.



From College to Career

How Critical Thinking Will Be Used on the Job

Critical thinking on the job is essential to a rewarding and successful career. Your employer, no matter what your position, will value your ability to think critically and solve problems, and you will value the work you do if you are allowed to use those skills to improve yourself and your environment.

How will you use critical thinking on the job? There will be, no doubt, countless opportunities to think critically at work. For example, you may realize that the office does not run efficiently and you have evaluated ways to improve the flow of work. You may be asked to think critically about a problem in order to solve it. No matter how you arrive at thinking critically on the job, keep the steps to problem solving handy.

As you have read in this chapter, critical thinking is a process, not an end. Once you have solved a problem, new ones will arise that will require critical thinking. To improve yourself and your progress on the job, you will have to be committed to thinking critically.



Chapter Review Questions



1. What has recent brain research told us about learning?
2. In what ways will you be expected to learn in college?
3. Define creative and critical thinking. Compare and contrast these ways of thinking.
4. Identify and describe the six steps of critical thinking/problem solving.



Chapter 6 Case Scenarios



1. Joan has been named a student ambassador for her college. One of her duties as an ambassador is to help prepare for fall orientation for new students. The advisors have told the student ambassadors that last year students rated orientation low because they had to wait in long lines to get registered and the information they received was too detailed and difficult to comprehend. Joan and her fellow ambassadors have been asked to create a new way of providing orientation to students. What process will Joan and her fellow ambassadors need to follow to create a successful program for new students?

2. Sidra wants to earn money for college tuition next year, but she doesn't have the time to work 40 hours a week. If Sidra's creative thinking process results in the following ideas, explain what steps she needs to follow in order to determine the most viable solution: sell blood, tutor classmates, tattoo herself with a local company's logo and charge them for advertising, sell items on the Internet, work as a telemarketer, house sit for friends and family members.

3. Kenya has decided to apply for a loan forgiveness program that will pay all her tuition as she completes a degree in computer networking. The loan forgiveness program requires that she find a job in networking within three months of graduation, or she will owe back the full amount of her loans. After she completes a year of her degree program, she learns that the job market for networking specialists does not look promising for the next five years, which may mean she will have great difficulty finding a job when she graduates in a year. What should Kenya do?



Research It Further



1. Using the key terms "critical thinking" and "creative thinking," search the Internet for tips for improving critical and creative thinking skills. Make a table of the different tips and present the information to your classmates.

2. Create a survey to distribute to fellow students that ask them what the top concerns on campus are. Report your results to the class and choose one to solve through the critical thinking process.
3. Interview faculty members in different programs on your campus and ask them to provide a critical thinking scenario that a graduate in their programs would encounter on the job. Ask them to work through the problem to a feasible solution. Share the different problem-solving scenarios with the class and ask them to compare and contrast the processes.



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