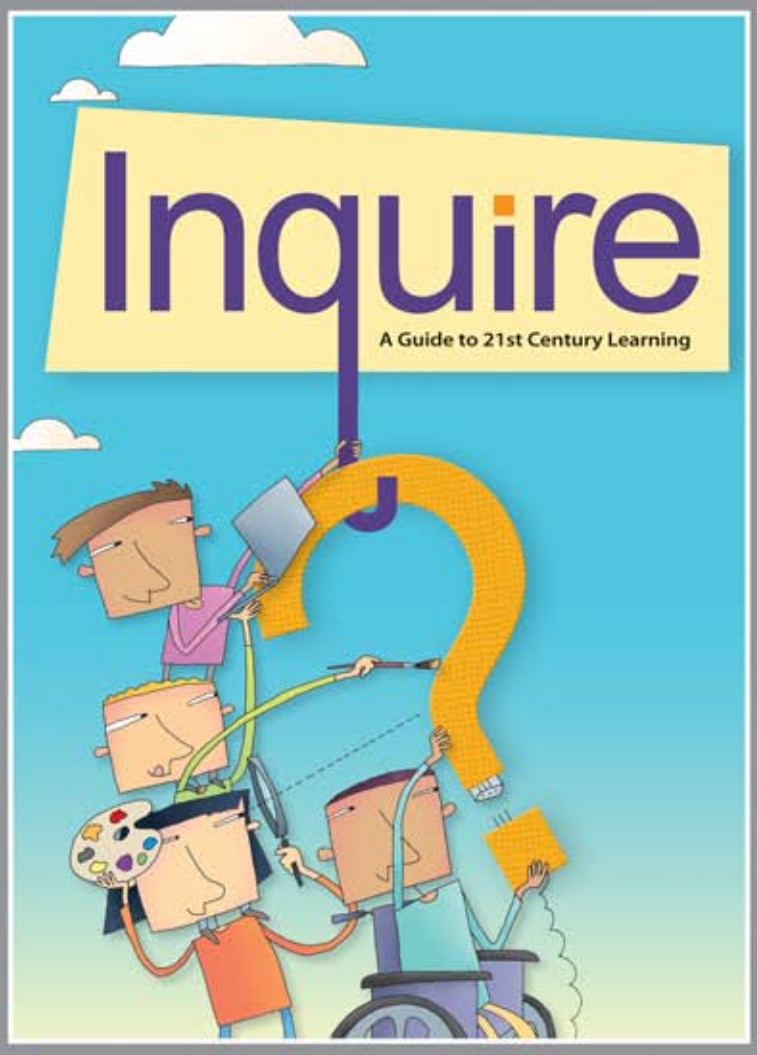
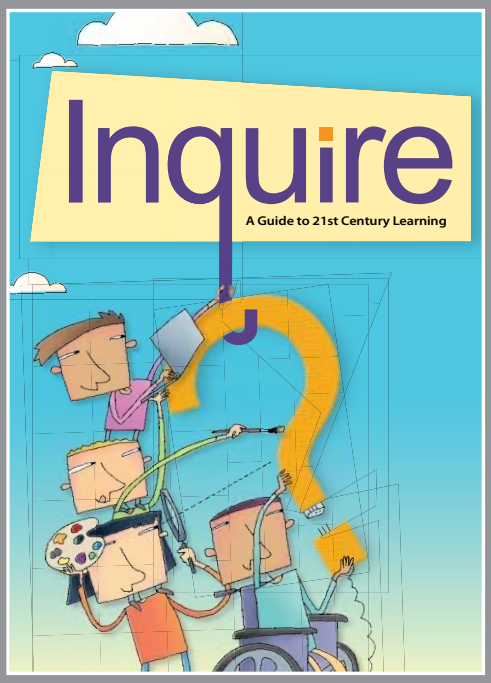


Sampler

Teacher's Guide
to the Student Handbook



Teacher's Guide
to the Student Handbook

Written and Compiled by
Robert King, Christopher Erickson, and Janae Sebranek

(Uncorrected Proof)

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Mariellen Hanrahan	April Lindau	Jean Varley
Tim Kemper	Jason C. Reynolds	Jeanne Yost

A special thanks goes to Cindy Smith, project-based instructor at Karcher Middle School in Burlington, Wisconsin. In addition to providing guidance and feedback on *Inquire*, Ms. Smith graciously allowed the team to field-test the material in her class. Her insights and those of her 32 seventh- and eighth-grade students greatly improved *Inquire*. To them, we say "Thank you!"

Inquire on the Web

This book is just the beginning! Visit thoughtfullearning.com to find dozens of downloadable templates and forms, additional models and projects, links to great resources, and much, much more.

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Thoughtful Learning
www.thoughtfullearning.com

Dear Educator:

You face unprecedented challenges in preparing your students for life in a changing world. Thank you for taking on these challenges. Please know that *Inquire* is an innovative resource that will guide and enrich your instruction along the way.

Inquire can help your students . . .

- **build 21st century skills** such as critical and creative thinking, problem solving, understanding media, and collaborating;
- **sharpen their study skills** such as reading to learn, improving vocabulary, note taking, and taking tests;
- **develop inquiry skills** such as questioning, planning, researching, creating, improving, and presenting; and
- **create amazing projects,** from writing and Web projects to design and performing projects.

Whether you teach in a traditional classroom or in an inquiry- or project-based environment, you'll find that *Inquire* helps your students develop the literacy and learning skills they need. And whether you teach math, science, social studies, language arts, or research skills, you'll discover that *Inquire* can help your students flourish. As you know, students who can think deeply, solve problems, and work with others will excel not only in your classroom, but also in life.

Thank you for helping to shape the future!

Best regards,

Chris Erickson
President/Author

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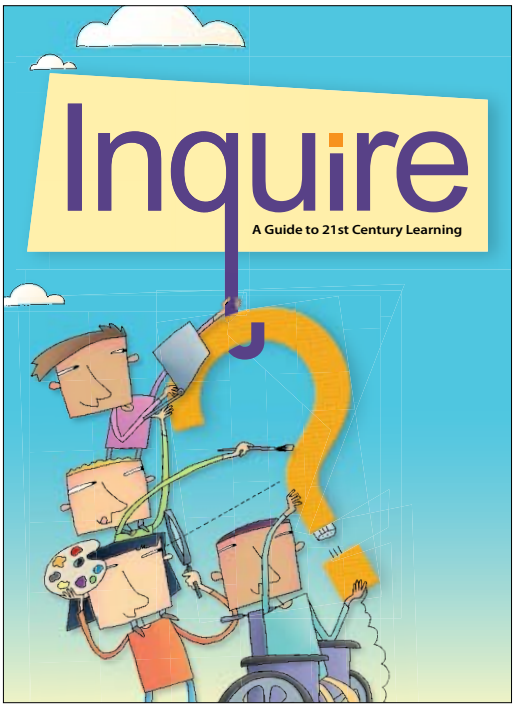
Overview



What is *Inquire*?

Inquire is a complete learning handbook, reflecting the latest and the best research on thinking and literacy. It covers 21st century skills, basic study skills, the inquiry process, and classroom projects.

Why is *Inquire* important?

With the current emphasis on critical thinking, problem solving, media literacy, and thoughtful learning, *Inquire* is an indispensable guide for students and an invaluable resource for teachers.

How can *Inquire* be used?

Inquire can serve well in the regular classroom as well as in the inquiry-based, problem-based, and project-based classrooms. It is also a natural fit for research courses or classes that teach 21st century skills or basic study skills. (See pages 26–34 in this guide for more.)

Who should have a copy of *Inquire*?

Inquire works best when every student has a copy to use across the curriculum and later at home. It is designed for students in grades 5–9, but as there are no grade designations in the book, it can serve students in other grades as appropriate. *Inquire* is also a useful in-class resource for classrooms that cannot provide copies to all students.

What goes with *Inquire*?

This teacher's guide introduces you to *Inquire,* shares the pedagogy that prompted its development, offers planning and instruction guidelines, and provides chapter-by-chapter lesson plans. The *Inquire* Web site (thoughtfullearning.com) offers additional teaching ideas, downloadable templates and forms, links to great resources, and more.

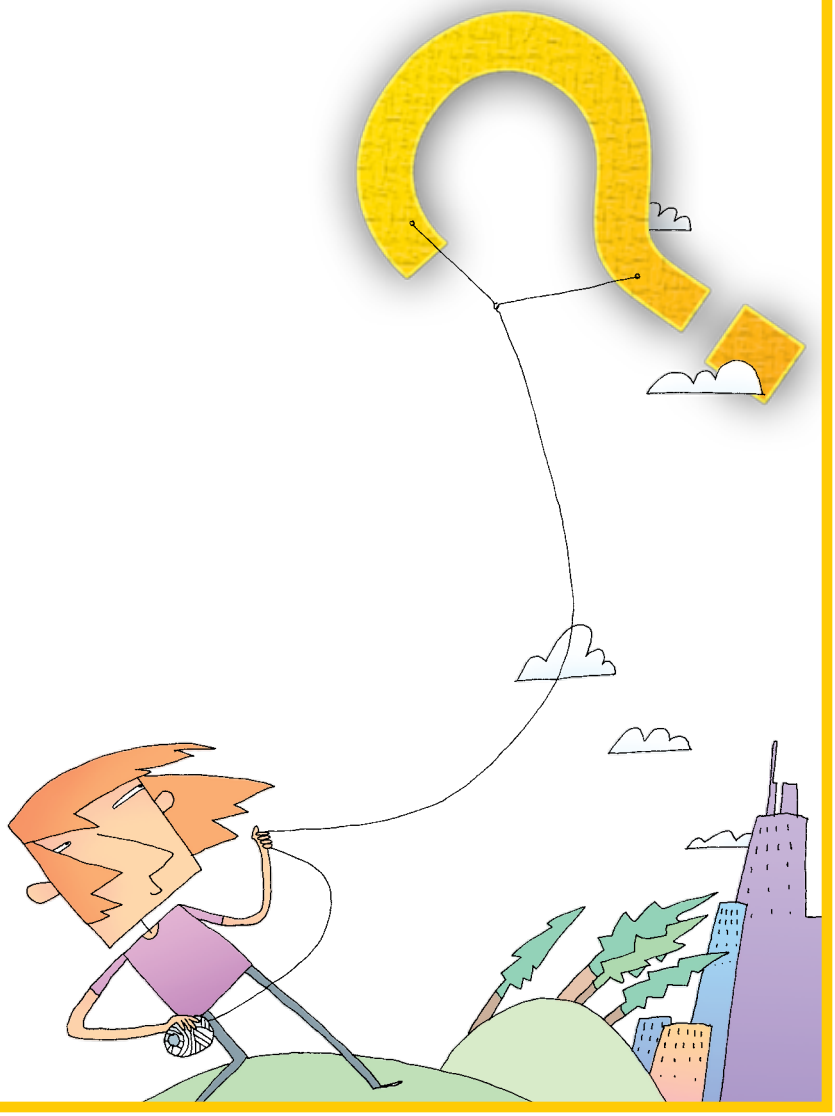
How should I get started?

- First, page through *Inquire* to appreciate the depth and breadth of the information included.
- Then read the opening chapter to get a look at content presentation. (You will find it friendly, complete, and easy to follow.)
- Next, review or skim the opening section of this teacher's guide (pages 1–60) and at least one of the lesson-plan chapters (pages 61–260) to understand how best to use *Inquire*.

Pedagogy Behind *Inquire*

Inquire reflects the best research on instruction, including 21st century skills, critical thinking and problem solving, inquiry-based instruction, and project-based education. This section in the teacher's guide highlights the key pedagogical schools of thought that make *Inquire* so important and timely.

- **Why are the 21st century skills so important?** **8**
- **How can Bloom's taxonomy direct instruction?** **9**
- **Why is inquiry-based instruction pedagogically sound?** **10**
- **Why does project-based instruction connect with students?** **11**
- **How do 21st century skills, inquiry, and projects interconnect?** **12**



Why are the 21st century skills so important?

"The current and future health of America's 21st century economy depends directly on how broadly and deeply Americans reach a new level of literacy—21st century literacy—that includes strong academic skills, thinking, reasoning, teamwork skills, and proficiency in using technology."

This key pronouncement comes from the 21st Century Workforce Commission National Alliance of Business, but it reflects the thinking of many important organizations, both private and public, interested in preparing students and citizens for life and work in the 21st century.

One key organization, the **Partnership for 21st Century Skills,** is a public-private meeting of the minds that has developed a model of learning for the 21st century. This model has become a template for preparing students for learning, literacy, and life skills at all levels of education and in the development of core standards to guide instruction for this generation of students. *Inquire* addresses the skills identified in this important model. (See pages 42–49 in this guide for correlations to the 21st century skills.)

21st Century Skills in *Inquire*

Learning Skills

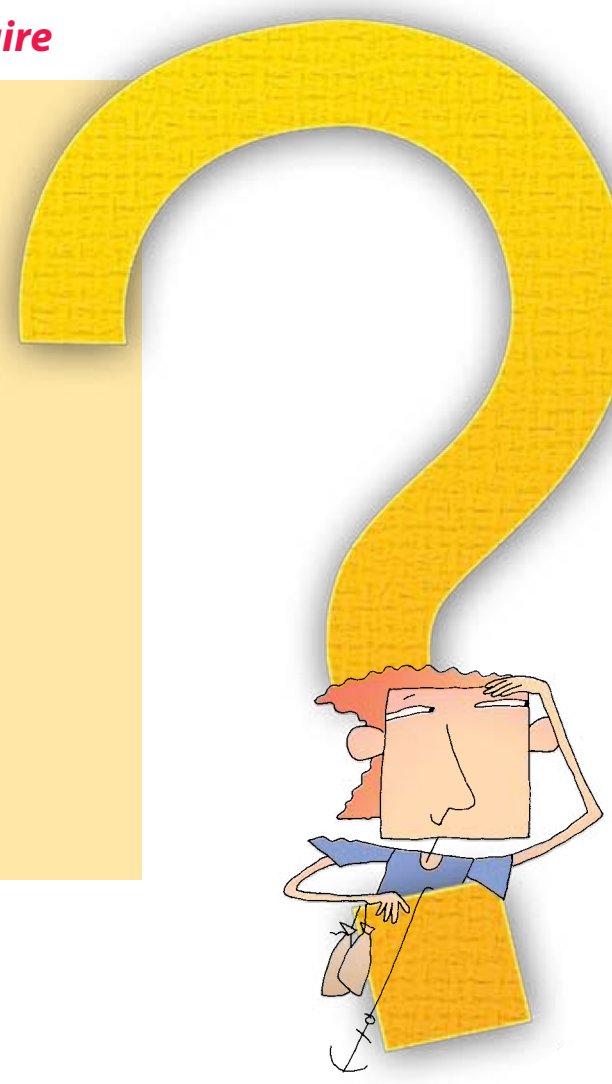
- Critical thinking
- Creative thinking
- Problem solving
- Communicating
- Collaborating
- Building arguments

Literacy Skills

- Information literacy
- Media literacy
- Technology literacy

Life Skills

- Flexibility
- Initiative
- Social skills
- Productivity
- Leadership



How can Bloom's taxonomy direct instruction?

Key features in any model of 21st century skills are critical thinking, creative thinking, and problem solving. On the one hand, today's students need to approach learning more thoughtfully and deliberately; on the other hand, they need to apply creative thinking skills to solve problems and complete projects.

The challenge for educators is deciding where to begin and how to practice thinking skills in content-area instruction. Bloom's revised taxonomy classifies the basic thinking behaviors and can serve as a blueprint for educators as they plan thoughtful curriculum and instruction.

Bloom's taxonomy has guided thoughtful instruction for many years; the revised taxonomy, shown below, is even more valuable and applicable to 21st century instruction. *Inquire* teaches specific strategies for critical and creative thinking based on Bloom's revised taxonomy of thinking.

Blooms Revised Taxonomy in *Inquire*

	Inquire **provides**
Remembering is recalling basic information.	■ strategies for identifying and remembering.
Understanding is knowing what the information means.	■ strategies for deductive and inductive thinking.
Applying is putting the information to use.	■ strategies for planning projects and setting goals.
Analyzing is looking at the parts of something and figuring out how they fit together.	■ strategies for comparing, classifying, sequencing, and exploring causes and effects.
Evaluating is determining the value or worth of something.	■ strategies for rating and using rubrics.
Creating is putting ideas together in new ways to make something.	■ strategies for creating different types of structure and organization.

Why is inquiry-based instruction pedagogically sound?

Inquiry-based instruction is a teaching technique that promotes many of the 21st century skills, including critical thinking, problem solving, and collaborating. This method of instruction was initially common in the science curriculum and is now used in all content areas. In fact, inquiry-based schools are designed to promote student-generated, hands-on learning.

Inquiry-based instruction increases students' interest in learning while helping them retain what they have learned and internalize lifelong learning skills. It also reflects the problem-based approach used in the workplace.

The key to using the inquiry approach successfully is to put in place a process that will carry students through their inquiries. Part 2 of *Inquire* covers the inquiry process as shown below. In addition, the project guidelines in part 3 of the book follow the steps in the inquiry process.

The Inquiry Process in *Inquire*

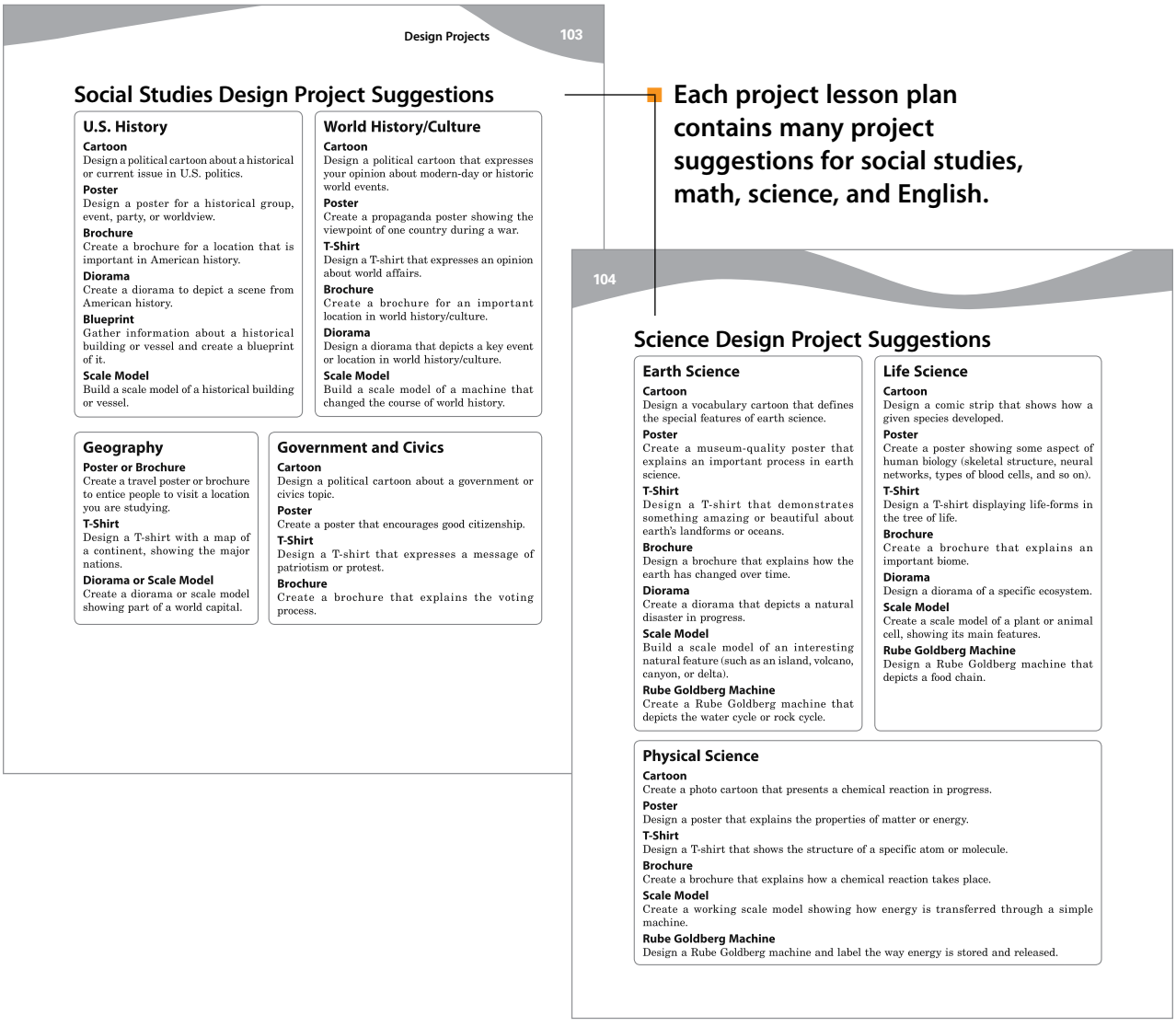
- **Questioning** is the critical starting point for the inquiry process.
- **Planning** helps students manage their investigations.
- **Researching** provides students with basic and advanced gathering strategies.
- **Creating** helps students develop something out of their research.
- **Improving** helps students improve and fine-tune their work.
- **Presenting** provides options for sharing their final creations.

Why does project-based instruction connect with students?

Project-based instruction is an interdisciplinary approach to teaching that promotes 21st century literacy and learning. This approach increases student interest, allows for practicing 21st century skills, and promotes both self-directed learning and teamwork. Project-based instruction is closely connected with inquiry-based instruction in that students develop projects using the inquiry process and 21st century skills.

Traditional classroom teachers often assign projects after introducing new content. Teaching teams often plan interdisciplinary projects that connect key concepts in all of the represented content areas. Project-based schools are built entirely, or almost entirely, on student-directed learning.

Part 3 of *Inquire* offers students a wide variety of project ideas, from writing projects to Web projects, from audio-visual projects to performing projects.



Design Projects 103

Social Studies Design Project Suggestions

U.S. History

Cartoon
Design a political cartoon about a historical or current issue in U.S. politics.

Poster
Design a poster for a historical group, event, party, or worldview.

Brochure
Create a brochure for a location that is important in American history.

Diorama
Create a diorama to depict a scene from American history.

Blueprint
Gather information about a historical building or vessel and create a blueprint of it.

Scale Model
Build a scale model of a historical building or vessel.

World History/Culture

Cartoon
Design a political cartoon that expresses your opinion about modern-day or historic world events.

Poster
Create a propaganda poster showing the viewpoint of one country during a war.

T-Shirt
Design a T-shirt that expresses an opinion about world affairs.

Brochure
Create a brochure for an important location in world history/culture.

Diorama
Design a diorama that depicts a key event or location in world history/culture.

Scale Model
Build a scale model of a machine that changed the course of world history.

Geography

Poster or Brochure
Create a travel poster or brochure to entice people to visit a location you are studying.

T-Shirt
Design a T-shirt with a map of a continent, showing the major nations.

Diorama or Scale Model
Create a diorama or scale model showing part of a world capital.

Government and Civics

Cartoon
Design a political cartoon about a government or civics topic.

Poster
Create a poster that encourages good citizenship.

T-Shirt
Design a T-shirt that expresses a message of patriotism or protest.

Brochure
Create a brochure that explains the voting process.

Each project lesson plan contains many project suggestions for social studies, math, science, and English.

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Science Design Project Suggestions

Earth Science

Cartoon
Design a vocabulary cartoon that defines the special features of earth science.

Poster
Create a museum-quality poster that explains an important process in earth science.

T-Shirt
Design a T-shirt that demonstrates something amazing or beautiful about earth's landforms or oceans.

Brochure
Design a brochure that explains how the earth has changed over time.

Diorama
Create a diorama that depicts a natural disaster in progress.

Scale Model
Build a scale model of an interesting natural feature (such as an island, volcano, canyon, or delta).

Rube Goldberg Machine
Create a Rube Goldberg machine that depicts the water cycle or rock cycle.

Life Science

Cartoon
Design a comic strip that shows how a given species developed.

Poster
Create a poster showing some aspect of human biology (skeletal structure, neural networks, types of blood cells, and so on).

T-Shirt
Design a T-shirt displaying life-forms in the tree of life.

Brochure
Create a brochure that explains an important biome.

Diorama
Design a diorama of a specific ecosystem.

Scale Model
Create a scale model of a plant or animal cell, showing its main features.

Rube Goldberg Machine
Design a Rube Goldberg machine that depicts a food chain.

Physical Science

Cartoon
Create a photo cartoon that presents a chemical reaction in progress.

Poster
Design a poster that explains the properties of matter or energy.

T-Shirt
Design a T-shirt that shows the structure of a specific atom or molecule.

Brochure
Create a brochure that explains how a chemical reaction takes place.

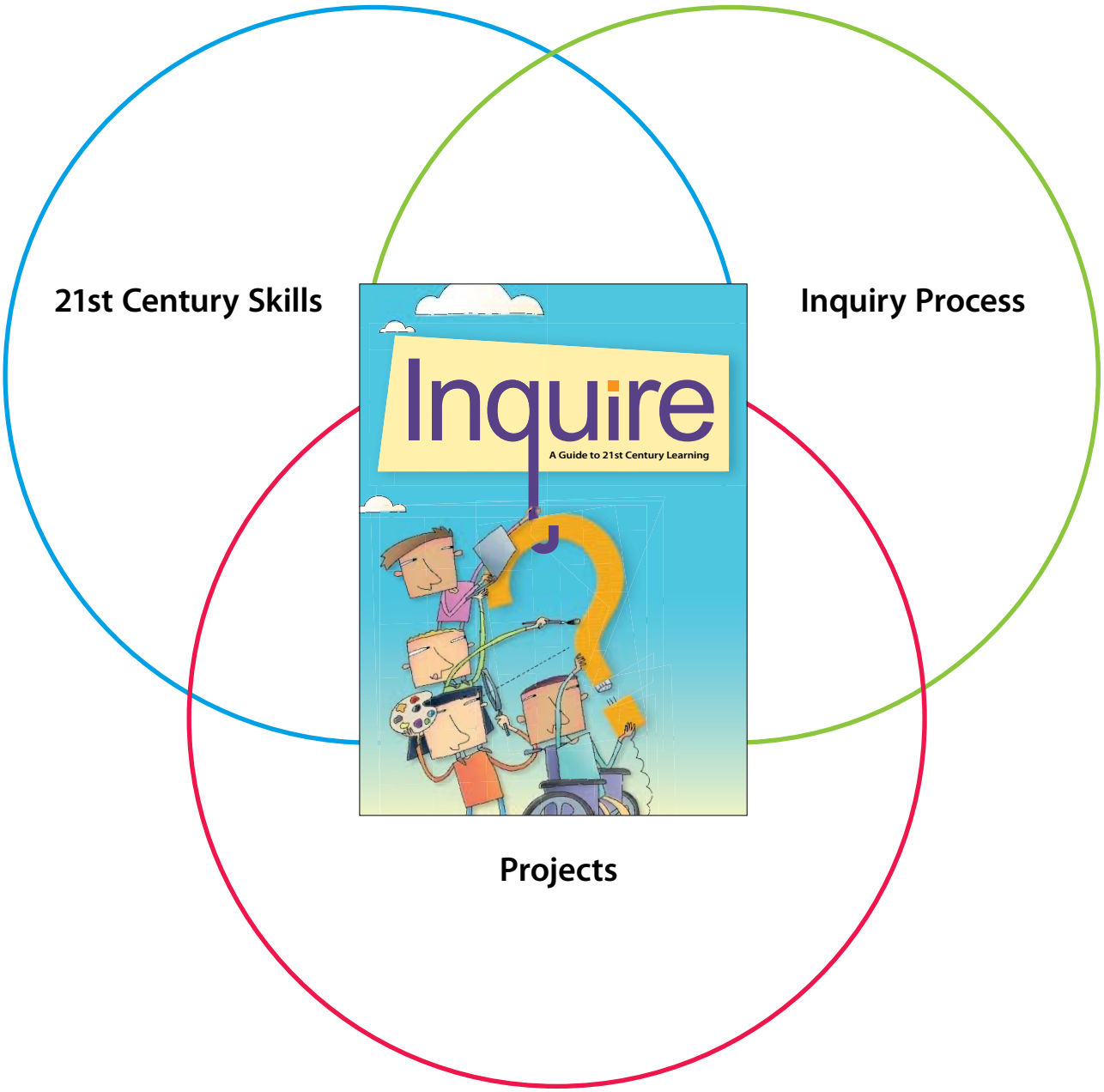
Scale Model
Create a working scale model showing how energy is transferred through a simple machine.

Rube Goldberg Machine
Design a Rube Goldberg machine and label the way energy is stored and released.

How do 21st century skills, inquiry, and projects interconnect?

Students need 21st century skills like critical and creative thinking, communicating, and problem solving as they work through the inquiry process. Students use the inquiry process to develop projects, and projects help students learn core content.

This chart shows the special relationship between 21st century skills, the inquiry process, and content-based projects.

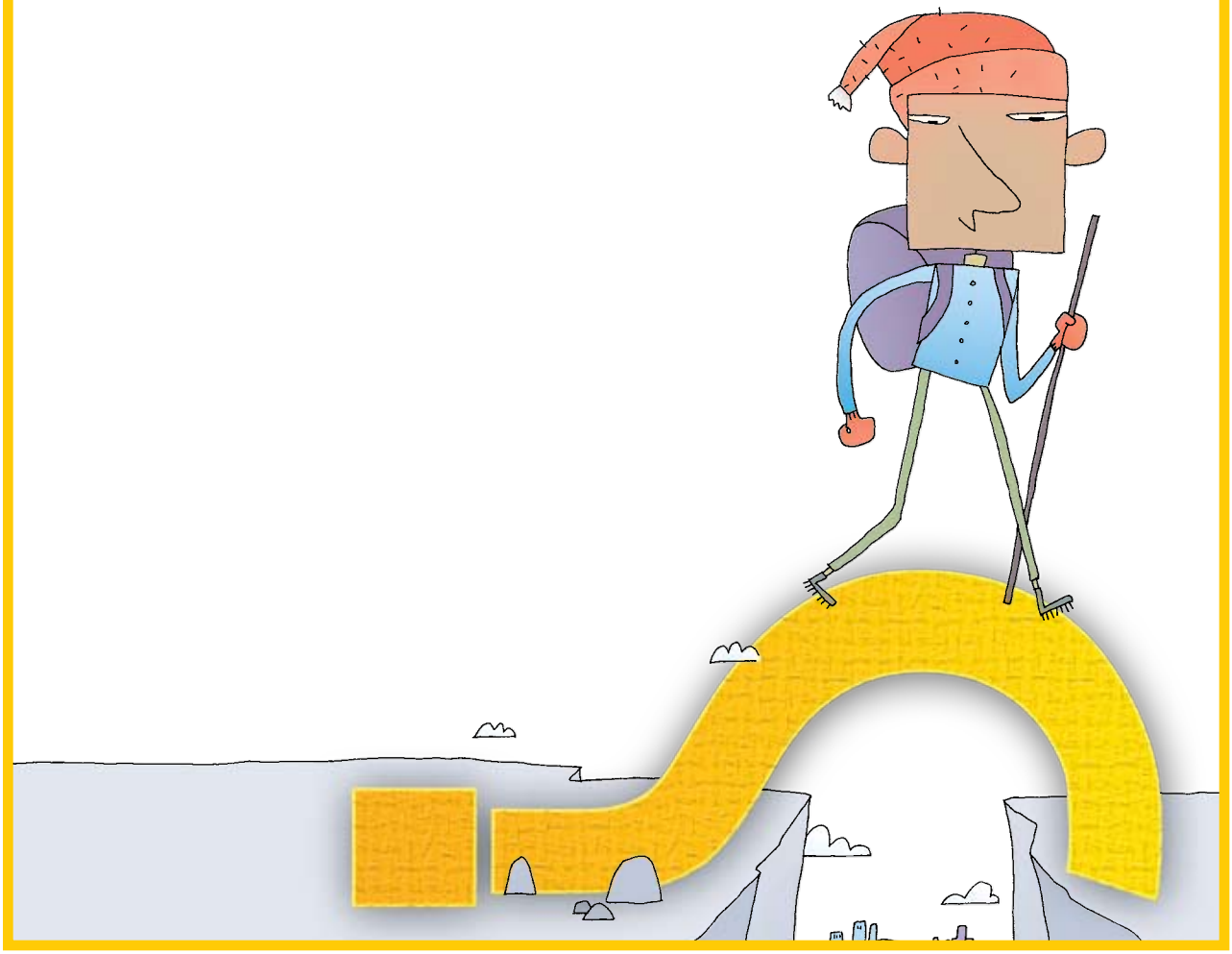


Quick Tours of *Inquire* and Ancillaries

The ***Inquire*** handbook is comprehensive, covering 21st century skills, inquiry, and projects. All of the material is presented in an easy-to-follow format. Once students get to know the handbook, they will be able to find information quickly and efficiently—a key feature of any useful resource.

The ***Inquire Teacher's Guide*** helps you use the handbook in the classroom. Just follow the headings and questions to find what you need. Beyond that, the ***Inquire*** **Web site** is easy to navigate and provides a wealth of resources and links. This section highlights the main features in each of these resources.

- **What is included in *Inquire*? 14**
- **What is included in the *Inquire Teacher's Guide?* 18**
- **What is included on the *Inquire* Web site? 22**



What is included in *Inquire*?

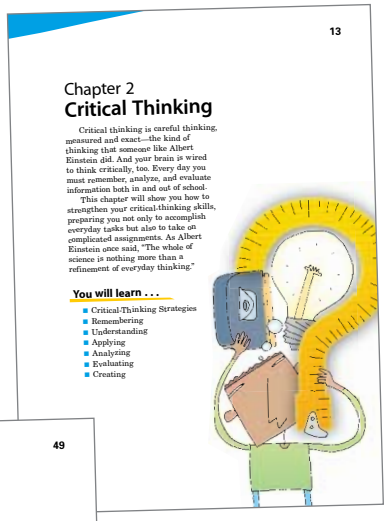
Inquire is organized in three parts. Part 1 covers 21st century skills and traditional study skills. Part 2 covers the inquiry process, and part 3 provides examples of a wide variety of projects.

Part I: Building 21st Century Skills

This section covers all of the important 21st century skills—and more. If students follow the strategies in each chapter, they will become better thinkers and learners now and for years to come. These skills will also prepare them to use the inquiry process discussed in part 2 and to create the projects outlined in part 3.

Chapters in This Section

1 Overview of 21st Century Skills
2 Critical Thinking
3 Creative Thinking
4 Problem Solving
5 Communicating
6 Collaborating
7 Building Arguments
8 Understanding Media
9 Using Social Media
10 Reading to Learn
11 Improving Vocabulary
12 Following Basic Conventions
13 Improving Study Skills
14 Succeeding in School
15 Succeeding in the Workplace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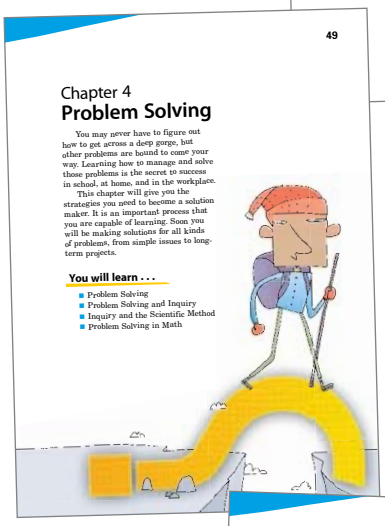
Chapter 2
Critical Thinking

Critical thinking is careful thinking, measured and exact—the kind of thinking that someone like Albert Einstein did. And your brain is wired to think critically, too. Every day you must remember, analyze, and evaluate information both in and out of school.

This chapter will show you how to strengthen your critical-thinking skills, preparing you not only to accomplish everyday tasks but also to take on complicated assignments. As Albert Einstein once said, "The whole of science is nothing more than a refinement of everyday thinking."

You will learn . . .
- Critical-Thinking Strategies
- Remembering
- Understanding
- Applying
- Analyzing
- Evaluating
- Creating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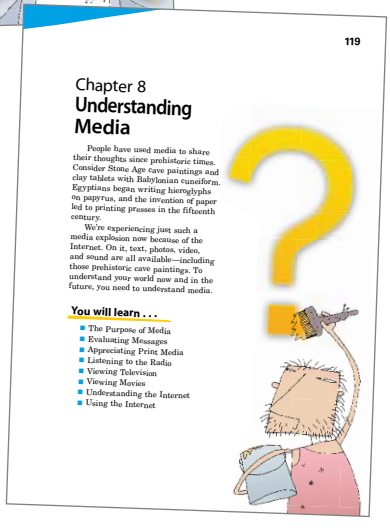
Chapter 4
Problem Solving

You may never have to figure out how to get across a deep gorge, but other problems are bound to come your way. Learning how to manage and solve those problems is the secret to success in school, at home, and in the workplace.

This chapter will give you the strategies you need to become a solution maker. It is an important process that you are capable of learning. Soon you will be making solutions for all kinds of problems, from simple issues to long-term projects.

You will learn . . .
- Problem Solving
- Problem Solving and Inquiry
- Inquiry and the Scientific Method
- Problem Solving in Math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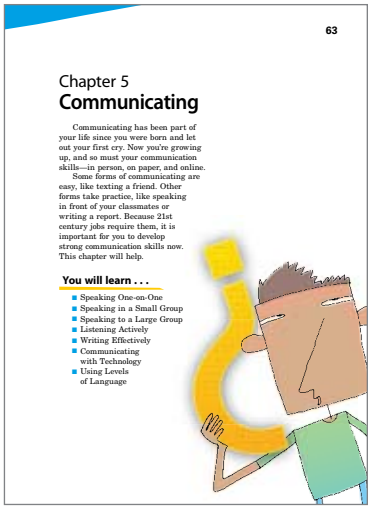
Chapter 8
Understanding Media

People have used media to share their thoughts since prehistoric times. Consider Stone Age cave paintings and clay tablets with Babylonian cuneiform. Egyptians began writing hieroglyphs on papyrus, and the invention of paper led to printing presses in the fifteenth century.

We're experiencing just such a media explosion now because of the Internet. On it, text, photos, video, and sound are all available—including those prehistoric cave paintings. To understand your world now and in the future, you need to understand media.

You will learn . . .
- The Purpose of Media
- Evaluating Messages
- Appreciating Print Media
- Listening to the Radio
- Viewing Television
- Viewing Movies
- Understanding the Internet
- Using the Internet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Chapter 5
Communicating

Communicating has been part of your life since you were born and let out your first cry. Now you're growing up, and so must your communication skills—in person, on paper, and online.

Some forms of communicating are easy, like texting a friend. Other forms take practice, like speaking in front of your classmates or writing a report. Because 21st century jobs require them, it is important for you to develop strong communication skills now. This chapter will help.

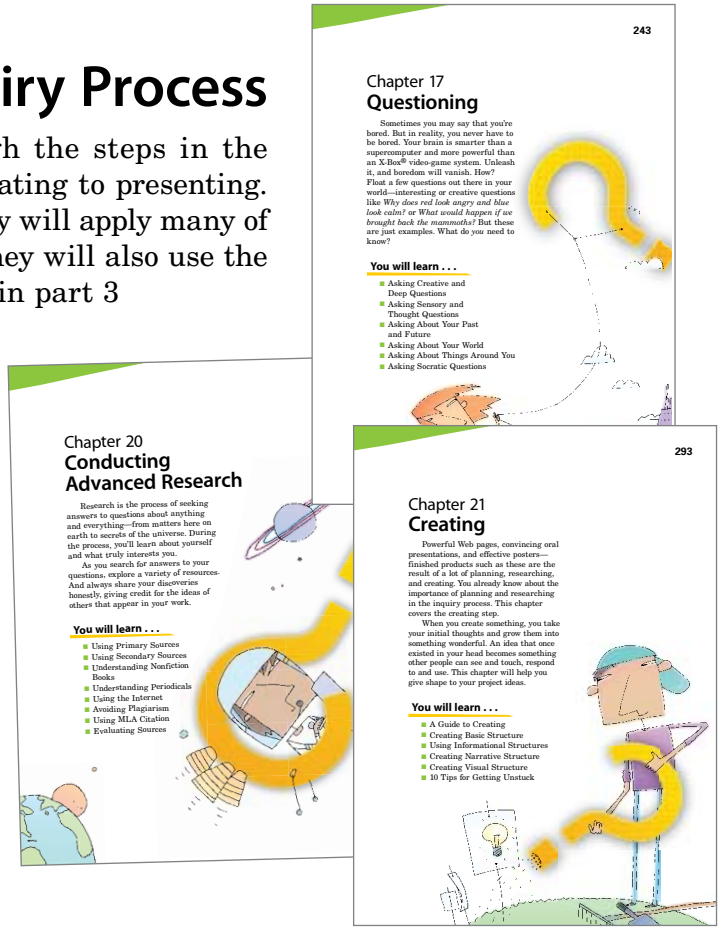
You will learn . . .
- Speaking One-on-One
- Speaking in a Small Group
- Speaking to a Large Group
- Listening Actively
- Writing Effectively
- Communicating with Technology
- Using Levels of Language

Part II: Using the Inquiry Process

This section leads students through the steps in the inquiry process, from questioning to creating to presenting. As students learn about this process, they will apply many of the skills that they learned in part 1. They will also use the inquiry process to complete the projects in part 3

Chapters in This Section

16 Learning About the Inquiry Process
17 Questioning
18 Planning
19 Conducting Basic Research
20 Conducting Advanced Research
21 Creating
22 Improving
23 Presenting



Part III: Developing Projects

This section offers dozens of project ideas—writing projects, graphic projects, Web projects, building projects, and much more. Each specific project includes guidelines, visuals, and examples. Listed below are the types of projects covered in part 3, but these are just starting points. Let inquiry guide your students as they make these projects their own.

Chapters in This Section

24 Basic Writing Projects
25 Advanced Writing Projects
26 Graphing Projects
27 Web Projects
28 Audio-Visual Projects
29 Design Projects
30 Performing Projects
31 Community Projects

A Closer Look at the Handbook

These two pages identify important elements and features that help students do their best thinking and learning with *Inquire*.

Chapter 5
Communicating

Communicating has been part of your life since you were born and let out your first cry. Now you're growing up, and so must your communication skills—in person, on paper, and online.

Some forms of communicating are easy, like texting a friend. Other forms take practice, like speaking in front of your classmates or writing a report. Because 21st century jobs require them, it is important for you to develop strong communication skills now. This chapter will help.

You will learn . . .

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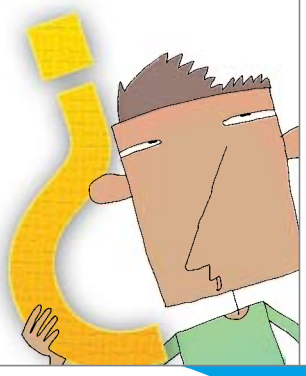
- Speaking in a Small Group
- Speaking to a Large Group
- Listening Actively
- Writing Effectively
- Communicating with Technology
- Using Levels of Language



Engaging chapter openers and illustrations connect with students.

Clear headings and explanations make *Inquire* easy to use.

Learning Skills

The next five pages review the skills that have become especially important in today's world, starting with critical and creative thinking. Each of these skills is also covered in its own chapter.

Critical and Creative Thinking

You think creatively to gather new possibilities, and you think critically to examine ideas and discard the ones that don't work. Just as breathing requires inhaling and exhaling, thinking requires inspiration and examination.

Critical thinking is looking closely at something and using reason to explore it. When you think critically, you do the following:

- identify
- reason
- diagram
- measure
- rate
- organize

Creative thinking is reaching out to capture new ideas and possibilities. When you think creatively, you do the following:

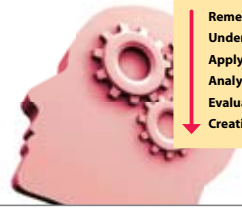
- wonder
- imagine
- brainstorm
- connect
- reimagine
- invent

Your Turn

Freewrite for 5 minutes about critical and creative thinking. Which type of thinking is like breathing in, and which type is like breathing out? Why?

Deepening Your Thinking

To be a really effective thinker, you need to deepen your thinking. A researcher named Benjamin Bloom identified ever-deeper levels of critical and creative thinking.

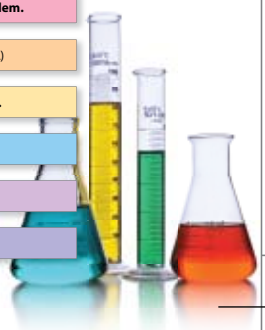


Remembering is recalling facts.
Understanding is knowing what facts mean.
Applying is using your knowledge.
Analyzing is breaking something apart.
Evaluating is judging the worth of something.
Creating is making something new.

Inquiry and the Scientific Method

One specific version of the inquiry process is the scientific method. You may have used the scientific method to complete an experiment or a project in one of your science classes. Here are the basic steps:

Ask a question or identify a problem.
Form a hypothesis. (See below.)
Create an experiment to test it.
Conduct the experiment.
Study the results.
Share your results.



Forming a Hypothesis

A **hypothesis** is a temporary explanation for a scientific question or problem. A statement such as *Consuming a lot of caffeine may cause anxiety* is an example hypothesis. Stated formally, the hypothesis could read as follows:

***If** anxiety is related to the amount of caffeine consumed, **then** people who drink a lot of caffeinated soda will more likely experience anxiety.*

An "If . . . then . . ." statement like this provides the basis for an experiment to test the hypothesis.

Your Turn

Share with your classmates at least one experience that you have had using the scientific method. Then discuss why scientists follow this method of inquiry.

Thoughtful graphics serve as effective instructional tools.

Reasons for Learning

Why does learning take place in the first place? Here are four basic reasons.

1. **Learning drives you.** You just naturally seek out new information. New sights, sounds, smells, and ideas—they all interest you because you have a built-in need to know.
2. **Learning defines you.** New experiences, thoughts, and feelings add to your personal knowledge bank. The more deposits that you make in this bank, the more interesting and informed you become.
3. **Learning helps you.** Effective learning helps you solve problems, make decisions, build arguments, and enjoy life both in and out of school.
4. **Learning satisfies you.** Learning makes school, sports, hobbies, and friendships more rewarding and fun.

A Well-Prepared Learner

Carlos loves to discuss new ideas and solve problems. He plans interesting projects and seems to know a lot. How does he do it? Carlos is a well-prepared learner. He is . . .

Patient: Carlos knows that problems can be complicated. If he can't solve a problem right away, he doesn't give up.

Curious: Carlos often asks "Why?" or "What if?" And he enjoys surprises and making discoveries.

Logical: Carlos is able to think critically and logically about a subject. (See pages 13–30.)

Creative: Carlos can use his imagination to think in new ways. (See pages 31–48.)

Thorough: Carlos always looks for answers to questions he has about new subjects.

Careful: Carlos looks for true, accurate information. He may wonder who came up with a certain idea or question the accuracy of a particular Web site.

Focused: When Carlos needs to concentrate, he finds a quiet, well-lighted space to do his work.

Practical lists are a key design element used throughout *Inquire*.

Scheduling Time

Your schedule starts with the present moment and ends with your due date. Write these dates on a calendar and then divide the time between them by writing down some of the tasks you've listed. Here is a sample schedule for a student video:

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
3	4 Assignment: Make a video of westward expansion.	5 Line up actors. Write script.	6 Finish script. Start on costumes and props.	7 Rehearse.	8 Finish costumes and props.	9 Film the narration and scene 1.
10	11 Film scene 2.	12 Film scene 3.	13 Edit the video.	14 Add titles/ music/ effects?	15 Project Due: In-class presentation	16

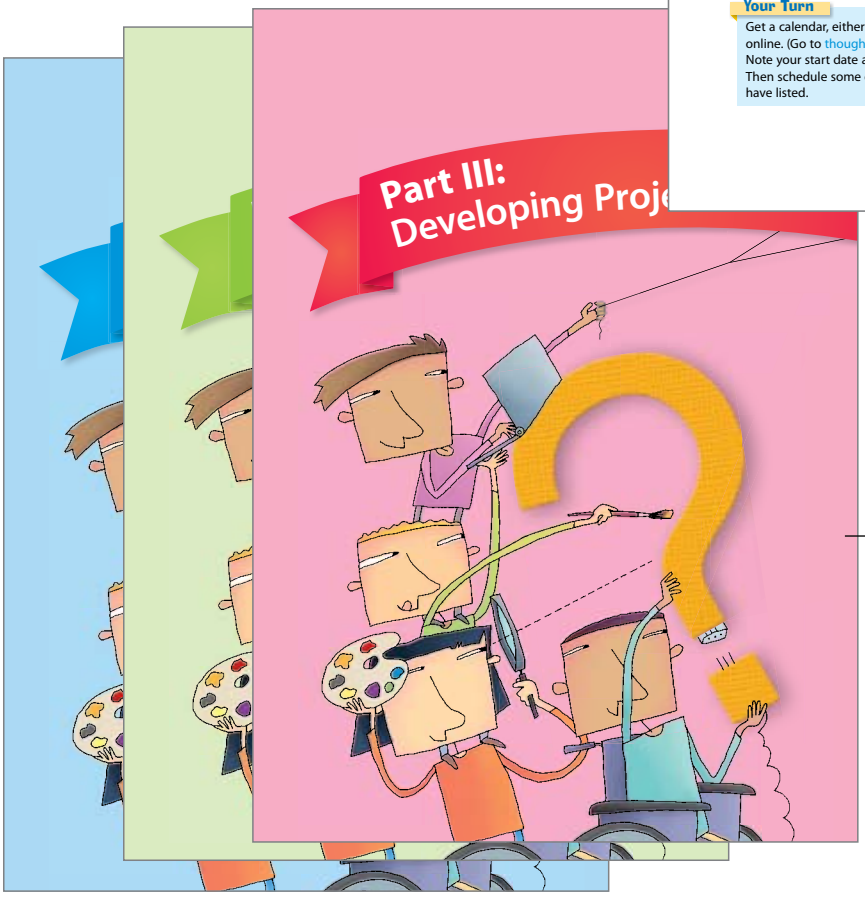
Making Adjustments: As you work on your project, keep checking your schedule. Speed up or slow down as needed.

- If you are going slower than you expected, figure out how to speed up or how to devote more time.
- If you still can't catch up, find out if the due date can be moved. If so, make a new schedule.
- If you are going faster than you expected, check your work to make sure it is as good as you want it to be. You can slow down to make improvements, or you can continue on, knowing you will have extra time at the end.

Your Turn

Get a calendar, either on paper or online. (Go to thoughtfullearning.com/p258.) Note your start date and your end date. Then schedule some of the tasks you have listed.

Point-of-use practice helps students understand new skills.



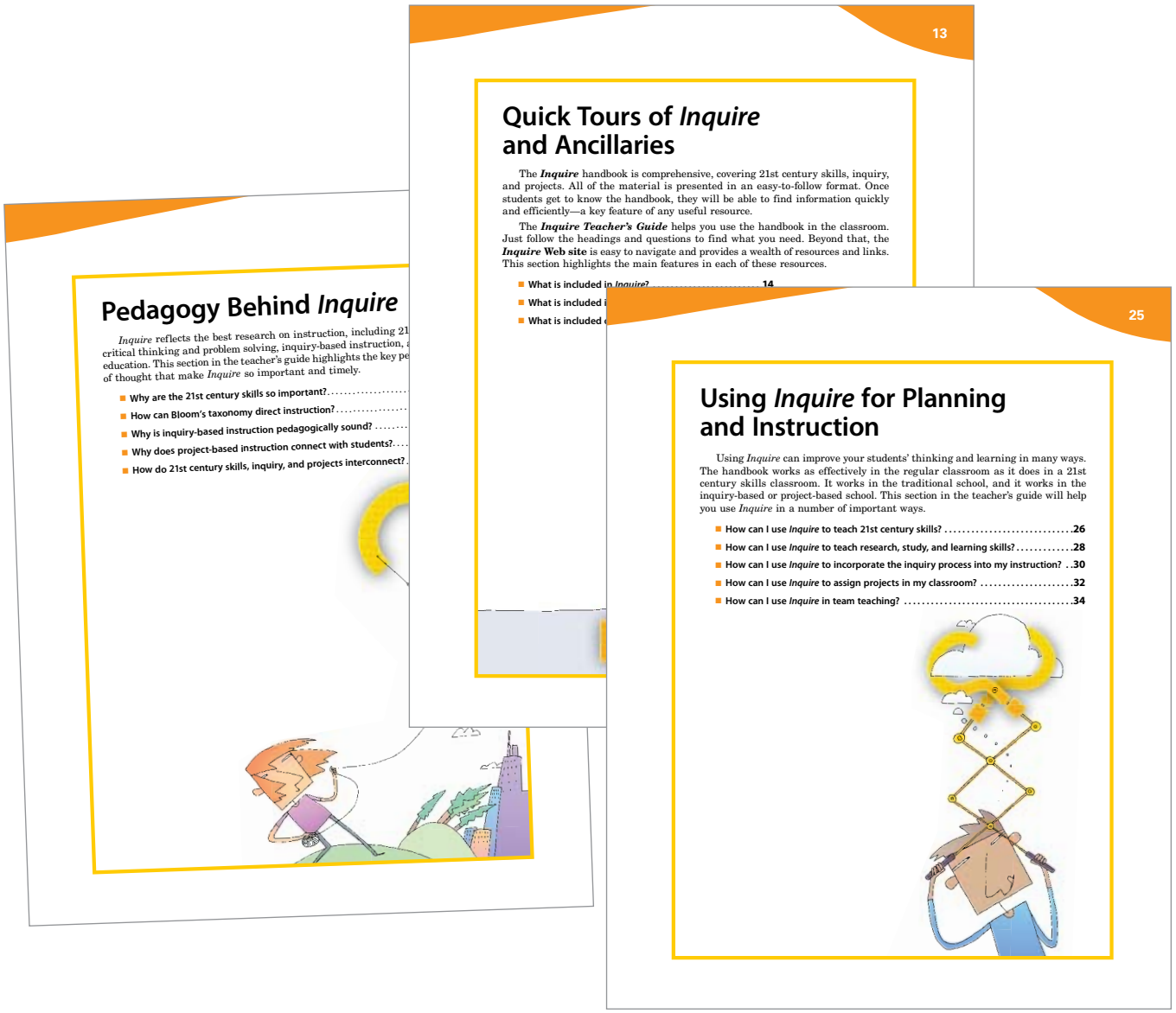
Helpful color coding identifies the three main parts of *Inquire*.

What is included in the *Inquire Teacher's Guide?*

The *Inquire Teacher's Guide* is divided into two main parts. Part 1 introduces you to the *Inquire* handbook and helps you implement instruction thoughtfully and meaningfully. Part 2 provides chapter-by-chapter lesson plans.

Part I: Presenting *Inquire*

- Overview
- Pedagogy Behind *Inquire*
- Quick Tours of *Inquire* and Ancillaries
- Using *Inquire* for Planning and Instruction
- Assessing Student Work
- Correlations for *Inquire*
- Research Guide to *Inquire*



Part II: Chapter-by-Chapter Lesson Plans

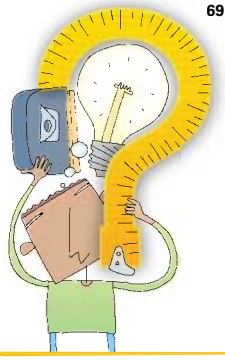
- Outcomes and Correlations
- Daily Lesson Plans
- Extension and Review
- Content-Area Minilessons
- Team-Teaching Suggestions

Chapter 2

Critical Thinking

(*Inquire* pages 13–30)

Critical thinking involves close study—defining, comparing, classifying, reasoning, arguing, and so on. These skills are important in all classes and in life beyond the school's walls. This chapter provides specific critical-thinking strategies that students can use in all classes across the curriculum.



Learning Outcomes

- Understand what critical thinking is.
- Develop critical-thinking habits.
- Learn specific critical-thinking strategies.
- Practice more complex levels of critical thinking.
- Understand inductive and deductive thinking.

Correlations

Partnership for 21st Century Skills

Critical Thinking and Problem Solving
- Reason effectively and use systems thinking.
- Make judgments and decisions.

Common Core State Standards

Writing Standards (6–8)
- Research to build and present knowledge.
- Create a range of writing.

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects (6–8)
- Understand text types and purposes.
- Research to build and present knowledge.
- Create a range of writing.

International Society for Technology in Education

4. Critical Thinking, Problem Solving, and Decision Making

a. Identify and define authentic problems and significant questions for investigation.

b. Plan and manage activities to develop a solution or complete a project.

c. Collect and analyze data to identify solutions and/or make informed decisions.

d. Use multiple processes and diverse perspectives to explore alternative solutions.

Lesson Plan: Critical Thinking

Day 1

1. Ask students to write "Critical" in the center of a piece of paper and create a cluster of ideas around the word. (See *Inquire* page 38.) Discuss.
2. Read aloud the chapter introduction (*Inquire* page 13). Then have students silently read "Understanding Critical-Thinking" (*Inquire* page 14) and do the "Your Turn" activity. Discuss responses as a class, or have students discuss in pairs.
3. Read aloud the "Critical-Thinking Strategies" introduction (*Inquire* page 15). Then read aloud the skills listed in the green bar on the left side of the page. Discuss with students the critical-thinking strategies they will learn for each level of thinking.
4. As a class, review the "Remembering" strategies (*Inquire* pages 16–17). Have students complete the "Your Turn" activity at the bottom of each page. Discuss.

Day 2

5. Before class, write this question on the board: "What are the key questions you should ask about an event?" (*Name? Who? What? Where? When? Why? How?*) Have students list key questions without looking in *Inquire*. Then ask for a few responses and turn the class's attention to the event questions in *Inquire*, page 17. Finally, ask students to pick an important event and answer the key questions about it.
6. As a class, review "Understanding" (*Inquire* pages 18–19) and have students do the "Your Turn" activity at the bottom of each page. Lead a discussion about reasoning deductively and inductively. (For more examples, see *Inquire* pages 58–59.)
7. As a class, review "Applying" (*Inquire* pages 20–21) and have students complete the three "Your Turn" activities. Point out how the 5 Ws and H questions capture the critical details of a situation. Have students turn to "Setting Goals, Objectives, and Tasks" (*Inquire* pages 256–257) to discover how this skill set is important to planning.

Day 3

8. As a class, review "Analyzing" (*Inquire* pages 22–23). These pages provide four graphic organizers that students can use to analyze topics.
9. Have students choose a historical topic or more recent event and organize its details in a time line. Discuss how this organization affects the analysis of the overall topic.
10. As time permits, or as an assignment, have students choose other topics and analyze them according to cause and effect, comparison and contrast, or by category/parts, creating the appropriate graphic organizer.

Day 4

11. As a class, review "Evaluating" (*Inquire* pages 24–25) and have students complete the "Your Turn" activities.
12. Have students turn to the "rubric sheet" on *Inquire* page 303. Note how they will be using such rubrics to analyze their projects and how the rubrics are based on the goals and objectives created on their planning sheets. (see *Inquire* page 261).
13. As a class, discuss "Creating" (*Inquire* pages 26–28) and assign "Your Turn" activities.

Day 5

14. Assign the "Critical Thinking Activities" (*Inquire* pages 29–30). Consider the extension activity and the critical-thinking review on the next two pages of this teacher's guide.

Extension Activity

Name _____ Date _____

Your Turn

Read the following short article about the rise and fall of castles in medieval Europe. Then, in the space below, analyze the information in this article by using one of the strategies and organizers shown on *Inquire* pages 22 and 23.

Castles Rise and Fall in Europe

Often when people think of the Middle Ages, they think of gleaming-white castles, but castles got their start because of desperate times. In the ninth and tenth centuries (A.D. 800-999), most areas of Europe didn't have a strong central government. Local lords, therefore, had to take responsibility for defending the land. They didn't get along with each other and had border clashes, and they also were threatened by Viking and Moorish invaders.

As a result, local lords began to fortify their manor houses. They might have put a thick hedge around their home, or a ring of earth, or even a stone wall. Building a manor on a hilltop and making it of stone also helped. The first castles were born. From the 11th century onward, castles spread throughout Europe and became increasingly more elaborate. They became centers for mounted warriors called knights, who wore plate armor into battle—like portable castles themselves.

But in the 1380s, gunpowder made its way into Europe. At first, it posed little threat to castles and mounted knights because guns were too inaccurate and unreliable to use in war. Arrows and trebuchets worked much better. However, by 1500, cannons were battering down castle walls. New castles were built with rounded edges and angles meant to deflect cannonballs, but castle designs could not keep pace with gunpowder technology. Castles began to fade from use, as did the shining armor that could deflect arrows but not bullets.

Follow-up: Which strategy and organizer did you use to analyze the article? What other strategy could you have used? How do the different strategies affect your analysis of the information?

A Closer Look at the Lesson Plans in the Teacher's Guide

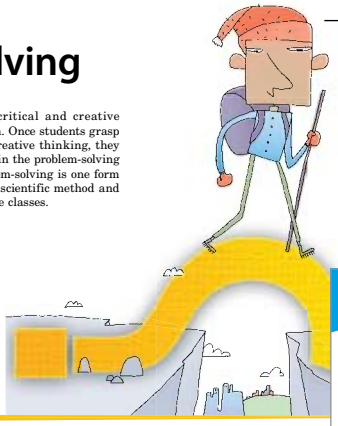
These two pages take a closer look at special features that make the teacher's guide work well for you.

Chapter 4

Problem Solving

(*Inquire* pages 49–62)

Problem solving involves both critical and creative thinking, both analysis and innovation. Once students grasp the basic strategies for critical and creative thinking, they are ready to combine these strategies in the problem-solving process. As this chapter shows, problem-solving is one form of inquiry. It is also the basis for the scientific method and for working in mathematics—and more classes.



Learning Outcomes

- Understand the problem-solving process.
- Use critical-thinking strategies in problem solving.
- Use creative-thinking strategies in problem solving.
- See problem solving as a form of inquiry.
- See problem solving as the basis for science and mathematics.

Correlations

Partnership for 21st Century Skills

Creativity and Innovation
- *Think creatively*
- *Work creatively with others*
- *Implement innovations*

Critical Thinking and Problem Solving
- *Reason effectively and use systems thinking.*
- *Make judgments and decisions.*
- *Solve problems.*

Life and Career Skills
- *Show flexibility and adaptability.*
- *Use initiative and self-direction.*
- *Develop social and cross-cultural skills.*
- *Be productive and accountable.*
- *Demonstrate leadership and responsibility.*

Common Core State Standards

Writing Standards (6–8)
- *Research to build and present knowledge.*

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects (6–8)

International Society for Techn

1. **Creativity and Innovation** (All standards)
3. **Research and Information Fluency** (All standards)

Extension Activity

Name _____

Your Turn

Search a newspaper, news magazine, or news Web site to f
provide the following information.

1. Examine the problem by answering the 5 W's and H

Who? _____

What? _____

Where? _____

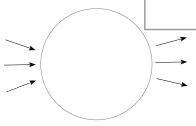
When? _____

Why? _____

How? _____

2. Analyze the problem by completing filling in the fo

Causes Problem



3. Brainstorm solutions, creating a cluster to explore possibilities.

Follow-up: Select a possibility and then plan out how to apply it. Use the strategies on *Inquire* page 53.

Lesson Plan: Problem Solving

Day 1

1. Introduce problem solving by doing a whole-class role-playing session. Ask the class to imagine that the room is not in a school but on a ship, and that suddenly the ship has rolled on its side. Have students line up along one wall (having fallen there). Quickly assign "injuries" that students suffered. Then ask students "what now?"
2. Let students begin problem solving—deciding on goals, looking at resources and skill levels, and building teams. Have them role-play what they would do (help the injured, plan an escape, call for help, and so on).
3. After the role-playing session, discuss what happened. Ask students to think about the process they went through. Ask what kind of thinking they did at each stage. Point out the problem-solving process, and say this week focuses on this important skill.

Day 2

4. As a class, review "Understanding Problem Solving" on page 50, which gives an overview of the steps in the problem-solving process. Assign the "Your Turn" activity, and lead a discussion of problem solving.
5. Lead students through the material on pages 51–52, having students complete the "Your Turn" activities. Note that the problem identified in the first "Your Turn" will be used throughout the next pages, so students should choose carefully.

Day 3

6. Lead students through the material on pages 53–55, first modeling each strategy and then having students do the "Your Turn" activities.
7. Have students turn to "Creating a Planning Sheet" on page 261 and "Rubric Sheet" on page 303. Show them how these two tools help them with the planning and evaluating parts of the problem-solving process.

Day 4

8. Present the material on page 56, connecting the inquiry process to the problem-solving process that students have been engaged in. Have students complete the "Your Turn" activity.
9. Have students turn to pages 236–342, which give an overview of the inquiry process. Then have students turn to page 320, "Inquire To Write a Paragraph." Show students that the inquiry process is the basis for all of the project guidelines in the final part of Inquire.

Day 5

10. Lead students through "Inquiry and the Scientific Method" on pages 57–59, completing the "Your Turn" activities. If you wish, invite a science teacher to class to discuss this material.
11. Lead students through "Problem Solving in Math" on pages 60–61, completing the "Your Turn Activity. If you wish, invite a math teacher to class to discuss his material.
12. As a review or final test, assign the "School Improvement" activity on page 62, or the Problem-Solving Review on page 84 of this teacher's guide.

- **Learning outcomes and standards correlations begin the lesson-plan chapters.**
- **Daily lesson plans guide your instruction.**
- **Extension activities apply chapter concepts for enrichment.**

Science Minilessons: Problem Solving

Environmental Solutions

SEARCH the Internet for environmental problems and **CHOOSE** one problem to focus on.
EXAMINE and **ANALYZE** the problem (page 51).
BRAINSTORM and **EVALUATE** ideas (page 52).
PLAN a solution (page 53)

Methods

FIND a free lab-report form online.
REVIEW the sections of the form—purpose, hypothesis, materials, procedure, data, conclusions.
LABEL each part, using the steps of the inquiry process. (See page 56.)
COMPARE the scientific method and the inquiry process.

Deductive and Inductive Detectives

REVIEW science experiments you have done.
DECIDE which experiments were deductive (beginning with a hypothesis and leading to data) and which were inductive (beginning with data and leading to a hypothesis). (See pages 58–59.)

Math Minilessons: Problem Solving

Measuring Up

GET a one-foot ruler, a pencil, and a piece of paper.
CHOOSE a large object (such as a building or even a block) to measure.
PROBLEM-SOLVE the fastest, most accurate (and safest) way to measure the object using your tools. (See pages 50–55.)
MEASURE the large object.
PROBLEM-SOLVE a way to check your answers.

Maritime Math

IMAGINE you need to boat.
DRAW the boat that you would like to build, including measurements.
CALCULATE the materials you would need to build your boat.
PRICE the materials at a local building supply store or by going online.
ADD UP the total cost for building your boat.
CALCUATE the total displacement of your boat (see page 61).

Mathematical Solutions

READ page 60, which shows the steps for solving a problem in math class.
TURN in your math book to a problem you need to solve.
USE the problem-solving method on page 60 to work step-by-step through solving the problem.
REFLECT on how well the problem-solving process worked for you.

Minilessons allow you to use the chapter content across the curriculum.

Team-teaching suggestions for projects help teachers collaborate.

Team Teaching Suggestions

Writing projects offer boundless opportunities for collaboration between teachers and classrooms, no matter the gap in subject- or content-area focus. While some of the projects deal with familiar forms (paragraphs, summaries, etc.), others deal with more literary forms (poetry, plays, narratives, etc). You may find it beneficial to pair up with teaching partners who are comfortable with such literary forms. Here are some suggestions.

An English or Language Arts Partner

If your project deals with longer or more literary forms of writing, you may consider teaming up with an English or language arts instructor to tackle the project together. In fact, English and language arts teachers are great people to turn to anytime you have a question about your students' writing, whether it be about a peculiar grammar rule or tips for evaluating prose. Conversely, collaborating with instructors in different subject areas can help English and language art's teachers present writing in a different context. Every project in this chapter benefits from this type of collaboration.

A Computer or Technology Partner

If your writing project involves technology, you may find it helpful to collaborate with your school's computer or technology expert. Go to such a person for ways to use the Internet as a research tool for their writing projects, or for new opportunities to publish your student's writing using Web-based applications. This teacher might provide an in-class instruction, or perhaps you can coordinate a time to use your school's computer lab. This partnership works well for all the projects in this chapter.

An Arts or Theater Partner

Some of the writing projects in this chapter lend themselves to performance and self-expression. Collaborating with an art or theater partner could offer students exciting opportunities to publish their writing in a theatrical or artistic manner. This partnership would work well with **plays, poems,** and **narratives.**

Math Design Project Suggestions

Pre-Algebra

Cartoon
Design a photo cartoon, showing the use of fractions in daily life.
Poster
Design a poster that displays amounts using a bar or line graph.
T-Shirt
Design a T-shirt that shows and labels the different types of triangles.
Brochure
Create a brochure that explains decimals, fractions, and percents, showing how to convert one to another.
Blueprint
Create a blueprint of your classroom, using accurate scale measurements to depict each part.
Scale Model
Measure something large (a building or vehicle) and make a model of it to precise scale.
Rube Goldberg Machine
Create a Rube Goldberg machine that depicts the order of operations to use in solving math problems.

Algebra

Cartoon
Design a comic strip showing the s
solving an algebra equation.
Poster
Create a poster that graphs di
slopes when variables change in
equation.
Brochure
Create a brochure that explain
variables are and shows how to
them to solve equations.
Blueprint
Create a blueprint for a small b
(for example, a shed) and write f
for calculating the amounts of
materials necessary for its constr
Scale Model
Build a scale model of a vehicle, calculating proportions for each part.
Rube Goldberg Machine
Design a Rube Goldberg machine using parts that involve probability, measurement, such as bouncing marbles, pouring sand, falling dominoes, and so on.

Geometry

Cartoon
Create a photo cartoon showing objects with line symmetry and rotational symmetry.
Poster
Design a poster that shows how to find the volume of a cube, cylinder, or sphere.
Brochure
Create a brochure that explains the different types of triangles.
Blueprint
Create a blueprint for a building in which each room is a non-square quadrilateral.
Scale Model
Build a scale model of a regular solid.
Rube Goldberg Machine
Create a Rube Goldberg machine using geometric shapes for each component.

Cross-curricular project ideas suggest assignments in math, science, social studies, and language arts.

What is included on the *Inquire* Web site?

The *Inquire* Web site <thoughtfullearning.com> includes a wealth of resources for using the *Inquire* handbook. The Web site allows the developers to add value to *Inquire* as new project ideas are identified and new instructional strategies are discovered.

- Presenting *Inquire*
- Downloadable Templates
- Important Links
- e-Book Version of *Inquire*
- Additional Projects

Coming Soon

A Closer Look at the *Inquire* Web Site

This page takes a closer look at features on the Web site.

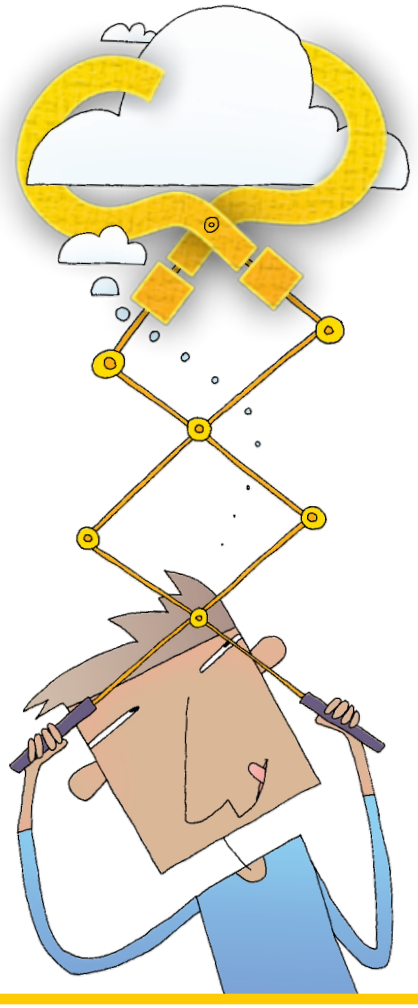
Coming Soon

Coming Soon

Using *Inquire* for Planning and Instruction

Using *Inquire* can improve your students' thinking and learning in many ways. The handbook works as effectively in the regular classroom as it does in a 21st century skills classroom. It works in the traditional school, and it works in the inquiry-based or project-based school. This section in the teacher's guide will help you use *Inquire* in a number of important ways.

- **How can I use *Inquire* to teach 21st century skills? 26**
- **How can I use *Inquire* to teach research, study, and learning skills? 28**
- **How can I use *Inquire* to incorporate the inquiry process into my instruction? . . 30**
- **How can I use *Inquire* to assign projects in my classroom? 32**
- **How can I use *Inquire* in team teaching? 34**



How can I use *Inquire* to teach 21st century skills?

You can teach 21st century skills in two stages.

- In the first stage, introduce the 21st century skills, either one right after another (see the chart below), or as needed throughout the school year.
- In the next stage, provide regular opportunities to apply the skills as you cover your content-area curriculum.

*So think introduction **and** application when you address any of these skills.*

Suggested Sequence: Introducing the Skills

Here is a suggested timetable for nine weeks of 21st century skills instruction (one 45-minute class per day, five days per week). The chart identifies the pages in the teacher's guide that provide day-by-day lesson plans for each chapter as well as the location of each skill in the *Inquire* handbook.

Week	Skills Unit	TG Pages	*Inquire* Pages
1	**Overview of 21st Century Skills**	63–68	xiv, 3–12
2	**Critical Thinking**	69–74	13–30
3	**Creative Thinking**	75–80	31–48
4	**Problem Solving**	81–86	49–62
5	**Communicating***	87–92	63–77
6	**Collaborating**	93–98	89–102
7	**Building Arguments**	99–104	103–118
8	**Understanding Media**	105–110	119–138
9	**Using Social Media**	111–116	139–156

* "Communicating" covers speaking, listening, and writing, so parts of this chapter could also be addressed in a study-skills class or sequence. (See TG page 28.)

21st Century Skills in Action

Integrating 21st century skills into the curriculum is really quite simple when you use *Inquire* as your guide. Watch for teachable moments when students can use skills to enhance their learning. Here are example teachable moments in three content areas.

Critical Thinking in Social Studies

Suppose you are discussing entrepreneurship with your students. During your discussion, you mention that having an entrepreneurial spirit is a valued trait in today's rapidly evolving technological world. You also note that this same spirit was promoted at the beginning of the Industrial Revolution. This particular connection would be a perfect time to integrate critical thinking into instruction, using chapter 2 in *Inquire* as a guide.

Application: Working individually or in pairs, have students analyze entrepreneurship "then and now" using a Venn diagram or another appropriate graphic organizer (*Inquire* pages 22–23). To get them started, you could continue your discussion of the two periods of economic development, direct students to a few resources, or ask them to find all of their own sources of information. *Extension:* Have students create something using their analysis (*Inquire* pages 26–28).

Problem Solving in Science

Suppose your students are studying the earth's atmosphere, and as part of the unit, you've shared with them information about dust clouds traveling over great distances. For example, dust clouds blow from Africa across the Atlantic Ocean to the Caribbean Islands. Unfortunately, these clouds have become a serious problem because they contain substances that are damaging the coral in the Caribbean Sea. This set of circumstances would be a perfect time to integrate problem-solving into instruction, using chapter 4 in *Inquire*.

Application: Working in small groups, students could explore this problem following the steps presented on *Inquire* pages 50–55. And if they need or want to carry out an experiment, refer them to the information about the scientific method on *Inquire* page 57.

Using Technology in Language Arts

Let's say your students are studying literary devices in language arts. As part of the unit, you want your class to create a glossary of literary terms that can be used by all of the students in your school. This would be the perfect time to have your students develop a specialized wiki, using pages 152–153 and 392–393 in *Inquire* as a guide. Students can post and define literary terms, review and revise the definitions of other students, and create an ongoing, evolving community of learning.

Application: Review *Inquire* pages 152–153 and 392–393 with your students. Then discuss with the class how to plan and carry out this project. (You may need the help of your school's technical support person to get started.)

How can I use *Inquire* to teach research, study, and learning skills?

Just as with 21st century skills, you can teach study skills in two stages.

- In the first stage, introduce the study skills, either one right after another (see the chart below), or as needed throughout the school year.
- Then provide regular opportunities to apply the skills as you cover your content-area curriculum.

*So think introduction **and** application when you address any of these skills.*

Suggested Sequence: Introducing the Skills

Here is a suggested timetable for nine weeks of study and learning skills instruction (one 45-minute class per day, five days per week). The chart identifies the pages in the teacher's guide that provide day-by-day lesson plans for each chapter as well as the location of each skill in the *Inquire* handbook.

Week	Skills Unit	TG Pages	*Inquire* Pages
1	**Succeeding in School**	141–146	209–218
2	**Communicating***	87–92	63–88
3	**Improving Study Skills**	135–140	195–208
4	**Reading to Learn**	117–122	157–168
5	**Improving Vocabulary**	123–128	169–182
6	**Following Basic Conventions**	129–134	183–194
7	**Conducting Basic Research****	177–182	263–272
8	**Conducting Advanced Research****	183–188	273–292
9	**Succeeding in the Workplace**	147–152	219–232

* "Communicating" is also considered a 21st century skill, so parts or all of the chapter could be covered in a sequence of those skills. (See TG page 26.)

** These two chapters address researching skills important for effective learning, so they could also be addressed in an inquiry or research sequence. (See TG page 28.)

Study and Learning Skills in Action

The best way to practice study and learning skills is in the context of learning across the curriculum. Here are examples of applying study skills in content areas.

Reading to Learn in Social Studies

Suppose your next unit of study is the Russian Revolution, and your students read about this revolution in their social studies textbook. To help students prepare for, carry out, and reflect on their reading, you could ask them to employ one of the reading-to-learn strategies included in chapter 13 in *Inquire*.

Application: To help students connect with their reading, have them use the KWL reading strategy by following the guidelines on page 162 in *Inquire*. (Students should create the chart on their own paper.) Afterward, have students discuss their charts (and their reading) to make sure that they have addressed the main points about the topic.

Using Study Skills in Science

Suppose your students are reviewing for a unit exam, and on part of the exam, they will be asked to form a written response to a prompt. To prepare students for this part, have them practice responding to prompts using chapter 13 in *Inquire* as a guide.

Application: Read and discuss "Responding to Prompts" (*Inquire* pages 204–206). Then provide students with one or two practice prompts and ask them to respond by following the guidelines on page 205. Here are two sample prompts:

- We've studied different aspects of population, especially the human population. In a paragraph, explain the three main ways that human population affects the environment.
- Scientific discoveries and technology have allowed the human population to fit into just about any environment. In a paragraph, convince your classmates that one of these discoveries may be doing more harm than good.

Improving Vocabulary in Mathematics

Most mathematics texts provide basic definitions of mathematical terms, but they seldom, if ever, help students really explore the meaning of these words. Using chapter 11 in *Inquire,* you can help students understand math terminology at this essential level.

Application: Read and discuss "Understanding Word Parts" (*Inquire* page 175) and "Common Prefixes, Roots, and Suffixes" (*Inquire* pages 176-180). Then examine a few common mathematical terms, finding the combined word parts in each. During each unit, have students attack a few new terms in this way.

Fraction **combines**

- the root *frac* meaning "break"
- and the suffix *tion* meaning "the result of."

So *fraction* essentially means "the result of breaking apart," as in "one half" of something.

How can I use *Inquire* to incorporate the inquiry process into my instruction?

Genuine learning often starts with a question that needs to be answered or a problem that needs to be solved. If you're teaching in an inquiry-based or project-based school, you will find a perfect instructional guide in "Part II: Using the Inquiry Process" (*Inquire* pages 234–314). If you're in a traditional classroom, you can use the guidelines and strategies in this part to make your content-related instruction more thoughtful and student directed.

Suggested Sequence: Introducing the Inquiry Process in the Inquiry-Based Classroom

If you're in an inquiry-based classroom, follow the sequence below to provide an in-depth introduction to the inquiry process, or turn to this section as needed throughout the year.

If you're in a traditional classroom, you may want to focus on the research chapters first (*Inquire* pages 263–292). Then address the other chapters in part 2 as needed to help students complete their short-term and long-term projects.

Special Note: The guidelines for the projects in part 3 follow the steps in the inquiry process presented in part 2 of the handbook.

Week	Research Units	TG Pages	*Inquire* Pages
1	**Learning About the Inquiry Process**	159–164	235–242
2	**Questioning**	165–170	243–254
3	**Planning**	171–176	255–262
4	**Conducting Basic Research***	177–182	263–272
5	**Conducting Advanced Research***	183–188	273–292
6	**Creating**	189–194	293–300
7	**Improving**	195–200	301–308
8	**Presenting**	201–206	309–314

* Research skills could also be covered in a course focusing on study and learning skills. (See TG page 28.)

Inquiry Skills in Action

All inquiry skills are derived from questioning. When students learn to frame their own questions, they naturally seek answers and begin to take ownership of their learning. Here are suggestions for using inquiry skills in the content areas.

Questioning in Social Studies

Let's say that you are discussing the process by which countries become democratic states. As part of your discussion, you introduce the apartheid policy that Afrikaner leaders used to govern South Africa before equal rights were granted to all citizens. To help students form a deeper understanding of this policy, you could have them question it using chapter 17 in *Inquire* as a guide.

Application: Have small groups of three or four students select one category of deep questions (*Inquire* page 245) to ask questions about apartheid. Then have each group (1) find answers to their questions and (2) prepare and deliver a brief presentation of their discoveries to the rest of the class.

Creating in Mathematics

Let's say that you are studying equations in your class. You've already covered a good deal of information about equations, and as part of your unit of study, you want students to create a visual that displays their understanding of the topic. To provide guidance, you could turn to the "Design Projects" chapter in *Inquire*.

Application: To get students started, review with them "Creating Visual Structure" on *Inquire* page 299. Then refer students to *Inquire* pages 414–419 for possible visual projects, including comic strips, cartoons, and posters. Have students decide on an equation-related subject for their visual and follow the appropriate set of guidelines to complete their work.

Researching in Language Arts

Suppose that you are discussing with your students the research process, in particular evaluating sources of information. This issue has become important because of the wealth of information sources, some of them unreliable, on the Internet. When you are ready to discuss this issue, use chapter 20 in *Inquire* as a guide.

Application: Carefully review "Evaluating Sources" on page 292 in *Inquire* with your students. Also refer to the cross-references on this page. Then ask students, individually or in pairs, to identify two reliable sources on the Internet and two less reliable sources. Afterward, ask them to share their findings with the class.

How can I use *Inquire* to assign projects in my classroom?

No matter how you approach instruction, you should review all of the project possibilities offered in part 3 of *Inquire*. Please keep the following points in mind when reviewing this part.

- Guidelines and at least one model are provided for each type of project.
- Some of the ideas work well for short-term projects; others are long-term projects.
- The guidelines and models serve as starting points; students should adapt, expand, and combine project ideas to make them their own.

Short-Term Projects

This chart lists possible short-term project ideas in part 3 that could be implemented across the curriculum. Short-term projects can usually be completed in one to three class periods.

Science	Social Studies	Mathematics
A **diagram** of the human heart An **infographic** about wolf populations An **observation report** about a local biome A **proposal** for a large-scale project	A **glog** about an important historical event An **e-mail** to a student in another country A **live interview** of a war veteran A **table** containing information about population ranges	A **pie graph** of the budget for a school play **Instructions** for solving a trinomial equation A **budget sheet** for a school play A **podcast** about the Pythagorean theorem
Civics	**Language Arts**	**Health**
A **survey** about a current bill A **letter** to a public official A **campaign speech** for a social movement A **time line** of the civil rights movement	A **narrative** about an important moment A **wiki post** reviewing a short story A **summary** of a language-related article A **classroom debate** about themes in a novel	A **news report** about a local marathon A **line graph** tracking weights of dieters A **PSA** about exercise A **persuasive poster** against alcohol use among minors

Long-Term Projects

This chart lists possible long-term projects in part 3 that could be implemented in any content area. Long-term projects usually take at least a week to complete. As the chart below shows, a long-term project may incorporate multiple short-term projects.

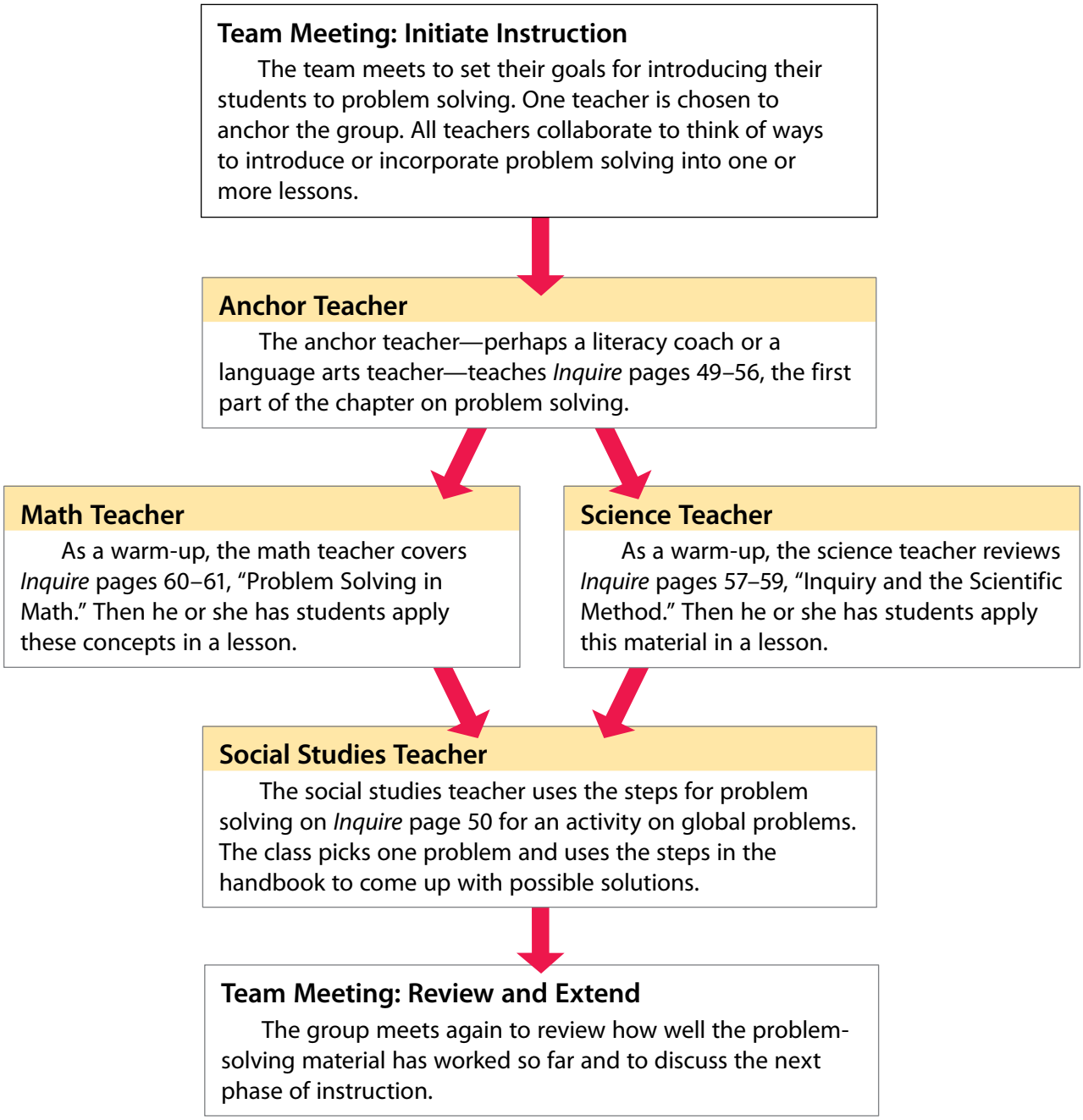
Scale Model (*Inquire* pages 430–431)		
Blueprint (pages 426–427)	Flowchart (pages 378, 381)	Instructions (pages 326–327)
Diagram (pages 378–379)	Letter (pages 354–359)	Table (pages 376–377)
Web Site (*Inquire* pages 394–396)		
Blog/Wiki (pages 392–393)	Glog (pages 388–389)	Proposal (pages 352–353)
Graph (pages 372–375)	Contest (pages 462–463)	Slide Show (pages 402–403)
Paragraph (pages 320–321)	Infographic (pages 382–384)	Podcast (pages 400–401)
Charity Event (*Inquire* pages 458–461)		
Brochure (pages 422–423)	Instructions (pages 326–327)	Proposal (pages 352–353)
Campaign (pages 464–467)	Letter (pages 354–359)	Poster (pages 418–419)
Contest (pages 462–463)	Live Interview (pages 446–449)	PSA (pages 404–405)
Diagram (pages 378–379)	News Report (pages 344–345)	Speech (pages 440–445)
E-Mail (pages 324–325)	Paragraph (pages 320–321)	Table (pages 376–377)
Graph (pages 372–375)	Play (pages 334–336)	Time Line (pages 378, 380)
Infographic (pages 382–384)	Podcast (pages 400–401)	T-Shirt (pages 420–421)
Plays (*Inquire* pages 334–336, 452–454)		
Poster (pages 418–419)	Blueprint (pages 426–427)	Scale Model (pages 430–431)
Brochure (pages 422–423)	Narrative (pages 328–330)	Time Line (pages 378, 380)
T-Shirt (pages 420–421)	Event (pages 458–461)	Podcast (pages 400–401)
Rube Goldberg Machine (*Inquire* pages 432–436)		
Blueprint (pages 426–427)	Scale Model (pages 430–431)	Instructions (pages 326–327)
Speech (pages 440–445)	Summary (pages 322–323)	Letter (pages 354–359)
Time Line (pages 378, 380)	Observation Report (pages 346–347)	Flowchart (pages 378, 381)
Proposal (pages 352–353)	Club (pages 468–470)	
Video (*Inquire* pages 406–410)		
Instructions (pages 326–327)	Scale Model (pages 430–431)	Digital Story (pages 390–391)
Play (pages 334–336, 452–454)	E-Mail (pages 324–325)	Time Line (pages 378, 380)
Event (pages 458–461)	Poster (pages 418–419)	Blueprint (pages 426–429)

How can I use *Inquire* in team teaching?

When you work in a teaching-team situation, the team members can provide support, ideas, and feedback, reinforcing the learning across the curriculum. The most effective way to teach 21st century skills and study skills is in a team environment, and *Inquire* will make this job a lot easier.

What does team teaching with *Inquire* look like?

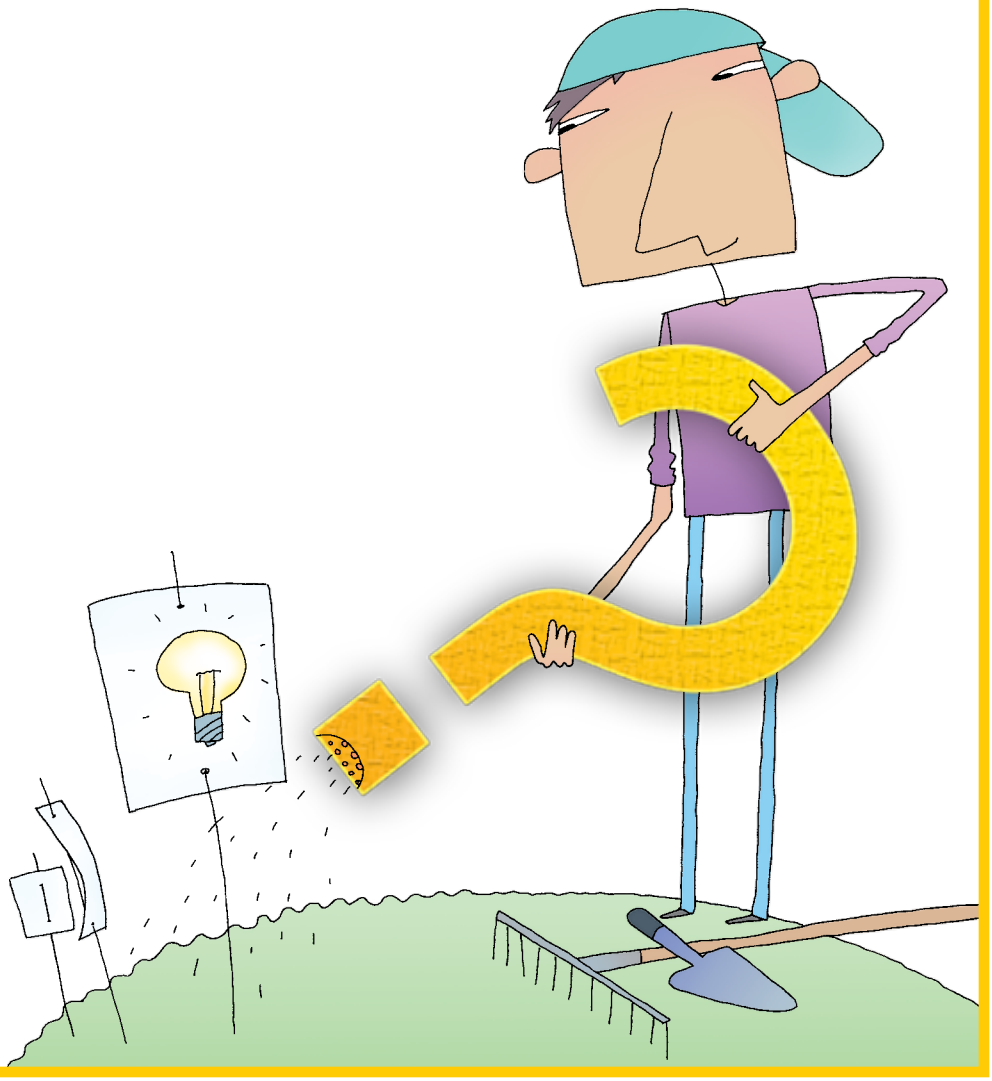
Of course, every team is different, but here's one example of how a team might use *Inquire* across the curriculum for a lesson in problem solving—one of the 21st century skills.



Assessing Student Work

Inquire helps you track your students' progress as they learn skills and create projects. In this section of the teacher's guide, you'll see how learning outcomes and formative assessment opportunities are built into the skills chapters of *Inquire*. You'll also discover the summative assessment supports in this teacher's guide. Finally, note how the planning and rubric sheets in the handbook can help your students and you track their progress on individual and collaborative projects.

- **How can I assess students' skills? 36**
- **How can I assess students' projects? 38**
- **How can I assess collaborative projects? 40**



How can I assess students' skills?

Inquire includes a number of features to help you assess students' learning of 21st century skills, study skills, and inquiry skills. Follow these steps:

Step 1: Match learning outcomes to standards.

Read the "You will learn . . ." list of learning outcomes at the beginning of the *Inquire* chapter you are teaching. Cross-check this list against the standards you need to teach. Pages 41–56 in this teacher's guide correlate *Inquire* chapters to common standards.

Communication and Collaboration

Communicate Clearly

- Articulate thoughts and ideas effectively using oral, written, and nonverbal communication skills in a variety of forms and contexts
- Listen effectively to decipher meaning, including knowledge, values, attitudes, and intentions
- Use communication for a range of purposes (e.g., to inform, instruct, motivate, and persuade)
- Utilize multiple media and technologies, and know how to judge their effectiveness *a priori* as well as assess their impact
- Communicate effectivel
environments (including

Common Core State Standards

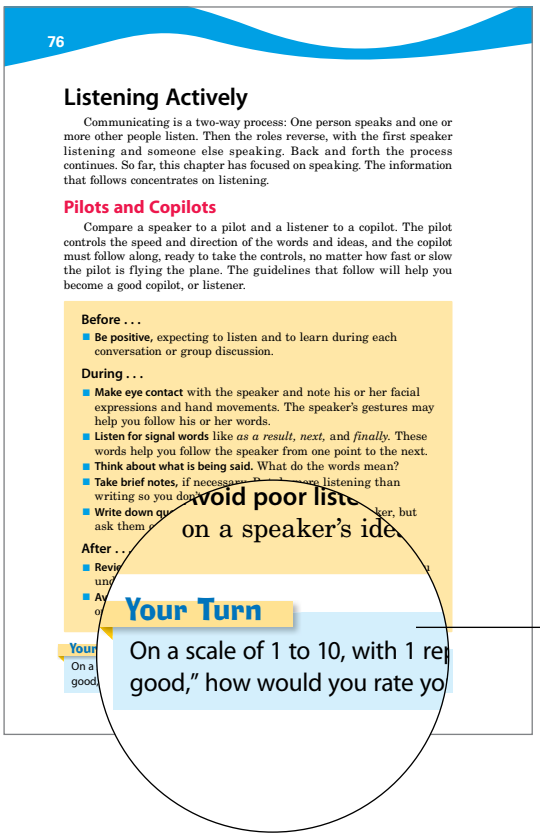
You will learn . . .

- Speaking One-on-One
- Speaking in a Small Group
- Speaking to a Large Group
- Listening Actively
- Writing Effectively
- Communicating with Technology
- Using Levels of Language

***Inquire* Learning Outcomes**

Step 2: Assess formatively.

Assign the "Your Turn" activities that appear throughout the *Inquire* chapter you are teaching. These activities allow students to practice skills and allow you to formatively assess student progress. To assess their understanding, read what students write and listen to their discussions. Then provide feedback.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Listening Actively

Communicating is a two-way process: One person speaks and one or more other people listen. Then the roles reverse, with the first speaker listening and someone else speaking. Back and forth the process continues. So far, this chapter has focused on speaking. The information that follows concentrates on listening.

Pilots and Copilots

Compare a speaker to a pilot and a listener to a copilot. The pilot controls the speed and direction of the words and ideas, and the copilot must follow along, ready to take the controls, no matter how fast or slow the pilot is flying the plane. The guidelines that follow will help you become a good copilot, or listener.

Before . . .
- **Be positive,** expecting to listen and to learn during each conversation or group discussion.

During . . .
- **Make eye contact** with the speaker and note his or her facial expressions and hand movements. The speaker's gestures may help you follow his or her words.
- **Listen for signal words** like *as a result, next,* and *finally.* These words help you follow the speaker from one point to the next.
- **Think about what is being said.** What do the words mean?
- **Take brief notes,** if necessa listening than writing so you do
- **Write down qu** ker, but ask them

After . . .
- Revie
- Av

Your Turn

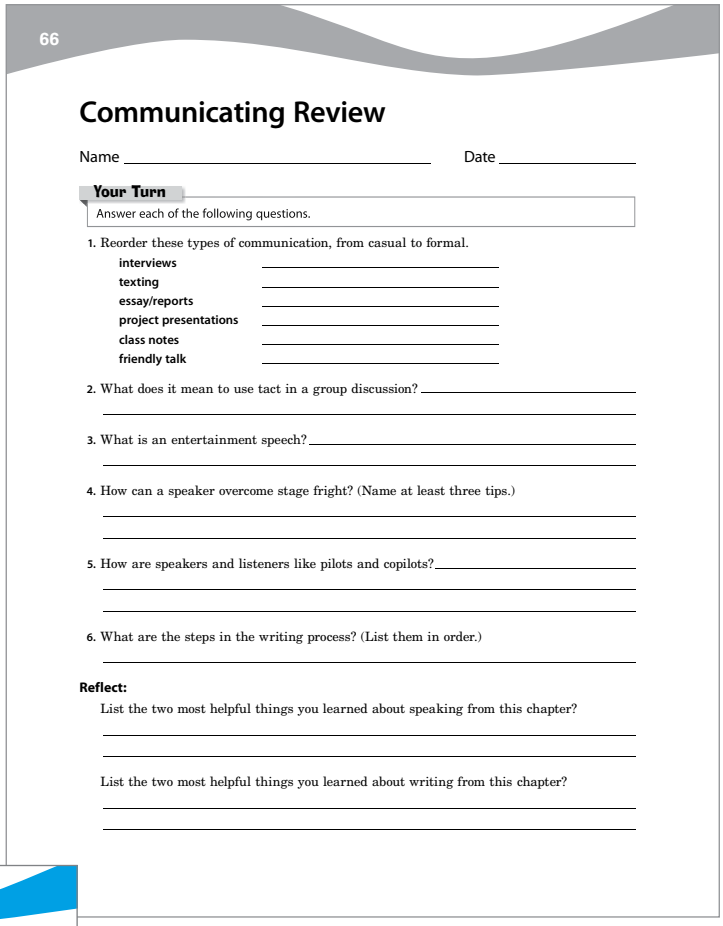
On a scale of 1 to 10, with 1 re good," how would you rate yo

voi poor liste on a speaker's ide

Activities at point of use provide opportunities for formative assessment. You'll find additional activities at the end of each chapter in part 1.

Step 3: Assess summatively.

When you have finished teaching a skills chapter, you can assess your students' learning using the review activity provided along with the daily lesson plans in this teacher's guide. Treat this review as a chapter test to measure learning, or use it as a soft assessment, letting students reflect on what they have learned.



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Communicating Review

Name _____ Date _____

Your Turn

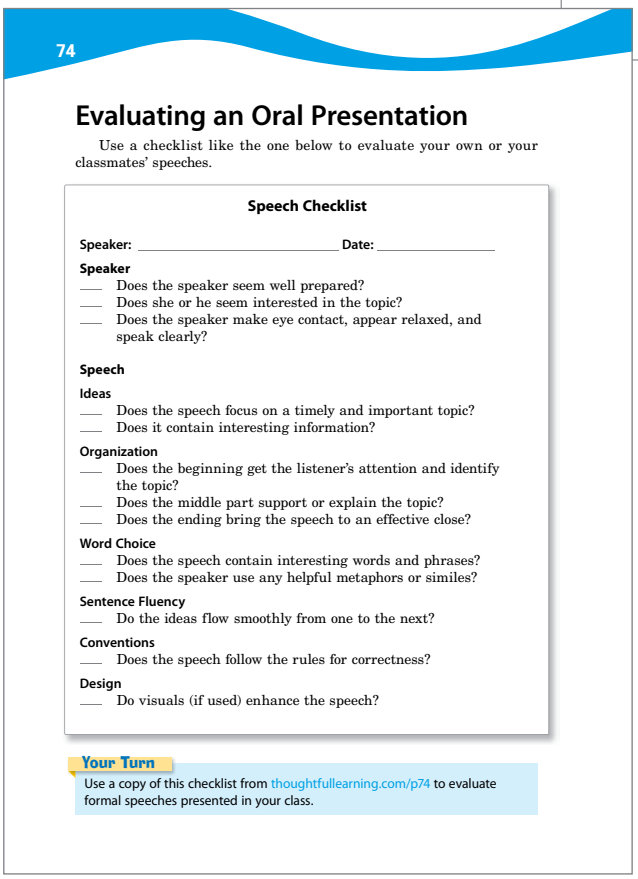
Answer each of the following questions.

1. Reorder these types of communication, from casual to formal.
   - **interviews** _____
   - **texting** _____
   - **essay/reports** _____
   - **project presentations** _____
   - **class notes** _____
   - **friendly talk** _____
2. What does it mean to use tact in a group discussion? _____
3. What is an entertainment speech? _____
4. How can a speaker overcome stage fright? (Name at least three tips.)
5. How are speakers and listeners like pilots and copilots? _____
6. What are the steps in the writing process? (List them in order.)

Reflect:

List the two most helpful things you learned about speaking from this chapter?

List the two most helpful things you learned about writing from this chapter?



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Evaluating an Oral Presentation

Use a checklist like the one below to evaluate your own or your classmates' speeches.

Speech Checklist

Speaker: _____ **Date:** _____

Speaker
- ___ Does the speaker seem well prepared?
- ___ Does she or he seem interested in the topic?
- ___ Does the speaker make eye contact, appear relaxed, and speak clearly?

Speech

Ideas
- ___ Does the speech focus on a timely and important topic?
- ___ Does it contain interesting information?

Organization
- ___ Does the beginning get the listener's attention and identify the topic?
- ___ Does the middle part support or explain the topic?
- ___ Does the ending bring the speech to an effective close?

Word Choice
- ___ Does the speech contain interesting words and phrases?
- ___ Does the speaker use any helpful metaphors or similes?

Sentence Fluency
- ___ Do the ideas flow smoothly from one to the next?

Conventions
- ___ Does the speech follow the rules for correctness?

Design
- ___ Do visuals (if used) enhance the speech?

Your Turn

Use a copy of this checklist from thoughtfullearning.com/p74 to evaluate formal speeches presented in your class.

Step 4: Assess ongoing skills application.

Of course, the point of learning new skills is to apply them. Tests don't assess application, but you can. After teaching a skill, tell students that you will expect them to use the skill in class. For example, if you have taught students how to communicate in groups, you can provide extra-credit points when you see students use that skill well in class. Also, the *Inquire* handbook provides various evaluation tools, such as the checklist to the left for students making oral presentations.

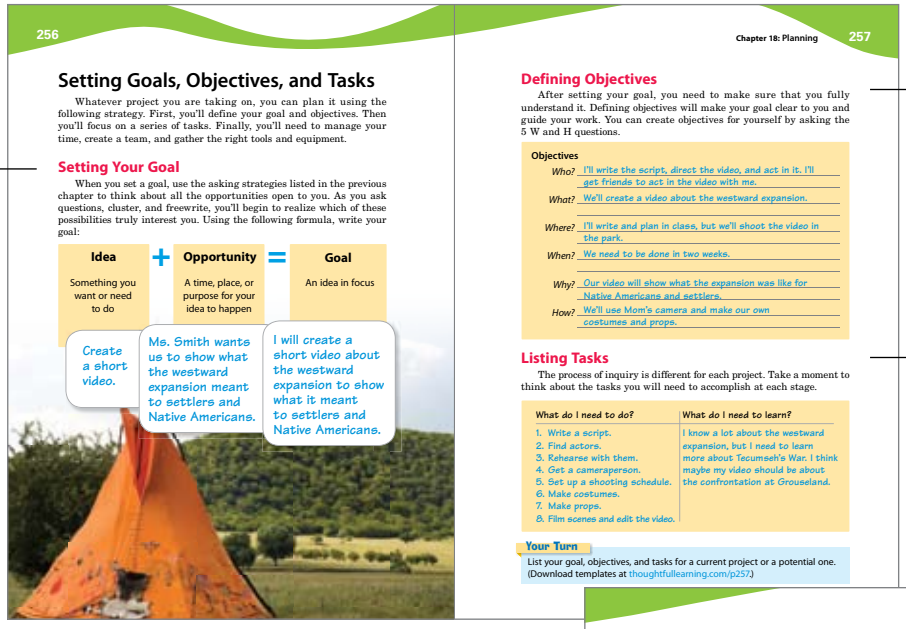
How can I assess students' projects?

Inquire provides simple but powerful tools for planning and assessing projects. Follow these steps:

Step 1: Set up standards-based goals and objectives.

On *Inquire* pages 256–257, students learn to set goals and objectives for their projects. Use this same approach to define goals and objectives based on the standards that you are teaching. Also note that *Inquire* page 257 suggests that students list or outline the tasks required to complete a project. (Each project covered in the handbook begins with guidelines that suggest the necessary steps for completing the work. See *Inquire* page 406 for an example.)

The goal focuses on the project and the reason for doing it.



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Setting Goals, Objectives, and Tasks

Whatever project you are taking on, you can plan it using the following strategy. First, you'll define your goal and objectives. Then you'll focus on a series of tasks. Finally, you'll need to manage your time, create a team, and gather the right tools and equipment.

Setting Your Goal

When you set a goal, use the asking strategies listed in the previous chapter to think about all the opportunities open to you. As you ask questions, cluster, and freewrite, you'll begin to realize which of these possibilities truly interest you. Using the following formula, write your goal:

Idea	+	Opportunity	=	Goal
Something you want or need to do		A time, place, or purpose for your idea to happen		An idea in focus

Create a short video.

Ms. Smith wants us to show what the westward expansion meant to settlers and Native Americans.

I will create a short video about the westward expansion to show what it meant to settlers and Native Americans.

Chapter 18: Planning 257

Defining Objectives

After setting your goal, you need to make sure that you fully understand it. Defining objectives will make your goal clear to you and guide your work. You can create objectives for yourself by asking the 5 W and H questions.

Objectives

Who? I'll write the script, direct the video, and act in it. I'll get friends to act in the video with me.
What? We'll create a video about the westward expansion.
Where? I'll write and plan in class, but we'll shoot the video in the park.
When? We need to be done in two weeks.
Why? Our video will show what the expansion was like for Native Americans and settlers.
How? We'll use Mom's camera and make our own costumes and props.

Listing Tasks

The process of inquiry is different for each project. Take a moment to think about the tasks you will need to accomplish at each stage.

What do I need to do?	What do I need to learn?
1. Write a script. 2. Find actors. 3. Rehearse with them. 4. Get a cameraperson. 5. Set up a shooting schedule. 6. Make costumes. 7. Make props. 8. Film scenes and edit the video.	I know a lot about the westward expansion, but I need to learn more about Tecumseh's War. I think maybe my video should be about the confrontation at Grouseland.

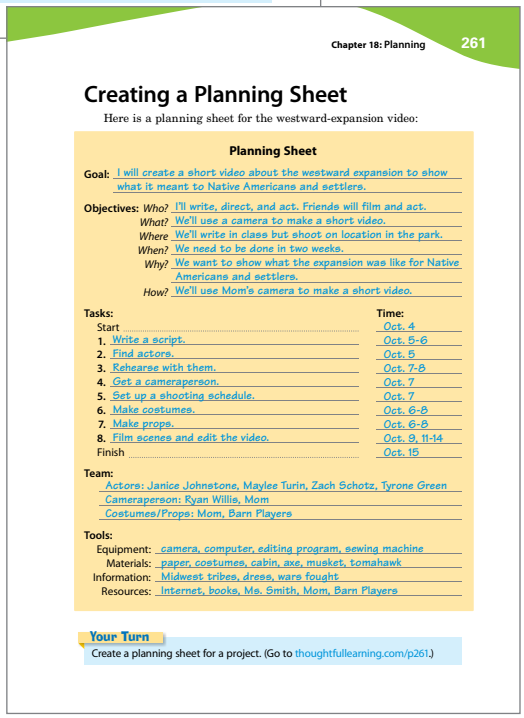
Your Turn
List your goal, objectives, and tasks for a current project or a potential one. (Download templates at thoughtfullearning.com/p257.)

Objectives outline the details of the project.

Tasks list the general steps for the project.

Step 2: Decide on time, teams, and tools.

Inquire pages 258–260 help students schedule projects, gather tools, and set up teams. This information, plus the goal and objectives, appears in one place: the planning sheet. Use this sheet to plan any kind of project, from a diorama to a fund-raiser. (Go to thoughtfullearning.com/p261 to download a planning sheet.)



Chapter 18: Planning 261

Creating a Planning Sheet

Here is a planning sheet for the westward-expansion video:

Planning Sheet

Goal: I will create a short video about the westward expansion to show what it meant to Native Americans and settlers.

Objectives:
Who? I'll write, direct, and act. Friends will film and act.
What? We'll use a camera to make a short video.
Where We'll write in class but shoot on location in the park.
When? We need to be done in two weeks.
Why? We want to show what the expansion was like for Native Americans and settlers.
How? We'll use Mom's camera to make a short video.

Tasks:	Time:
Start	Oct. 4
1. Write a script.	Oct. 5-6
2. Find actors.	Oct. 5
3. Rehearse with them.	Oct. 7-8
4. Get a cameraperson.	Oct. 7
5. Set up a shooting schedule.	Oct. 7
6. Make costumes.	Oct. 6-8
7. Make props.	Oct. 6-8
8. Film scenes and edit the video.	Oct. 9, 11-14
Finish	Oct. 15

Team:
Actors: Janice Johnstone, Maylee Turin, Zach Schotz, Tyrone Green
Cameraperson: Ryan Willis, Mom
Costumes/Props: Mom, Barn Players

Tools:
Equipment: camera, computer, editing program, sewing machine
Materials: paper, costumes, cabin, axe, musket, tomahawk
Information: Midwest tribes, dress, wars fought
Resources: Internet, books, Ms. Smith, Mom, Barn Players

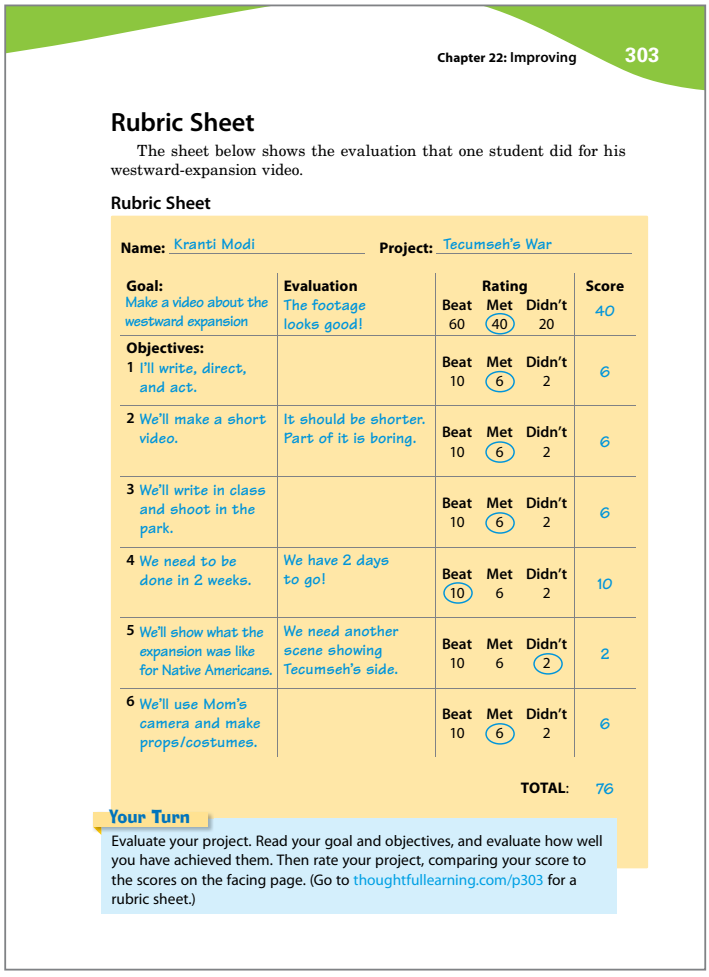
Your Turn
Create a planning sheet for a project. (Go to thoughtfullearning.com/p261.)

Step 3: Assess formatively.

Use the tasks you listed as opportunities for formative assessment throughout the process. For example, when students are making a video, provide feedback as they write scripts, line up actors, rehearse, set up a shooting schedule, and so on. Formative assessment keeps students on schedule and on track.

Step 4: Assign self-assessment.

The planning sheet translates easily into a rubric that students can use to assess their projects before revising them. Students can copy the goal and objectives from the planning sheet to the first column of the rubric sheet. Then they provide written evaluations as well as numerical ratings. These self-evaluations quickly tell students where their projects need to be improved. (Go to thoughtfullearning.com/p303 to download a rubric sheet.)



Chapter 22: Improving 303

Rubric Sheet

The sheet below shows the evaluation that one student did for his westward-expansion video.

Rubric Sheet

Name: Kranti Modi **Project:** Tecumseh's War

Goal: Make a video about the westward expansion	Evaluation: The footage looks good!	Rating: Beat 60 / Met (40) / Didn't 20	Score: 40
Objectives: 1 I'll write, direct, and act.		Beat 10 / Met (6) / Didn't 2	6
2 We'll make a short video.	It should be shorter. Part of it is boring.	Beat 10 / Met (6) / Didn't 2	6
3 We'll write in class and shoot in the park.		Beat 10 / Met (6) / Didn't 2	6
4 We need to be done in 2 weeks.	We have 2 days to go!	Beat (10) / Met 6 / Didn't 2	10
5 We'll show what the expansion was like for Native Americans.	We need another scene showing Tecumseh's side.	Beat 10 / Met 6 / Didn't (2)	2
6 We'll use Mom's camera and make props/costumes.		Beat 10 / Met (6) / Didn't 2	6

TOTAL: 76

Your Turn

Evaluate your project. Read your goal and objectives, and evaluate how well you have achieved them. Then rate your project, comparing your score to the scores on the facing page. (Go to thoughtfullearning.com/p303 for a rubric sheet.)

Step 5: Arrange real-world assessments.

When students present their projects, they naturally receive feedback. What do people think of the project? Does it match up to other projects? Does it work? In many ways, the real-world assessment of a project will be more important to the student than any other assessment.

Step 6: Assess summatively.

Once projects are presented, you can assess them using the same rubric that students used for self-assessment. Note that the scale on the rubric produces a total score that can easily be converted to a percentage (superlative is above 100, excellent is 90–99, good is 80–89, average is 70–79, poor is 60–69, and incomplete is 59 and below).

How can I assess collaborative projects?

If you assess only the final project, you'll probably run into a classic problem: high achievers will take over the project from low achievers. The high achievers will feel overworked, and the low achievers will feel excluded. Varied assessment can help address this problem. Follow these steps:

Step 1: Assess the project.

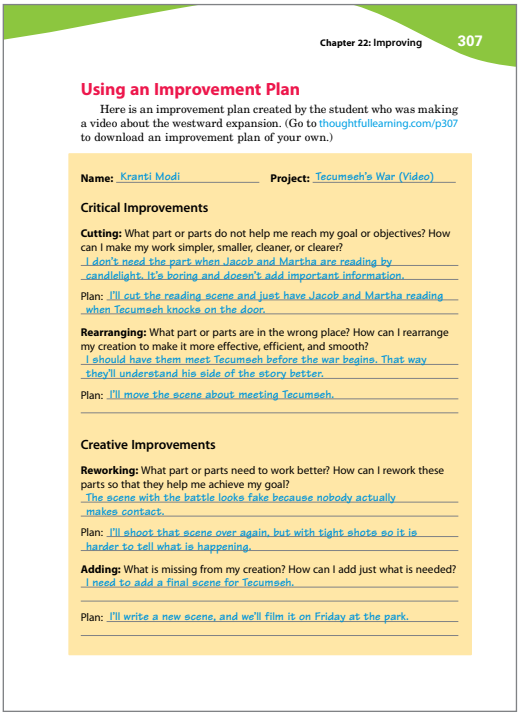
Have students outline the project's goal and objectives, using a planning sheet (see *Inquire* page 261). Review this document and request changes if the goal and objectives seem either too easy or too challenging. Then use this planning sheet to create a rubric sheet (see *Inquire* page 303) for scoring the project as a whole.

Step 2: Assess the group and the individuals.

Let students know from the start that they will receive a grade for their teamwork. Outline your own goal and objectives for teams, listing items such as productivity, cooperation, collaboration, problem solving, and conflict resolution. Also let students know they will receive an individual grade for contribution and effort.

Step 3: Assess formatively.

Throughout the process, give students feedback about how well the project is coming together, how well they are working as a team, and how well they are working as individuals. Point out ways to improve. Then have students create an improvement plan like the one on *Inquire* page 307. Go to thoughtfullearning.com/p307 to download a template.



Chapter 22: Improving 307

Using an Improvement Plan

Here is an improvement plan created by the student who was making a video about the westward expansion. (Go to thoughtfullearning.com/p307 to download an improvement plan of your own.)

Name: Kranti Modi **Project:** Tecumseh's War (Video)

Critical Improvements

Cutting: What part or parts do not help me reach my goal or objectives? How can I make my work simpler, smaller, cleaner, or clearer?
I don't need the part when Jacob and Martha are reading by candlelight. It's boring and doesn't add important information.

Plan: I'll cut the reading scene and just have Jacob and Martha reading when Tecumseh knocks on the door.

Rearranging: What part or parts are in the wrong place? How can I rearrange my creation to make it more effective, efficient, and smooth?
I should have them meet Tecumseh before the war begins. That way they'll understand his side of the story better.

Plan: I'll move the scene about meeting Tecumseh.

Creative Improvements

Reworking: What part or parts need to work better? How can I rework these parts so that they help me achieve my goal?
The scene with the battle looks fake because nobody actually makes contact.

Plan: I'll shoot that scene over again, but with tight shots so it is harder to tell what is happening.

Adding: What is missing from my creation? How can I add just what is needed?
I need to add a final scene for Tecumseh.

Plan: I'll write a new scene, and we'll film it on Friday at the park.

Step 4: Have students self-assess.

At the end of the process, have the group self-assess its project and its group dynamic. Then have individual students self-assess their own contributions.

Step 5: Combine assessments.

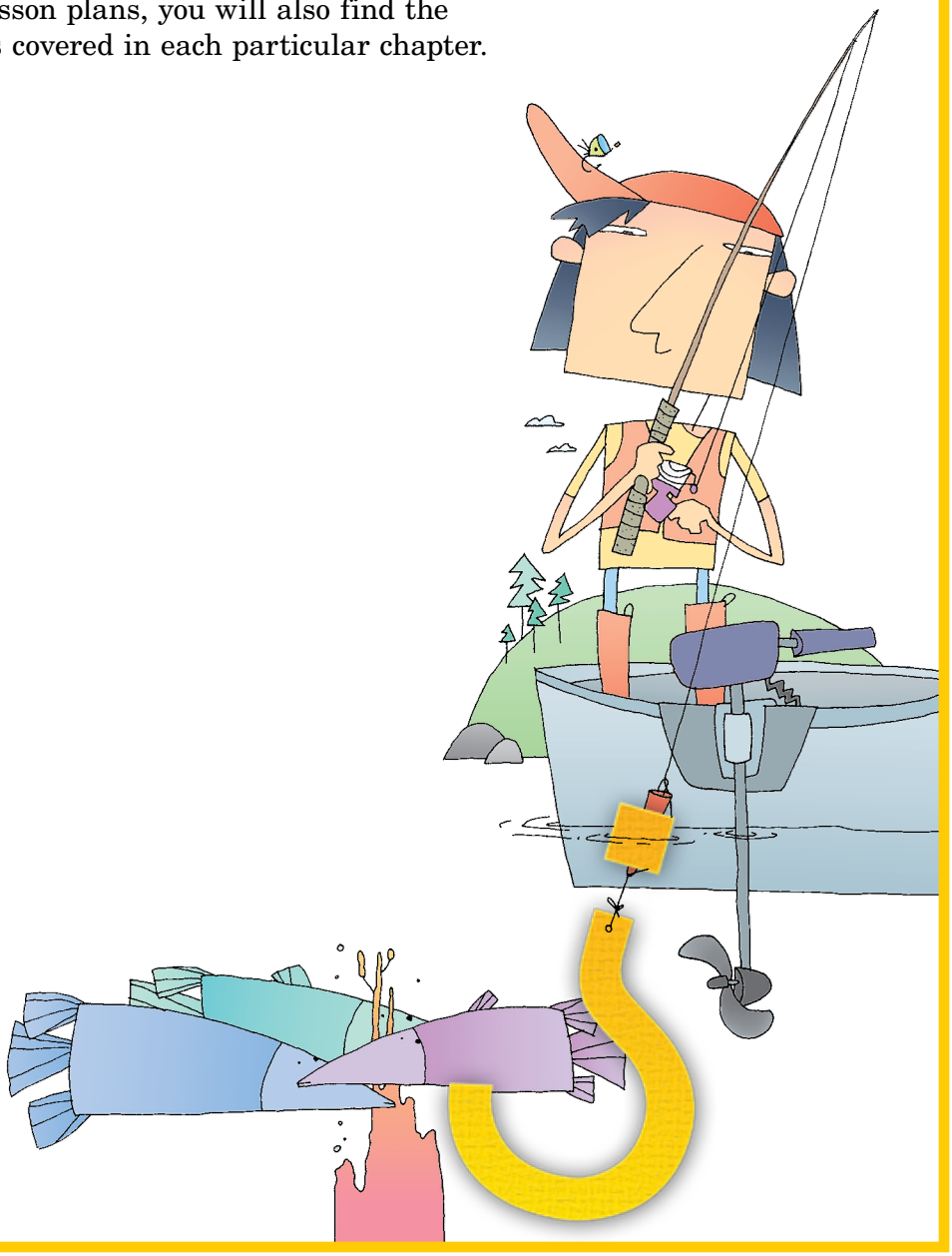
Use your assessments and the students' self-assessments to arrive at a final score for each student.

Correlations for *Inquire*

We live in a standards-driven world. Even inquiry and project-based classrooms need to deliver standards-based instruction. This section of the teacher's guide provides an overview of the way that *Inquire* teaches three sets of standards:

- **Partnership for 21st Century Skills Standards 36**
- **Common Core State Standards for English Language Arts 44**
- **Standards for the International Society for Technology in Education 49**

In the daily lesson plans, you will also find the specific standards covered in each particular chapter.



Partnership for 21st Century Skills Correlations

How does *Inquire* work in the core subject areas?

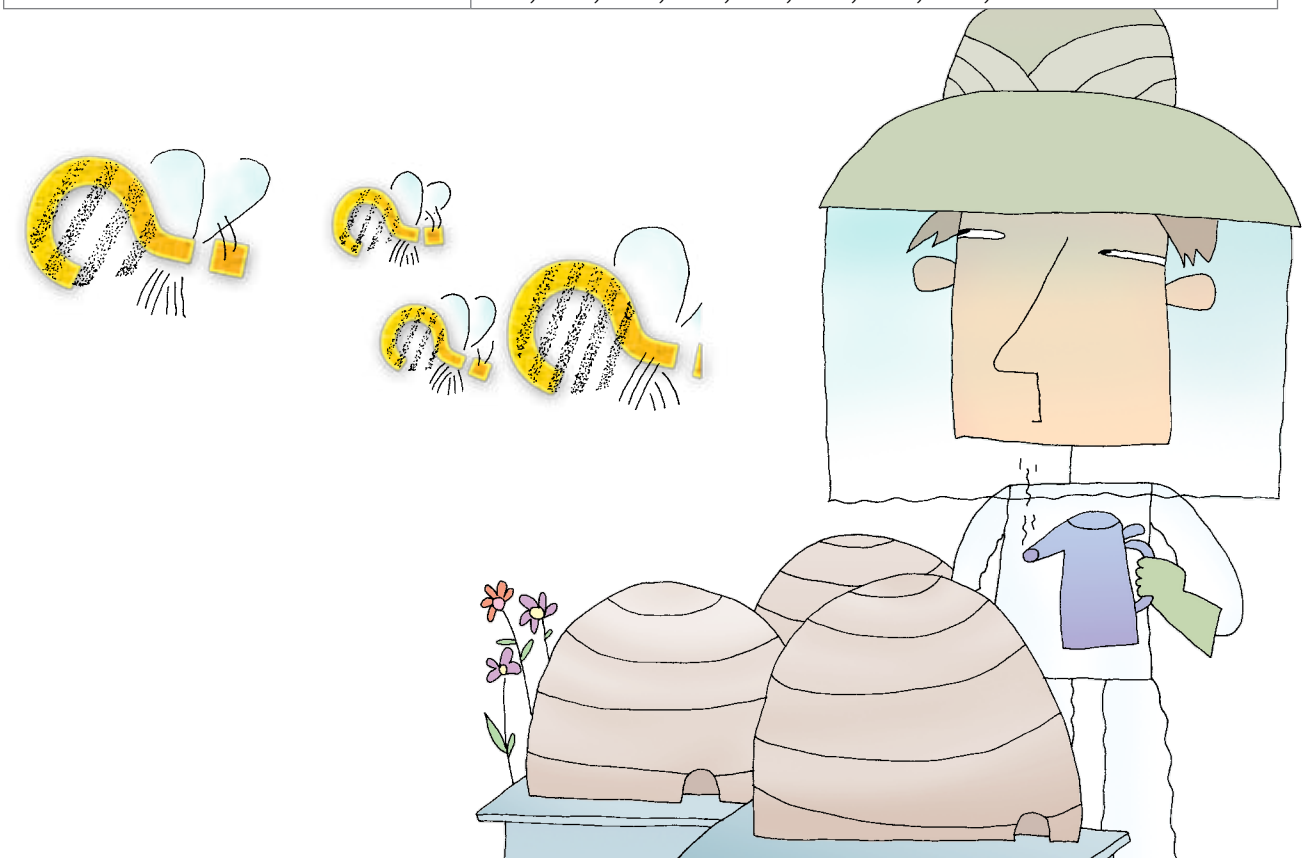
The Partnership for 21st Century Skills lists a set of critical core subjects and the skills students need to learn. *Inquire* directly teaches these crucial skills in parts 1 and 2 and, in part 3, provides numerous projects that help students learn core content.

Core Subjects	Appropriate Projects from *Inquire*
English, reading, or language arts	paragraph, summary, e-mail, instructions, narrative, poem, play, essay, news report, observation report, proposal, business letter, argument essay, research paper, table, time line, infographic, glog, digital story, blog post, wiki post, Web site, podcast, slide show, PSA, video, cartoon, poster, T-shirt, brochure, speech, demonstration speech, live interview, debate, event, contest, campaign, club
World languages	paragraph, summary, e-mail, instructions, narrative, essay, news report, observation report, proposal, business letter, argument essay, research paper, table, diagram, time line, infographic, glog, digital story, blog post, wiki post, Web site, podcast, slide show, PSA, video, cartoon, poster, T-shirt, brochure, diorama, speech, demonstration speech, live interview, event, contest, campaign, club
Arts	instructions, narrative, poem, play, pie graph, line graph, bar graph, table, diagram, time line, flowchart, infographic, glog, digital story, blog post, wiki post, Web site, podcast, slide show, PSA, video, cartoon, poster, T-shirt, brochure, diorama, blueprint, scale model, Rube Goldberg machine, event, contest, campaign, club
Mathematics	summary, e-mail, instructions, observation report, lab report, business letter, pie graph, line graph, bar graph, table, diagram, time line, flowchart, infographic, glog, digital story, blog post, wiki post, Web site, podcast, slide show, PSA, video, blueprint, scale model, Rube Goldberg machine, demonstration speech, contest, campaign, club
Science	paragraph, summary, e-mail, instructions, narrative, poem, play, essay, news report, observation report, lab report, proposal, business letter, argument essay, research paper, pie graph, line graph, bar graph, table, diagram, time line, flowchart, infographic, glog, digital story, blog post, wiki post, Web site, podcast, slide show, PSA, video, cartoon, poster, T-shirt, brochure, diorama, blueprint, scale model, Rube Goldberg machine, speech, demonstration speech, live interview, debate, event, contest, campaign, club
Geography	summary, narrative, essay, news report, observation report, lab report, research paper, pie graph, line graph, bar graph, table, diagram, time line, flowchart, infographic, glog, digital story, blog post, wiki post, Web site, podcast, slide show, PSA, video, cartoon, poster, T-shirt, brochure, diorama, blueprint, scale model, speech, demonstration speech, live interview, club
History	paragraph, summary, e-mail, narrative, poem, play, essay, news report, observation report, business letter, research paper, pie graph, line graph, bar graph, table, diagram, time line, flowchart, infographic, glog, digital story, blog post, wiki post, Web site, podcast, slide show, PSA, video, cartoon, poster, T-shirt, brochure, diorama, blueprint, scale model, speech, demonstration speech, live interview, debate, event, campaign, club
Government and civics	paragraph, summary, e-mail, instructions, narrative, play, essay, news report, observation report, proposal, business letter, argument essay, research paper, pie graph, line graph, bar graph, table, diagram, time line, flowchart, infographic, glog, digital story, blog post, wiki post, Web site, podcast, slide show, PSA, video, cartoon, poster, T-shirt, brochure, diorama, blueprint, scale model, speech, demonstration speech, live interview, debate, event, contest, campaign, club

What 21st century interdisciplinary themes are taught by *Inquire*?

The Partnership for 21st Century Skills also identifies a set of 21st century interdisciplinary themes that should be used to prepare students for life in the modern world. *Inquire* includes many models and examples that embody these themes.

21st Century Themes	*Inquire* Pages with Models and Examples
Global awareness	8, 24, 40, 42, 51–55, 58–59, 73, 85–86, 92, 135, 159, 163–164, 212, 237–242, 244, 245, 248–249, 250–251, 256–261, 288–289, 297, 299, 303, 307, 310–311, 329–330, 335–336, 347, 380, 383–384, 391, 395–396, 407–408, 416, 423, 425, 447, 453
Financial, economic, business, and entrepreneurial literacy	8, 10, 38–39, 40, 51–55, 81, 212, 219, 220, 221–222, 223, 224, 225, 226–227, 228–230, 231–232, 237–242, 253, 256–261, 353, 354–357, 359, 373, 405, 419, 421, 427–429, 430–431, 433, 458–461, 462–463, 464–467, 468–470
Civic literacy	8, 19, 20–21, 23, 43, 51–55, 62, 96–97, 98, 104–107, 115–116, 146, 225, 237–242, 248–249, 288–289, 296, 325, 358, 361, 403, 405, 415, 416, 441–443, 451, 458–461, 462–463, 464–467, 468–470
Health literacy	18, 48, 57, 92, 111–112, 121, 209, 210–211, 212, 213, 214, 215, 217–218, 225, 252, 327, 339, 361, 379, 393, 405
Environmental literacy	10, 18, 30, 36–37, 38–39, 51–55, 58–59, 75, 108–110, 142, 152–153, 197, 199, 202–206, 237–242, 246, 265–269, 272, 290–291, 297, 323, 327, 345, 349–351, 353, 363–367, 374–375, 377, 391, 401, 417, 419, 421, 425, 448–449



How does *Inquire* teach creativity and innovation?

In addition to having a chapter that directly teaches creative thinking, *Inquire* promotes creative thinking through problem solving, inquiry, and projects. The Partnership for 21st Century Skills highlights the importance of creative thinking for gathering ideas, expanding possibilities, and reaching beyond preconceptions.

Creativity and Innovation	Relevant Chapters from *Inquire*	
Think Creatively ■ Use a wide range of idea-creation techniques (such as brainstorming) ■ Create new and worthwhile ideas (both incremental and radical concepts) ■ Elaborate, refine, analyze, and evaluate ideas in order to improve and maximize creative efforts	**Part I:** ■ Overview of 21st Century Skills ■ Creative Thinking ■ Problem Solving ■ Building Arguments	**Part II (All):** ■ Chapters 16-23 **Part III (All):** ■ Chapters 24-31
Work Creatively with Others ■ Develop, implement, and communicate new ideas to others effectively ■ Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work ■ Demonstrate originality and inventiveness in work and understand the real-world limits to adopting new ideas ■ View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes	**Part I:** ■ Problem Solving ■ Communicating ■ Collaborating ■ Building Arguments ■ Using Social Media ■ Succeeding in School ■ Succeeding in the Workplace	**Part II:** ■ Planning ■ Improving ■ Presenting **Part III:** ■ Audio-Visual Projects ■ Performing Projects ■ Community Projects
Implement Innovations ■ Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur	**Part I:** ■ Creative Thinking ■ Problem Solving ■ Collaborating ■ Succeeding in the Workplace	**Part II (All):** ■ Chapters 16-23 **Part III (All):** ■ Chapters 24-31

How does *Inquire* teach critical thinking and problem solving?

Inquire has a chapter that directly teaches critical thinking strategies, but *Inquire* also applies critical thinking throughout its content on problem solving, understanding and using media, the inquiry process, and creating projects. The Partnership for 21st Century Skills stresses the importance of critical thinking for analyzing, comparing, classifying, and otherwise sorting through ideas.

Critical Thinking and Problem Solving	Relevant Chapters from *Inquire*	
Reason Effectively and Use Systems Thinking ■ Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation ■ Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems	**Part I:** ■ Critical Thinking ■ Problem Solving ■ Building Arguments ■ Understanding Media ■ Reading to Learn	**Part II (All):** ■ Chapters 16–23 **Part III (All):** ■ Chapters 24–31
Make Judgments and Decisions ■ Effectively analyze and evaluate evidence, arguments, claims, and beliefs ■ Analyze and evaluate major alternative points of view ■ Synthesize and make connections between information and arguments ■ Interpret information and draw conclusions based on the best analysis ■ Reflect critically on learning experiences and processes	**Part I:** ■ Overview of 21st Century Skills ■ Critical Thinking ■ Problem Solving ■ Building Arguments ■ Understanding Media ■ Reading to Learn ■ Improving Study Skills ■ Succeeding in School	**Part II (All):** ■ Chapters 16–23 **Part III (All):** ■ Chapters 24–31
Solve Problems ■ Solve different kinds of non-familiar problems in both conventional and innovative ways ■ Identify and ask significant questions that clarify various points of view and lead to better solutions	**Part I:** ■ Problem Solving ■ Building Arguments ■ Understanding Media ■ Improving Study Skills	**Part II (All):** ■ Chapters 16–23 **Part III (All):** ■ Chapters 24–31

How does *Inquire* teach communicating and collaborating?

Inquire includes chapters that directly teach communication and collaboration and then applies these skills throughout its content on the inquiry process and with numerous projects. The Partnership for 21st Century Skills emphasizes the importance of relating ideas to other people and working with others to create something.

Communication and Collaboration	Relevant Chapters from *Inquire*	
Communicate Clearly ■ Articulate thoughts and ideas effectively using oral, written, and nonverbal communication skills in a variety of forms and contexts ■ Listen effectively to decipher meaning, including knowledge, values, attitudes, and intentions ■ Use communication for a range of purposes (e.g., to inform, instruct, motivate, and persuade) ■ Utilize multiple media and technologies, and know how to judge their effectiveness *a priori* as well as assess their impact ■ Communicate effectively in diverse environments (including multi-lingual)	**Part I:** ■ Overview of 21st Century Skills ■ Communicating ■ Understanding Media ■ Using Social Media ■ Reading to Learn ■ Improving Vocabulary ■ Following Basic Conventions ■ Succeeding in School ■ Succeeding in the Workplace	**Part II:** ■ Questioning ■ Planning ■ Conducting Basic Research ■ Conducting Advanced Research ■ Creating ■ Improving ■ Presenting **Part III (All):** ■ Chapters 24–31
Collaborate with Others ■ Demonstrate ability to work effectively and respectfully with diverse teams ■ Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal ■ Assume shared responsibility for collaborative work, and value the individual contributions made by each team member	**Part I:** ■ Collaborating ■ Building Arguments ■ Using Social Media ■ Succeeding in School ■ Succeeding in the Workplace	**Part II:** ■ Planning ■ Improving **Part III:** ■ Web Projects ■ Audio-Visual Projects ■ Performing Projects ■ Community Projects

How does *Inquire* teach literacy skills?

Inquire directly teaches these skills and then provides practice through a variety of projects. The Partnership for 21st Century Skills recommends that all students learn to use information, media, and technology in effective and appropriate ways.

Communication and Collaboration	Relevant Chapters from *Inquire*	
Access and Evaluate Information ■ Access information efficiently (time) and effectively (sources) ■ Evaluate information critically and competently	**Part I:** ■ Understanding Media ■ Reading to Learn ■ Improving Study Skills	**Part II:** ■ Conducting Basic Research ■ Conducting Advanced Research **Part III (All):** ■ Chapters 24–31
Use and Manage Information ■ Use information accurately and creatively for the issue or problem at hand ■ Manage the flow of information from a wide variety of sources ■ Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information	**Part I:** ■ Collaborating ■ Building Arguments ■ Using Social Media ■ Succeeding in School ■ Succeeding in the Workplace	**Part II:** ■ Conducting Basic Research ■ Conducting Advanced Research **Part III (All):** ■ Chapters 24–31
Media Literacy	**Relevant Chapters from *Inquire***	
Analyze Media ■ Understand both how and why media messages are constructed, and for what purposes ■ Examine how individuals interpret messages differently, how values and points of view are included or excluded, and how media can influence beliefs and behaviors ■ Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of media	**Part I:** ■ Building Arguments ■ Understanding Media ■ Using Social Media ■ Reading to Learn ■ Improving Study Skills	**Part II:** ■ Conducting Basic Research ■ Conducting Advanced Research **Part III (All):** ■ Chapters 24–31
Create Media Products ■ Understand and utilize the most appropriate media-creation tools, characteristics, and conventions ■ Understand and effectively utilize the most appropriate expressions and interpretations in diverse, multi-cultural environments	**Part I:** ■ Understanding Media ■ Using Social Media	**Part II (All):** ■ Chapters 16–23 **Part III (All):** ■ Chapters 24–31

Information and Communication Technologies Literacy	Relevant Chapters from *Inquire*	
Apply Technology Effectively ■ Use technology as a tool to research, organize, evaluate, and communicate information ■ Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools, and social networks appropriately to access, manage, integrate, evaluate, and create information to successfully function in a knowledge economy ■ Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technology	**Part I:** ■ Communicating ■ Understanding Media ■ Using Social Media ■ Reading to Learn **Part II:** ■ Conducting Basic Research ■ Conducting Advanced Research	**Part III:** ■ Basic Writing Projects ■ Graphing Projects ■ Web Projects ■ Audio-Visual Projects ■ Design Projects ■ Performing Projects

How does *Inquire* teach life and career skills?

Inquire teaches these skills through direct instruction, the inquiry process, and projects. The Partnership for 21st Century Skills advocates for students to learn a suite of life skills, including flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility.

Life and Career Skills	Relevant Chapters from *Inquire*	
Flexibility and Adaptability ■ Adapt to varied roles, job responsibilities, schedules, and contexts ■ Work effectively in a climate of ambiguity and changing priorities ■ Incorporate feedback effectively ■ Deal positively with praise, setbacks, and criticism ■ Understand, negotiate, and balance diverse views and beliefs to reach workable solutions	**Part I:** ■ Problem Solving ■ Collaborating ■ Succeeding in School ■ Succeeding in the Workplace	**Part II:** ■ Learning About the Inquiry Process ■ Questioning ■ Planning ■ Creating ■ Improving **Part III (All):** ■ Chapters 24–31
Initiative and Self-Direction ■ Set goals with tangible and intangible success criteria ■ Balance tactical (short-term) and strategic (long-term) goals efficiently ■ Monitor, define, prioritize, and complete tasks without direct oversight ■ Go beyond basic mastery of skills and/or curriculum to explore and expand one's own learning and opportunities to gain expertise ■ Demonstrate initiative to advance skill levels towards a professional level ■ Demonstrate commitment to learning as a lifelong process ■ Reflect critically on past experiences in order to inform future progress ■ Utilize time and manage workload	**Part I:** ■ Problem Solving ■ Collaborating ■ Succeeding in School ■ Succeeding in the Workplace	**Part II:** ■ Learning About the Inquiry Process ■ Questioning ■ Planning ■ Conducting Basic Research ■ Conducting Advanced Research ■ Creating ■ Improving ■ Presenting **Part III (All):** ■ Chapters 24–31

Life and Career Skills (Continued)	Relevant Chapters from *Inquire*	
Social and Cross-Cultural Skills ■ Know when it is appropriate to listen and when to speak ■ Conduct oneself in a respectable, professional manner ■ Respect cultural differences and work effectively with people from a range of social and cultural backgrounds ■ Respond open-mindedly to different ideas and values ■ Leverage social and cultural differences to create new ideas and increase both innovation and quality of work	**Part I:** ■ Communicating ■ Collaborating ■ Understanding Media ■ Using Social Media ■ Succeeding in School ■ Succeeding in the Workplace	**Part II:** ■ Planning ■ Conducting Basic Research ■ Conducting Advanced Research ■ Improving **Part III:** ■ Web Projects ■ Performing Projects ■ Community Projects
Productivity and Accountability ■ Set and meet goals, even in the face of obstacles and competing pressure ■ Prioritize, plan, and manage work to achieve the intended result ■ Work positively and ethically ■ Manage time and projects effectively ■ Multi-task ■ Participate actively, as well as be reliable and punctual ■ Present oneself professionally and with proper etiquette ■ Collaborate and cooperate effectively with teams ■ Respect and appreciate team diversity ■ Be accountable for results	**Part I:** ■ Communicating ■ Collaborating ■ Understanding Media ■ Using Social Media ■ Improving Study Skills ■ Succeeding in School ■ Succeeding in the Workplace	**Part II:** ■ Learning About the Inquiry Process ■ Planning ■ Conducting Basic Research ■ Conducting Advanced Research ■ Improving ■ Presenting **Part III (All):** ■ Chapters 24–31
Leadership and Responsibility ■ Use interpersonal and problem-solving skills to influence and guide others toward a goal ■ Leverage strengths of others to accomplish a common goal ■ Inspire others to reach their very best via example and selflessness ■ Demonstrate integrity and ethical behavior in using influence and power ■ Act responsibly with the interests of the larger community in mind	**Part I:** ■ Problem Solving ■ Communicating ■ Collaborating ■ Understanding Media ■ Using Social Media ■ Succeeding in School ■ Succeeding in the Workplace	**Part II:** ■ Learning About the Inquiry Process ■ Planning ■ Conducting Basic Research ■ Conducting Advanced Research ■ Improving **Part III (All):** ■ Chapters 24–31

Common Core State Standards for English Language Arts Correlations

Inquire covers the Common Core State Standards for English Language Arts listed below and on the following pages. (The chart shows the general standards for middle school, omitting the grade-specific requirements for 6, 7, and 8. Where the general standards differ by grade, the 8th grade standard is shown.) *Inquire* promotes these standards through skills instruction, the inquiry process, and project-based learning.

What Common Core State Standards for writing does *Inquire* cover?

Inquire covers all Common Core State Standards for writing.

Writing Standards (6-8)	Relevant Chapters from *Inquire*	
Text Types and Purposes 1. Write arguments to support claims with clear reasons and relevant evidence. 2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. 3. Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.	**Part I:** ■ Communicating ■ Building Arguments ■ Reading to Learn **Part II:** ■ Questioning ■ Planning ■ Conducting Basic Research ■ Conducting Advanced Research ■ Creating ■ Improving ■ Presenting	**Part III:** ■ Basic Writing Projects ■ Advanced Writing Projects ■ Graphing Projects ■ Web Projects ■ Audio-Visual Projects ■ Performing Projects
Production and Distribution of Writing 4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. 5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed. 6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.	**Part I:** ■ Communicating ■ Collaborating ■ Understanding Media ■ Using Social Media ■ Following Basic Conventions ■ Improving Study Skills	**Part II:** ■ Questioning ■ Planning ■ Conducting Basic Research ■ Conducting Advanced Research ■ Creating ■ Improving ■ Presenting **Part III (All):** ■ Chapters 24–31

Writing Standards (6-8) (Continued)	Relevant Chapters from *Inquire*	
Research to Build and Present Knowledge **7.** Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. **8.** Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. **9.** Draw evidence from literary or informational texts to support analysis, reflection, and research.	**Part I:** ■ Critical Thinking ■ Creative Thinking ■ Problem Solving ■ Communicating ■ Understanding Media ■ Using Social Media ■ Reading to Learn ■ Improving Study Skills	**Part II:** ■ Questioning ■ Planning ■ Conducting Basic Research ■ Conducting Advanced Research ■ Creating **Part III:** ■ Basic Writing Projects ■ Advanced Writing Projects ■ Graphing Projects ■ Web Projects ■ Audio-Visual Projects
Range of Writing **10.** Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	**Part I (All):** ■ Chapters 1–15 **Part II (All):** ■ Chapters 16–23	**Part III (All):** ■ Chapters 24-31

What Common Core State Standards for speaking and listening does *Inquire* cover?

Inquire covers all Common Core State Standards for speaking and listening.

Speaking and Listening Standards (6-8)	Relevant Chapters from *Inquire*	
Comprehension and Collaboration 1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade appropriate topics, texts, and issues,* building on others' ideas and expressing their own clearly. 2. Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation. 3. Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.	**Part I:** ■ Communicating ■ Collaborating ■ Building Arguments ■ Understanding Media ■ Reading to Learn ■ Improving Study Skills ■ Succeeding in School	**Part II:** ■ Conducting Basic Research ■ Conducting Advanced Research ■ Improving **Part III:** ■ Performing Projects ■ Community Projects
Presentation of Knowledge and Ideas 4. Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation. 5. Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest. 6. Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.	**Part I:** ■ Communicating ■ Building Arguments ■ Understanding Media **Part II:** ■ Conducting Basic Research ■ Conducting Advanced Research ■ Creating ■ Improving ■ Presenting	**Part III:** ■ Basic Writing Projects ■ Advanced Writing Projects ■ Graphing Projects ■ Web Projects ■ Audio-Visual Projects ■ Design Projects ■ Performing Projects ■ Community Projects

What Common Core State Standards for literacy does *Inquire* cover?

Inquire covers all Common Core State Writing Standards for literacy in history/social studies, science, and technical subjects.

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects (6-8)	Relevant Chapters from *Inquire*
Text Types and Purposes 1. Write arguments focused on discipline-specific content. **a.** Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. **b.** Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. **c.** Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. **d.** Establish and maintain a formal style. **e.** Provide a concluding statement or section that follows from and supports the argument presented. 2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. **a.** Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. **b.** Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. **c.** Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. **d.** Use precise language and domain-specific vocabulary to inform about or explain the topic. **e.** Establish and maintain a formal style and objective tone. **f.** Provide a concluding statement or section that follows from and supports the information or explanation presented. 3. **Special Note:** Incorporate narrative elements effectively into arguments and informative/explanatory texts. In history/social studies, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.	**Part I:** ■ Overview of 21st Century Skills ■ Critical Thinking ■ Creative Thinking ■ Problem Solving ■ Communicating ■ Building Arguments ■ Understanding Media ■ Using Social Media ■ Reading to Learn ■ Following Basic Conventions **Part II:** ■ Questioning ■ Planning ■ Conducting Basic Research ■ Conducting Advanced Research ■ Creating ■ Improving ■ Presenting **Part III:** ■ Basic Writing Projects ■ Advanced Writing Projects ■ Graphing Projects ■ Web Projects ■ Audio-Visual Projects ■ Performing Projects

Writing Standards for Literacy in History/ Social Studies, Science, and Technical Subjects (6-8) (Continued)	Relevant Chapters from *Inquire*	
Production and Distribution of Writing **4.** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. **5.** With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed. **6.** Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.	**Part I:** ■ Communicating ■ Collaborating ■ Understanding Media ■ Using Social Media ■ Following Basic Conventions ■ Improving Study Skills	**Part II:** ■ Questioning ■ Planning ■ Conducting Basic Research ■ Conducting Advanced Research ■ Creating ■ Improving ■ Presenting **Part III (All):** ■ Chapters 24–31
Research to Build and Present Knowledge **7.** Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. **8.** Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. **9.** Draw evidence from informational texts to support analysis, reflection, and research.	**Part I:** ■ Critical Thinking ■ Creative Thinking ■ Problem Solving ■ Communicating ■ Understanding Media ■ Using Social Media ■ Reading to Learn ■ Improving Study Skills	**Part II:** ■ Questioning ■ Planning ■ Conducting Basic Research ■ Conducting Advanced Research ■ Creating **Part III:** ■ Basic Writing Projects ■ Advanced Writing Projects ■ Graphing Projects ■ Web Projects ■ Audio-Visual Projects
Range of Writing **10.** Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	**Part I (All):** ■ Chapters 1–15 **Part II (All):** ■ Chapters 16–23	**Part III (All):** ■ Chapters 24–31

ISTE Correlations

What ISTE standards does *Inquire* cover?

The International Society for Technology in Education has outlined the following standards, which *Inquire* promotes.

1. Creativity and Innovation	Relevant Chapters from *Inquire*	
Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students **a.** apply existing knowledge to generate new ideas, products, or processes. **b.** create original works as a means of personal or group expression. **c.** use models and simulations to explore complex systems and issues. **d.** identify trends/forecast possibilities.	**Part I:** ■ Overview of 21st Century Skills ■ Creative Thinking ■ Problem Solving ■ Collaborating ■ Building Arguments ■ Succeeding in the Workplace	**Part II:** ■ Questioning ■ Planning ■ Creating ■ Improving ■ Presenting **Part III (All):** ■ Chapters 24–31
2. Communication and Collaboration	**Relevant Chapters from *Inquire***	
Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students **a.** interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments/media. **b.** communicate information and ideas effectively to multiple audiences using a variety of media and formats. **c.** develop cultural understanding and global awareness by engaging with learners of other cultures. **d.** contribute to project teams to produce original works or solve problems.	**Part I:** ■ Overview of 21st Century Skills ■ Communicating ■ Collaborating ■ Understanding Media ■ Using Social Media ■ Reading to Learn ■ Succeeding in School ■ Succeeding in the Workplace	**Part II:** ■ Questioning ■ Planning ■ Conducting Basic Research ■ Conducting Advanced Research ■ Creating ■ Improving ■ Presenting **Part III (All):** ■ Chapters 24–31
3. Research and Information Fluency	**Relevant Chapters from *Inquire***	
Students apply digital tools to gather, evaluate, and use information. Students **a.** plan strategies to guide inquiry. **b.** locate, organize, analyze, evaluate, synthesize, and ethically use information from sources and media. **c.** evaluate and select information sources and digital tools based on the appropriateness to specific tasks. **d.** process data and report results.	**Part I:** ■ Understanding Media ■ Using Social Media ■ Reading to Learn ■ Improving Study Skills ■ Succeeding in School ■ Succeeding in the Workplace	**Part II:** ■ Planning ■ Conducting Basic/ Advanced Research ■ Creating ■ Presenting **Part III (All):** ■ Chapters 24–31

4. Critical Thinking, Problem Solving, and Decision Making	Relevant Chapters from *Inquire*	
Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students **a.** identify and define authentic problems and significant questions for investigation. **b.** plan and manage activities to develop a solution or complete a project. **c.** collect and analyze data to identify solutions and/or make informed decisions. **d.** use multiple processes and diverse perspectives to explore alternative solutions.	**Part I:** ■ Critical Thinking ■ Problem Solving ■ Building Arguments ■ Understanding Media ■ Reading to Learn ■ Improving Study Skills ■ Succeeding in School	**Part II:** ■ Questioning ■ Planning ■ Conducting Basic Research ■ Conducting Advanced Research ■ Creating ■ Improving ■ Presenting **Part III (All):** ■ Chapters 24–31
5. Digital Citizenship	**Relevant Chapters from *Inquire***	
Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students **a.** advocate and practice safe, legal, and responsible use of information and technology. **b.** exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity. **c.** demonstrate personal responsibility for lifelong learning. **d.** exhibit leadership for digital citizenship.	**Part I:** ■ Communicating ■ Understanding Media ■ Using Social Media ■ Reading to Learn **Part II:** ■ Conducting Basic Research ■ Conducting Advanced Research	**Part III:** ■ Basic Writing Projects ■ Graphing Projects ■ Web Projects ■ Audio-Visual Projects ■ Design Projects ■ Performing Projects
6. Technology Operations and Concepts	**Relevant Chapters from *Inquire***	
Students demonstrate a sound understanding of technology concepts, systems, and operations. Students **a.** understand and use technology systems. **b.** select and use applications effectively and productively. **c.** troubleshoot systems and applications. **d.** transfer current knowledge to learning of new technologies.	**Part I:** ■ Communicating ■ Understanding Media ■ Using Social Media ■ Reading to Learn **Part II:** ■ Conducting Basic Research ■ Conducting Advanced Research	**Part III:** ■ Basic Writing Projects ■ Graphing Projects ■ Web Projects ■ Audio-Visual Projects ■ Design Projects ■ Performing Projects

Research and Additional Resources

The *Inquire* program draws its inspiration from many, many sources. The next few pages list the chief ones—books, articles, Web sites, and even live presentations. *Inquire* is truly the product of a diverse community of educators and thinkers.

In addition to these sources, much of the material in *Inquire* was inspired by and field-tested in Ms. Cindy Smith's project-based learning classroom at Karcher Middle School in Burlington, Wisconsin. The authors owe a great debt of gratitude to Ms. Smith and her class of 32 seventh- and eighth-grade students.

And, of course, *Inquire* arose from the collaborative labors of the talented educators, developers, and designers at Thoughtful Learning.

■ **What resources support *Inquire*?. 52**

What resources support *Inquire*?

Inquire was built on a broad base of research into 21st century skills, inquiry, and project-based learning. The authors used the following research materials, and suggest them as resources for those who wish to delve deeper.

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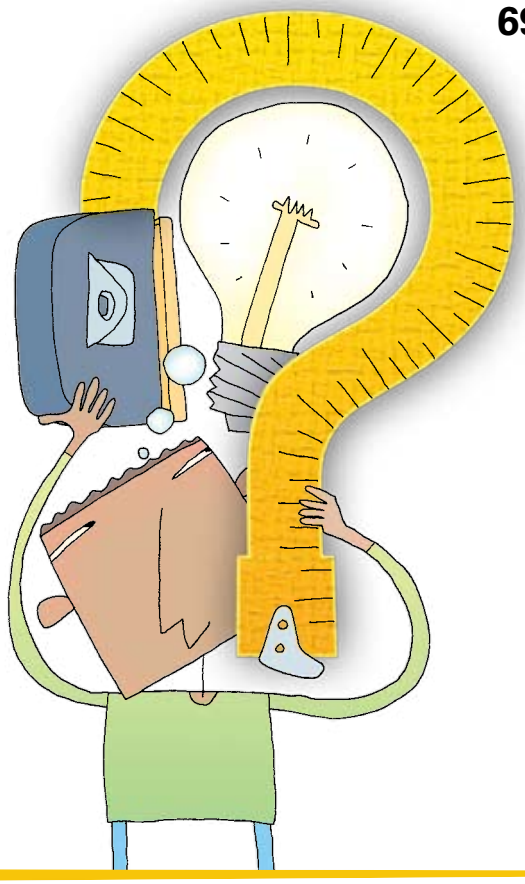
Chapter 2

Critical Thinking

(*Inquire* pages 13–30)



Critical thinking involves close study—defining, comparing, classifying, reasoning, arguing, and so on. These skills are important in all classes and in life beyond the school's walls. This chapter provides specific critical-thinking strategies that students can use in all classes across the curriculum.

Learning Outcomes

- Understand what critical thinking is.
- Develop critical-thinking habits.
- Learn specific critical-thinking strategies.
- Practice more complex levels of critical thinking.
- Understand inductive and deductive thinking.

Correlations

Partnership for 21st Century Skills

Critical Thinking and Problem Solving
- Reason Effectively and Use Systems Thinking
- Make Judgments and Decisions

Common Core State Standards

Writing Standards (6–8)
- Research to Build and Present Knowledge
- Range of Writing

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects (6–8)
- Text Types and Purposes
- Research to Build and Present Knowledge
- Range of Writing

International Society for Technology in Education

4. Critical Thinking, Problem Solving, and Decision Making

a. Identify and define authentic problems and significant questions for investigation.

b. Plan and manage activities to develop a solution or complete a project.

c. Collect and analyze data to identify solutions and/or make informed decisions.

d. Use multiple processes and diverse perspectives to explore alternative solutions.

Lesson Plan: Critical Thinking

Day 1

1. Ask students to write "Critical" in the center of a piece of paper and create a cluster of ideas around the word as done on page 38. Discuss.
2. Read aloud the chapter introduction on page 13. Then have students silently read "Understanding Critical Thinking" on page 14 and do the "Your Turn" activity. Discuss responses as a class, or have students discuss in pairs.
3. Read aloud the "Critical-Thinking Strategies" introduction on page 15. Then read aloud the skills listed in the green bar on the left side of the page. Discuss with students the critical-thinking strategies they will learn for each level of thinking.
4. As a class, review the "Remembering" strategies on pages 16–17. Have students complete the "Your Turn" activity at the bottom of each page. Discuss.

Day 2

5. Before class, write this question on the board: "What are the key questions you should ask about an event?" (*Name? Who? What? Where? When? Why? How?*) Have students list key questions without looking in *Inquire.* Then ask for a few responses and turn the class's attention to the event questions in *Inquire,* page 17. Finally, ask students to pick an important event and answer the key questions about it.
6. As a class, review "Understanding" on pages 18–19 and have students do the "Your Turn" activity at the bottom of each page. Lead a discussion about reasoning deductively and inductively. (For more examples, see *Inquire* pages 58–59.)
7. As a class, review "Applying" on pages 20–21 and have students complete the three "Your Turn" activities. Point out how the 5 Ws and H questions capture the critical details of a situation. Have students turn to "Setting Goals, Objectives, and Tasks" on pages 256–257 to discover how this skill set is important to planning.

Day 3

8. As a class, review "Analyzing" on pages 22–23. These pages provide four graphic organizers that students can use to analyze topics.
9. Have students choose a historical topic or more recent event and organize its details in a time line. Discuss how this organization affects the analysis of the overall topic.
10. As time permits, or as an assignment, have students choose other topics and analyze them according to cause and effect, comparison and contrast, or by category/parts, creating the appropriate graphic organizer. (See TG pages 259–266.)

Day 4

11. As a class, review "Evaluating" on pages 24–25 and have students complete the "Your Turn" activities.
12. Have students turn to the "rubric sheet" on page 303. Note how they will be using such rubrics to analyze their projects and how the rubrics are based on the goals and objectives created on their planning sheets. (See page 261 and TG page 259.)
13. As a class, discuss "Creating" on pages 26–28 and assign "Your Turn" activities.

Day 5

14. Assign the "Critical-Thinking Activities" on pages 29–30. Consider the extension activity and the critical-thinking review on the next two pages of this teacher's guide.

Extension: Critical Thinking

Name _____ Date _____

Your Turn

Read the following short article about the rise and fall of castles in medieval Europe. Then, in the space below, analyze the information in this article by using one of the strategies and organizers shown on *Inquire* pages 22 and 23.

Castles Rise and Fall in Europe

Often when people think of the Middle Ages, they think of gleaming-white castles, but castles got their start because of desperate times. In the ninth and tenth centuries (A.D. 800-999), most areas of Europe didn't have a strong central government. Local lords, therefore, had to take responsibility for defending the land. They didn't get along with each other and had border clashes, and they also were threatened by Viking and Moorish invaders.

As a result, local lords began to fortify their manor houses. They might have put a thick hedge around their home, or a ring of earth, or even a stone wall. Building a manor on a hilltop and making it of stone also helped. The first castles were born. From the 11th century onward, castles spread throughout Europe and became increasingly more elaborate. They became centers for mounted warriors called knights, who wore plate armor into battle—like portable castles themselves.

But in the 1380s, gunpowder made its way into Europe. At first, it posed little threat to castles and mounted knights because guns were too inaccurate and unreliable to use in war. Arrows and trebuchets worked much better. However, by 1500, cannons were battering down castle walls. New castles were built with rounded edges and angles meant to deflect cannonballs, but castle designs could not keep pace with gunpowder technology. Castles began to fade from use, as did the shining armor that could deflect arrows but not bullets.

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Follow-up: Which strategy and organizer did you use to analyze the article? What other strategy could you have used? How do the different strategies affect your analysis of the information?

Review: Critical Thinking

Name _____ Date _____

Your Turn

Answer each of the following questions.

1. Which of the following are examples of critical thinking?
   a. Tracing the causes and effects of something
   b. Using a rubric to evaluate something
   c. Answering *who, what, where, when, why,* and *how* about something
   d. Organizing details in a logical order
   e. All of these are examples of critical thinking.

2. Reorder these thinking skills from simple to complex.

   Creating _____
   Applying _____
   Remembering _____
   Evaluating _____
   Analyzing _____
   Understanding _____

3. To analyze a period or an event in history, what critical thinking strategy would work well?

   _____

4. What does it mean to reason deductively? _____

   _____

5. What does it mean to reason inductively? _____

   _____

6. What is the three-part structure? _____

   _____

Reflect:

Which critical thinking strategy in this chapter do you find most helpful and why?

_____

Describe one way that you could use critical thinking in one of your classes.

_____

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Science Minilessons: Critical Thinking

Rating Natural Disasters

LIST natural disasters.
RESEARCH to find out which disasters have scientific rating scales (for example, earthquakes are measured by the Richter scale). (See *Inquire* page 24.)
INVENT a scientific rating scale for a natural disaster that doesn't yet have one.
RATE a disaster using your scale.
EXPLAIN your rating scale to a partner.

Climbing Life's Tree

FIND a copy of the tree of life displaying earth's life-forms and study it carefully.
CHOOSE two closely related life-forms.
COMPARE them using a Venn diagram. (See *Inquire* page 23.)
CHOOSE two life-forms that aren't closely related.
CONTRAST them using a Venn diagram.

Invent the future!

LIST problems that need to be solved and choose one.
IMAGINE an invention that would solve the problem.
WRITE a goal and objectives for making your invention a reality. (See *Inquire* page 21.)

Math Minilessons: Critical Thinking

Count me in!

LIST 10 things that can be counted (like people or pencils).
LIST 10 things that can be measured but not counted (like water or heat).
WRITE a form of measurement that is used for each thing that can be measured but not counted.
EXPLAIN the difference between counting things and measuring things.

Thinking About Thinking

FIND a word problem in your math book.
SOLVE the problem, going through whatever steps it takes.
REVIEW the steps you took to solve the problem. Did you reason deductively or inductively? (See *Inquire* pages 18–19.)
EXPLAIN your thinking pattern as you solved the problem.

Make a math survey.

WRITE questions for a survey about people's math habits (how often they use fractions, how much they want a math-intensive job, and so on). **USE** a five-point answer scale (1=Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always).
GIVE each classmate the survey and gather their responses.
AVERAGE the scores for each question by adding them together and dividing by the number of classmates who completed the survey.

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Social Studies Minilessons: Critical Thinking

Exploring Events

LIST events that you are studying in social studies or history.
CHOOSE one event to explore.
ANSWER these questions about the event: *who? what? where? when? why?* and *how?* (See *Inquire* page 17.)
CREATE a time line, showing how the event unfolded. (See *Inquire* page 22.)

Comparing Cultures

PICK a culture that interests you but is different from your own.
RESEARCH the culture, finding out about it in books and articles and online.
CREATE a Venn diagram, comparing and contrasting the other culture to your own. (See *Inquire* page 23.)

Evaluate a political movement.

CHOOSE a political movement that interests you.
WRITE down the main goal of the movement. (See *Inquire* page 21.)
WRITE objectives by answering *who? what? where? when? why?* and *how?* about the movement. (See *Inquire* page 21.)
ENTER the goal and objectives in a rubric. (See *Inquire* page 25.)
EVALUATE the movement, telling if it beat, met, or didn't meet its goal and objectives.

English Minilessons: Critical Thinking

Deductive Detectives

FIND a descriptive paragraph in a short story or novel.
READ the paragraph carefully, noticing how it is organized.
DECIDE if the paragraph is ordered deductively (a general description followed by specific details) or inductively (specific details followed by a general description). (See *Inquire* pages 18–19.)
EXPLAIN how the organization affects your experience of the description.

Comparable Characters

CHOOSE two characters from a book, story, play, or movie.
COMPARE the two characters by creating a Venn diagram. (See *Inquire* page 23.)

Rate a story!

REVIEW a novel, story, play, or movie, rating it from 1 to 4 stars. (See *Inquire* page 24.)
TELL why you gave the rating that you did.

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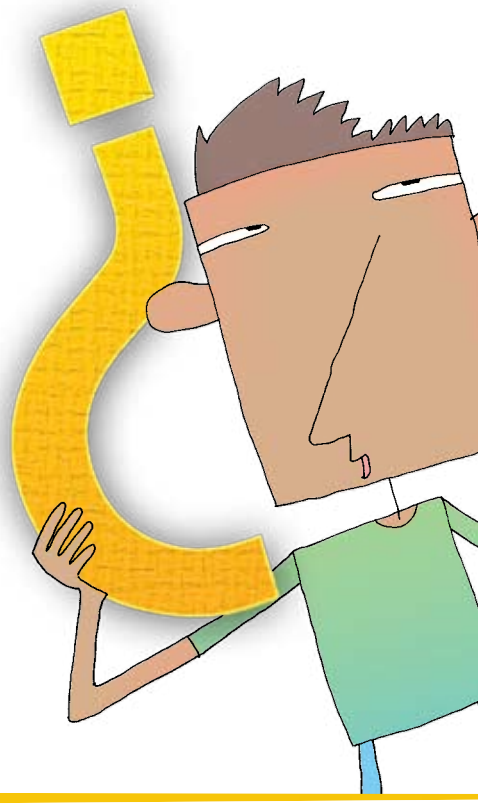
Chapter 5

Communicating

(*Inquire* pages 63–88)



Communicating covers a great deal of territory—from speaking one-on-one to speaking in a group, from writing a blog entry to developing a classroom report. And as technology advances, our options for connecting with others continue to expand, which makes communicating an essential 21st century skill in school and in the workplace. This chapter addresses all aspects of this important skill—speaking, listening, writing, levels of language—and can serve as a communicating guide across the curriculum.

Learning Outcomes

- Understand communication.
- Review speaking for different purposes.
- Learn about listening.
- Appreciate writing as a process.
- Review electronic options for communicating.
- Consider levels of language.

Correlations

Partnership for 21st Century Skills

Communication and Collaboration

- Communicate Clearly
  - Articulate thoughts using oral, written, and nonverbal communication skills.
  - Listen effectively.
  - Use communication for a range of purposes.
  - Utilize multiple media and technologies.

Common Core State Standards

Writing Standards (6–8)

- Production and Distribution of Writing
  - **4.** Produce clear and coherent writing.
  - **5.** Develop and strengthen writing as needed.
  - **6.** Use technology to produce and publish writing.
- Range of Writing
  - **10.** Write routinely over extended time frames and shorter time frames.

Speaking and Listening Standards (6–8)

- Comprehension and Collaboration
  - **1.** Engage effectively in a range of discussions.
  - **2.** Analyze the purpose of information presented in diverse formats (visual vs. oral) and evaluate the presenter's motives.
  - **3.** Delineate a speaker's claims, evaluating the reasoning and evidence introduced.
- Presentation of Knowledge and Ideas
  - **6.** Adapt speech to a variety of contexts, demonstrating a command of formal English.

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Communication and Collaboration

- **a.** Interact, collaborate, and publish with peers, experts, or others.
- **b.** Communicate information to multiple audiences.
- **c.** Contribute to project teams.

Lesson Plan: Communicating

Note: This lesson plan does not cover pages 73, 82, and 84–86.

Day 1

1. Share this African proverb with your students: "Examine what is said, not who speaks." Ask them to write down what it means to them. Discuss their responses.
2. Read aloud the chapter introduction and "Understanding Communication" on pages 63–64). Ask students why it is important to know about the topic, purpose, audience, and form when communicating.
3. Review "Speaking and Writing" on page 65. *Option:* Discuss the "Your Turn" activity as a class.
4. Read and discuss "Speaking" on pages 66–67; assign the "Your Turn" activity.

Day 2

5. Read and discuss "Speaking in a Small Group" on page 68. After students complete the "Your Turn" activity, ask for volunteers to share their paragraphs.
6. Review "A Closer Look . . ." on page 69 and make sure that students understand what is meant by tact. Assign the "Your Turn" activity.
7. Read and discuss "Speaking to a Large Group" on page 68. After students complete the "Your Turn" activity ask for volunteers to share their paragraphs.
8. Review "A Closer Look . . ." on page 71. Ask students to share their experiences with these different types of speeches.

Special Challenge: Consider assigning "Breaking the Ice" on page 87. Students should be prepared to share their selections as time permits over the next few days.

Day 3

9. Read and discuss "Overcoming Stage Fright" on page 72; assign the "Your Turn" activity.
10. Review "Evaluating an Oral Presentation" on pages 74–75. Point out that an evaluation checklist such as the one on page 74 will be used when students give a speech.
11. Read and discuss "Listening Actively" on pages 76–77. Have students complete the "Your Turn" activities.

Day 4

12. Discuss "Writing Effectively" on pages 78–79 and assign the "Your Turn" activity.
13. Review "Evaluating Writing" on pages 80–81. Point out that an evaluation checklist such as the one on page 80 will be used when students develop a writing project.
14. Review "Writing for Yourself" on page 87. Consider having students write for 5–8 minutes nonstop about a topic of your choice.

Day 5

15. Read and discuss "Communicating with Technology" on page 83 and assign the "Your Turn" activity. Discuss students' responses as a class.
16. Skim pages 139–156 and 385–396 with your students to help them appreciate the technology-driven types of communicating discussed in *Inquire*.
17. Assign "Changing Voices" on page 88. Also consider assigning the extension activity and the communicating review on the next two pages of this teacher's guide.

Extension: Communicating

Name _____ Date _____

Your Turn

Carefully review the following scenarios and answer the questions about each one. Discuss your responses with a classmate afterward.

1. Theo is a new student at McKinley School. He needs to talk with his guidance counselor about his class schedule.

   What is the specific topic of Theo's communication? _____

   Who is his audience? _____

2. Elena is presenting a demonstration speech about creating a bar graph. She zips right through her demonstration. Afterward, Elena is not sure that everyone enjoyed her speech.

   What do you think Elena may have done wrong? (Explain in a few sentences.)

   _____

   _____

3. Dwight has to meet with his art teacher after school. His teacher wants to discuss Dwight's disruptive behavior during class that day.

   What advice would you give Dwight before the meeting? Among other things, consider what he should say and how he should say it. (Explain in a few sentences.)

   _____

   _____

4. Reva is scheduled to give a speech at the annual music awards banquet, and she is extremely nervous.

   What advice would you give Reva about preparing and presenting her speech? (Explain in a few sentences.)

   _____

   _____

5. During a group discussion, Ward made the following comments: "Get real" and "You're wrong!"

   What do Ward's comments indicate about his group communicating skills? How could he say these things in a more tactful way?

   _____

   _____

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Review: Communicating

Name _____ Date _____

Your Turn

Answer each of the following questions.

1. Reorder these types of communication, from casual to formal.

   interviews _____
   texting _____
   essay/reports _____
   project presentations _____
   class notes _____
   friendly talk _____

2. What does it mean to use tact in a group discussion? _____

   _____

3. What is an entertainment speech? _____

   _____

4. How can a speaker overcome stage fright? (Name at least three tips.)

   _____

   _____

5. How are speakers and listeners like pilots and copilots? _____

   _____

   _____

6. What are the steps in the writing process? (List them in order.)

   _____

Reflect:

List the two most helpful things you learned about speaking from this chapter.

_____

_____

List the two most helpful things you learned about writing from this chapter.

_____

_____

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Science Minilessons: Communicating

Take inventory.

REVIEW "Types of Communicating" on *Inquire* page 65.
LIST six types that you will definitely use in science class.
ADD at least three more that are not listed on page 65. (Check other parts of *Inquire* for ideas.)
SHARE your list with a group of classmates.

Be informative.

READ the description of informative speeches on *Inquire* page 71.
LIST three or four science-related topics that interest you.
RESEARCH one of them.
WRITE the introduction for a speech on this topic and **SHARE** it with some classmates. (See *Inquire* page 75.)
Special Challenge: Continue developing the speech.

Practice copiloting.

REVIEW "Listening Actively" on *Inquire* page 76.
Then **FIND** a science-related podcast in which an authority or expert discusses a science-related topic.
LISTEN to the podcast following the listening guidelines.
Afterward, **WRITE** a brief paragraph in which you evaluate the quality of your listening.

Math Minilessons: Communicating

Review for an exam.

READ "Speaking in a Small Group" on *Inquire* page 68.
TEAM UP with two to four classmates to review for an exam.
CONDUCT your review according to the guidelines.
Afterward, **DISCUSS** the effectiveness of your group work.

Share a process.

READ the description of demonstration speeches on *Inquire* page 71.
Then **REVIEW** the speech on *Inquire* pages 444–445.
LIST two or three mathematical processes that you could demonstrate.
RESEARCH one of them.
WRITE the introduction for a speech on this topic and **SHARE** it with some classmates. (See *Inquire* page 75.)
Special Challenge: Continue developing the speech.

Change your audience.

THINK of a mathematical concept that you have just mastered.
EXPLAIN the concept to one of your classmates.
Then **DISCUSS** it with a completely different audience (a family member, younger students, another teacher, and so on.).
Afterward, **CONSIDER** how the different explanations affected your understanding of the concept.

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Social Studies Minilessons: Communicating

Consider your options.

REVIEW "Speaking and Writing" on *Inquire* page 65.
LIST the following types of communicating, leaving a few lines between each one:

- blogs
- business letters
- interviews
- stories/songs
- podcasts

Then **EXPLAIN** how you could use each one in your social studies class.

Communicate persuasively.

READ the description of persuasive speeches on *Inquire* page 71.
Then **REVIEW** the persuasive speech on *Inquire* pages 440–441.
LIST two or three social studies topics that interest you.
RESEARCH one of them.
WRITE the introduction for a persuasive speech about this topic and **SHARE** it with some classmates. (See *Inquire* page 75.)
Special Challenge: Continue developing your speech.

Evaluate a politician.

REVIEW "Evaluating an Oral Presentation" on *Inquire* page 74.
Then **CHOOSE** a political speech (seen in person or viewed online) to evaluate. Use a copy of the checklist on page 74.
WRITE a brief paragraph assessing the speaker's performance.
SHARE your assessment with a small group of classmates.

English Minilessons: Communicating

Consider levels of language.

READ "Using Levels of Language" on *Inquire* page 84.
Then **LIST** your favorite free-time activities and choose one to write about.
DESCRIBE the activity in a brief paragraph using informal English.
Then **REWRITE** the paragraph using formal English.
SHARE your work with your classmates afterward.

Understand the standard.

READ "Using Standard English" on *Inquire* page 85 and **DISCUSS** what you learned with a small group of classmates.
Then **RESEARCH** Standard English online.
WRITE down two or three new things that you learned about it.
SHARE your findings with your classmates.

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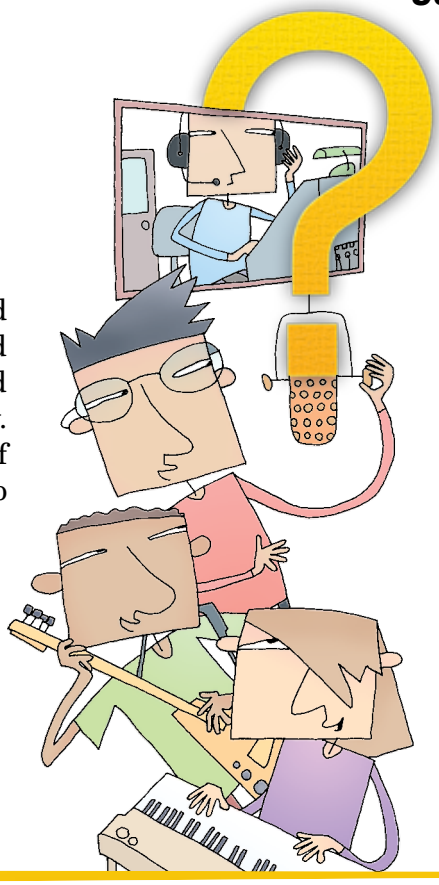
Chapter 6

Collaborating

(*Inquire* pages 89–102)



Review any information on 21st century skills, and you will find that effective group skills are a point of emphasis. Students need to become well grounded in interpersonal skills, and they need plenty of opportunities to collaborate in person and electronically. This chapter covers everything from understanding the basics of collaboration to collaborating online, from conducting meetings to resolving conflicts.

Learning Outcomes

- Understand the basics of effective collaboration.
- Appreciate working within diverse groups of peers.
- Survey ways to collaborate online.
- Learn about conducting meetings, brainstorming, problem solving, and resolving conflicts.

Correlations

Partnership for 21st Century Skills

Communication and Collaboration

- Collaborate with Others
  - Demonstrate ability to work effectively and respectfully with diverse teams.
  - Exercise flexibility and willingness to be helpful.
  - Assume shared responsibility for collaborative work.

Common Core State Standards

Writing Standards (6–8)

- Production and Distribution of Writing
  - Use technology, including the Internet, to interact and collaborate with others.

Speaking and Listening Standards (6–12)

- Comprehension and Collaboration
  - Engage effectively in a range of collaborative discussions with diverse partners.

International Society for Technology in Education

2. Communication and Collaboration

a. Interact, collaborate, and publish with peers, experts, or others.

b. Develop cultural understanding and global awareness by engaging with learners of other cultures.

c. Contribute to project teams.

Lesson Plan: Collaborating

Day 1

1. Display the word parts "col" + "labor" + "ate" for the class. Note that "col" is a prefix meaning "together" and "ate" is a suffix meaning "characterized by." Ask for a volunteer to define *collaborate* using this information. Then read the introduction (*Inquire* page 89).
2. Have groups of three students read "Understanding Collaboration" on pages 90–91, with each student reading one part. Afterward, discuss why collaborating is considered an essential skill.
3. Finally, ask each group to create a teamwork reminder to share. (See "In Focus" on page 91.)

Day 2

4. Read aloud and discuss "Appreciating Diversity" and "Carrying Out Group Work" on pages 92 and 93. Assign the "Your Turn" activities.
5. Have groups of four or five students brainstorm ideas that come to mind when they think of collaborating electronically. Refer them to "Group Brainstorming" on page 98 if necessary. Ask for volunteers to share their ideas with the class.
6. Finally, read and discuss "Collaborating Online" on pages 94–95 and ask students to complete the "Your Turn" activities.

Day 3

7. Read aloud and discuss "Conducting Meetings" on pages 96–97. Ask for volunteers to share their experiences with formal meetings.
8. Consider having students observe a formal meeting, either in person or electronically. Ask them to pay careful attention to the participants' conduct. Discuss the experience afterward.
9. Have students read "Nonverbally Speaking" on page 102 and complete the "Your Turn" activity. Then, as a class, create a master list of nonverbal do's and don'ts.

Day 4

10. Read aloud and discuss "Group Problem Solving" on page 99. Have students do the "Your Turn" activity with a partner or in a small group.
11. If time permits, read aloud and discuss "Resolving Conflicts" on page 100. Have students do the "Your Turn" activity with a partner or in a small group.

Day 5

12. If necessary, spend more time on the conflict resolution material discussed on day 4.
13. Have students complete "Chain Reaction" on page 101 and/or "Two and One" on page 102. Afterward, ask them to explain what they learned from either or both experiences.
14. Consider assigning the extension activity and the collaborating review on the next two pages of this teacher's guide.

Extension: Collaborating

Name _____ Date _____

A publishing company has charged you with the following assignment. Create a table of contents for a book entitled *A Day in the Life of a Student at (the name of your school)*. Each chapter in your book should address a different part of school life.

Your Turn

Team up with a group of three or four classmates to create your table of contents. Employ effective group skills and brainstorming to complete your work. (See *Inquire* pages 90–91 and 98.) Use the space below for a final copy of the chapters in your table of contents.
(Example chapter: "Surviving the School Bus")

A Day in the Life of a Student at _____ .

Chapter 1 _____

Chapter 2 _____

Chapter 3 _____

Chapter 4 _____

Chapter 5 _____

Chapter 6 _____

Chapter 7 _____

Chapter 8 _____

Chapter 9 _____

Chapter 10 _____

Follow-up: Compare your work with the work of other groups. Then, as a class, compile one table of contents that reflects the best thinking from all of the groups.

Special Challenge: Create the book, with each group writing one or two chapters.

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Review: Collaborating

Name _____ Date _____

Your Turn

Answer each of the following questions.

1. Which of the following is not an example of respectful group behavior?
   a. showing trust in each other
   b. encouraging everyone to participate
   c. trying to ignore problems
   d. volunteering to help with next steps

2. What five questions should you answer at the start of a group project?

_____

_____

_____

_____

_____

3. Why is it important to answer the above questions?_____

_____

4. What is meant by netiquette, and why is it important?_____

_____

_____

5. When resolving a group conflict, what must the group members do?

_____

_____

_____

Reflect:

How has technology affected group work?

_____

_____

What parts of this chapter do you think are the most helpful? Name two or three.

_____

_____

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Science Minilessons: Collaborating

Chapter Review

TEAM UP with three or four classmates for a group review session before your next chapter exam.
REVIEW *Inquire* pages 90–91 before you get started.
SELECT a group leader, a note taker, and **CONSIDER** other roles.
Then **CONDUCT** your review.

Rate the projects.

TEAM UP with two or three classmates.
PICK OUT the science-related projects included in *Inquire* (pages 317–470).
DECIDE ON and **LIST** the five best projects.
PREPARE reasons for each choice.
SHARE your list with the rest of the class.

Project Ideas

TEAM UP with three or four classmates.
Then **BRAINSTORM** for project ideas related to your studies in science.
SELECT one idea that interests you the most.
IDENTIFY the basics for the project idea, using *Inquire* page 93 as a guide.
SHARE your idea with the rest of the class.

Math Minilessons: Collaborating

Chapter Review

TEAM UP with three or four students for a group review session before your next chapter exam.
REVIEW *Inquire* pages 90–91 before you get started.
SELECT a group leader and a note taker, and **CONSIDER** other roles.
Then **CONDUCT** your review.

Nice Sites!

TEAM UP with two or three classmates.
As a group, **IDENTIFY** three truly helpful math-related sites on the Internet.
SHARE your findings with the class, with each group member contributing to the presentation.

Group Brainstorming

TEAM UP with a large group of classmates (a quarter or third of the class).
REVIEW "Group Brainstorming" on *Inquire* page 98.
Then **BRAINSTORM** ideas for group math projects.
CIRCLE the best ideas and **SHARE** them with the rest of the class.

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Social Studies Minilessons: Collaborating

Introducing . . .

TEAM UP with a classmate and together **REVIEW** "One on One" (*Inquire* page 101).
COMPLETE the first "Your Turn" activity on page 101.

Chapter Review

TEAM UP with three or four classmates for a group review session before your next chapter exam.
REVIEW *Inquire* pages 90–91 before you get started.
SELECT a group leader and a note taker, and **CONSIDER** other roles.
Then **CONDUCT** your review.

Cultural Research

TEAM UP with two or three classmates.
REVIEW "Appreciating Diversity" on page 92 of *Inquire*.
DECIDE ON one ethnic group or cultural background to research.
BRAINSTORM a list of research questions. (See *Inquire* page 98.)
SHARE your initial discoveries with the class.
Special Challenge: Continue the project until you have a report to share.

English Minilessons: Collaborating

Electronic Enrichment

TEAM UP with two or three classmates.
REVIEW "Collaborating Online" (*Inquire* page 94).
BRAINSTORM ways in which collaborating online can enrich both writing and reading assignments. (See *Inquire* page 98.)
SHARE your ideas with the class.

Literary Project

TEAM UP with two or three classmates.
REVIEW "Carrying Out Group Work" (*Inquire* page 93).
BRAINSTORM project ideas related to a novel, play, or piece of nonfiction your class has read.
IDENTIFY the basics for one idea, using the chart on *Inquire* page 93 as a guide.
SHARE your idea with the class.
Special Challenge: Develop the project using *Inquire* as a guide.

Literary Reenactment

TEAM UP with one or two classmates.
CHOOSE a passage from a novel or piece of nonfiction to share orally.
DECIDE, using good group skills, who will read which parts.
PRACTICE your reading and then **SHARE** it with the class.

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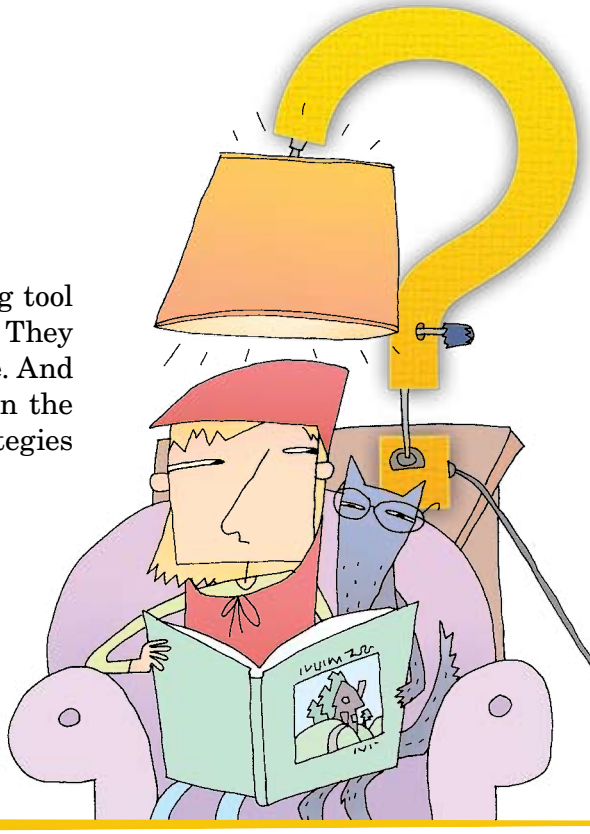
Chapter 10

Reading to Learn

(*Inquire* pages 157–168)



In almost all content areas, reading is a primary learning tool for students. They read to learn about new subjects and ideas. They read to better understand the past, the present, and the future. And they read to better understand themselves and their place in the scheme of things. This chapter provides specific reading strategies that students can use for different types of reading.

Learning Outcomes

- Read nonfiction effectively.
- Read Web sites critically.
- Use key reading strategies.
- Read fiction well.
- Read and understand poetry.

Correlations

Partnership for 21st Century Skills

Critical Thinking and Problem Solving
- Reason Effectively and Use Systems Thinking
- Make Judgments and Decisions

Communication and Collaboration
- Communicate Clearly
  - Use communication for a range of purposes.

Information Literacy
- Access and Evaluate Information

Media Literacy
- Analyze Media
  - Understand both how and why media messages are constructed, and for what purposes.

ICT Literacy
- Apply Technology Effectively
  - Use technology as a tool to research, organize, evaluate, and communicate information.

Common Core State Standards

Reading Standards for Literature (6–8)
- Key Ideas and Details
- Craft and Structure
- Integration of Knowledge and Ideas

Reading Standards for Informational Texts (6-8)
- Key Ideas and Details
- Craft and Structure
- Integration of Knowledge and Ideas

Writing Standards (6-8)
- Text Types and Purposes
- Research to Build and Present Knowledge

Speaking and Listening (6-8)
- Comprehension and Collaboration

Writing Standards for Literacy in History/Social Studies, and Technology Subjects (6-8)
- Text Types and Purposes
- Research to Build and Present Knowledge

International Society for Technology in Education

2. Communication and Collaboration
- **d.** Contribute to project teams to produce original works or solve problems.

3. Research and Information Fluency
- **a.** Plan strategies to guide inquiry.
- **b.** Locate, organize, analyze, evaluate, synthesize, and ethically use information from sources and media.
- **c.** Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
- **d.** Process data and report results.

4. Critical Thinking, Problem Solving, and Decision Making
- **c.** Collect and analyze data to identify solutions and/or make informed decisions.

5. Digital Citizenship
- **a.** Advocate and practice safe, legal, and responsible use of information and technology.

6. Technology Operations and Concepts
- **a.** Understand and use technology systems.
- **d.** Transfer current knowledge to learning of new technologies.

Lesson Plan: Reading to Learn

Day 1

1. Have students complete the following metaphorical statements:
   - If reading were a type of weather, it would be . . .
   - If reading were a food, it would be . . .
   - If reading were getting dressed for school, it would wear . . .

   Afterward, discuss their responses.
2. Read aloud the chapter introduction on page 157. Then ask for a volunteer to read aloud "Reading Nonfiction" on page 158. As a class, talk about the reading plan and how (or if) students use it. Then ask students to complete the "Your Turn" activity. Discuss their responses.
3. Review page 159. Then ask students to read "Skimming a Printed Text" on page 167 and complete the "Your Turn" activity using a newspaper article or some other informational text.

Day 2

4. As a class, create a Venn diagram, comparing Web-site reading with textbook reading.
5. Then ask a volunteer to read aloud "Reading Web Sites" on page 160. Revisit the Venn diagram. Also ask students if they follow the advice on this page when they conduct research on the Web.
6. Review "Web Page" on page 161. Then ask students to read "Skimming a Web Site" on page 167 and complete the "Your Turn" activity.
7. As a homework assignment, have students review a specific Web site (good or bad) using *Inquire* page 160 as a guide.

Day 3

8. Review "Using Reading Strategies" on pages 162–164. Have students complete the "Your Turn" activity on page 163 using an essay, an article, or a chapter that you provide. Consider having students complete the KWL strategy using this same text. If possible, also have them annotate a copy of the text.
9. Ask for volunteers to share their Web reviews assigned on day 2.

Day 4

10. Read aloud "Reading Fiction" on page 165. Ask students if they have followed such a plan in the past and, if so, was it helpful? Assign the "Your Turn" activity on page 165 for the next fiction reading.
11. Ask for volunteers to share their Web reviews assigned on day 2.

Day 5

12. Read aloud "Reading Poetry" on page 166. Have students complete the "Your Turn" activity using a poem that you provide.
13. Ask for additional volunteers to share their Web reviews assigned on day 2.

Extension: Reading to Learn

Name _____ Date _____

Your Turn

Read the following poem by American poet Walt Whitman using "Reading Poetry" (*Inquire* page 166) as a guide. Also use the annotating strategy (*Inquire* page 164) as you read the poem.

A NOISELESS, PATIENT SPIDER

Walt Whitman

A NOISELESS, patient spider,
I mark'd, where, on a little promontory, it stood, isolated;
Mark'd how, to explore the vacant, vast surrounding,
It launch'd forth filament, filament, filament, out of itself;
Ever unreeling them—ever tirelessly speeding them.

And you, O my Soul, where you stand,
Surrounded, surrounded, in measureless oceans of space,
Ceaselessly musing, venturing, throwing,—seeking the spheres, to
connect them;
Till the bridge you will need, be form'd—till the ductile anchor hold;
Till the gossamer thread you fling, catch somewhere, O my Soul.

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Follow-up: Discuss your reading experience with your classmates. How did the "Reading Poetry" plan and the annotating strategy enhance your understanding of the poem?

Review: Reading to Learn

Name _____ Date _____

Your Turn

Answer each of the following questions.

1. Which of the following should you *not* do before reading nonfiction?
   a. Understand why you are reading.
   b. Skim the selection.
   c. Summarize the reading.
   d. Decide on a reading plan.

2. When reading a Web site, how can you check the accuracy of the material?

   _____

3. Government and education sites, as well as most nonprofit-organization and professional sites, provide reliable information. What letters do these sites often end with?

   _____

4. In the KWL reading strategy, what do the letters stand for?

   _____

5. How do two-column notes differ from traditional one-column notes?

   _____

6. What does it mean to annotate a text?

   _____

7. What should you do while reading novels and short stories?
   a. Think about the story as it unfolds.
   b. Consider the characters and setting.
   c. Consider the style.
   d. All of the above
   e. None of the above

Reflect:

What nonfiction reading strategy in this chapter will prove most helpful and why?

_____

_____

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Science Minilessons: Reading to Learn

Reading Smart

REVIEW "Reading Nonfiction" (*Inquire* page 158).
Then **APPLY** this plan to your next few science reading assignments.
DISCUSS the effectiveness of the plan after a few assignments.

Make a discovery.

FIND a Web site related to a subject you are studying in science.
DECIDE if this site repeats, adds to, or contradicts the information in your science textbook.
Also **DETERMINE** if the site is reliable using "Reading Web Sites" (*Inquire* page 160) as a guide.
REPORT your findings to the class.

One Key Point

Working with a partner, **IDENTIFY** one key point about "Reading Web Sites" (*Inquire* pages 160–161) that you would like to highlight.
Then **CREATE** a poster about this point using "To Create a Poster" (*Inquire* pages 418–419) as a guide.
SHARE your results with the class.

Math Minilessons: Reading to Learn

Typical Features

REVIEW "Nonfiction Page" (*Inquire* page 159).
Then **SKIM** the first few pages in your math textbook.
DECIDE if the typical features in your math book are the same or different from the ones identified on page 159.
CHART your findings on a Venn diagram (*Inquire* page 23).

Make a discovery.

FIND a Web site related to a subject you are studying in math.
DECIDE if this site repeats, adds to, or contradicts the information in your math textbook.
Also **DETERMINE** if the site is reliable, using "Reading Web Sites" (*Inquire* page 160) as a guide.
REPORT your findings to the class.

After Your Reading

COMPLETE the following activities after finishing the next chapter in your math textbook:

- Summarize the chapter (*Inquire* pages 322–323) or write freely about it.
- List questions that you still have about the subject.

Afterward, **COMPARE** responses with a classmate.

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Social Studies Minilessons: Reading to Learn

Reading Smart

REVIEW "Reading Nonfiction" (*Inquire* page 158).
Then **APPLY** this plan to your next few social studies reading assignments.
DISCUSS the effectiveness of the plan after a few assignments.

Make a discovery.

FIND a Web site related to a subject you are studying in social studies.
DECIDE if this site repeats, adds to, or contradicts the information in your social studies textbook.
Also **DETERMINE** if the site is reliable, using "Reading Web Sites" (*Inquire* page 160) as a guide.
REPORT your findings to the class.

Compare comments.

ANNOTATE (*Inquire* page 164) a copy of a newspaper article or an essay provided by your teacher.
COMPARE annotations with one of your classmates.
SUMMARIZE the text (*Inquire* pages 322–323).
COMPARE summaries with one of your classmates.

English Minilessons: Reading to Learn

Share a novel.

READ "Sharing a Novel" (*Inquire* page 168).
COMPLETE the "Your Turn" activity at the bottom of that page.
SHARE your thoughts with a classmate or with the whole class.

After Your Reading

COMPLETE the following activities after finishing a short story or an essay:

- Summarize the reading (*Inquire* pages 322–323) or write freely about it.
- List questions that you still have about the text.

Afterward, **COMPARE** responses with a classmate.

Web Search

FIND an interesting Web site that provides information about one of your favorite authors.
REVIEW the material using "Reading Web Sites" (*Inquire* page 160) as a guide.
SHARE the site and your review of it with your classmates.

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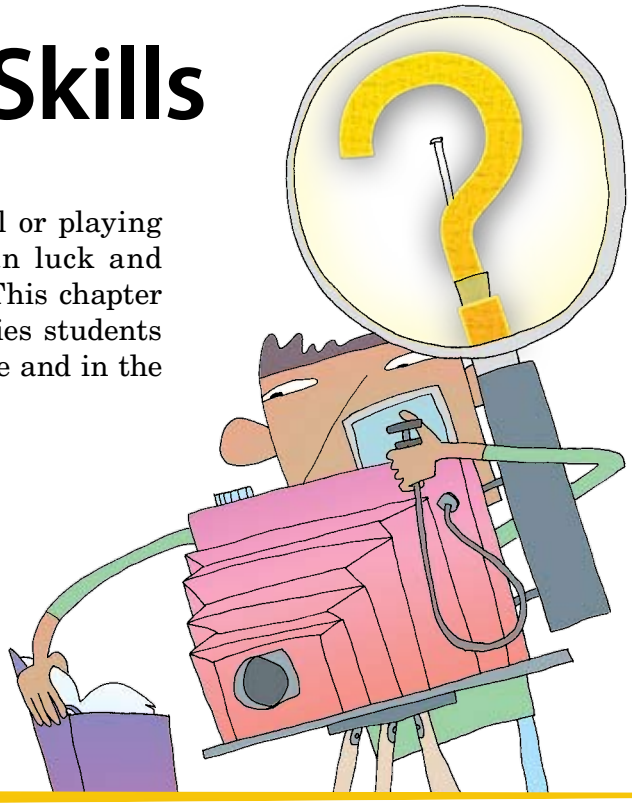
Chapter 13

Improving Study Skills

(*Inquire* pages 195–208)



Learning is a skill—just like dribbling a basketball or playing the trumpet. Becoming good at it requires more than luck and memorization. It takes practice and good study habits. This chapter provides a guide to specific learning and study strategies students can use to become effective learners and studiers at home and in the classroom.

Learning Outcomes

- Understand different study skills.
- Develop good study habits.
- Learn specific study, note-taking, and test-taking strategies to use in any field of study.
- Understand how to answer objective questions.
- Understand how to respond to prompts.

Correlations

Partnership for 21st Century Skills

Critical Thinking and Problem Solving
- Make Judgments and Decisions
- Solve Problems

Information Literacy
- Access and Evaluate Information

Media Literacy
- Analyze Media

Life and Career Skills
- Productivity and Accountability

Common Core State Standards

Writing Standards (6–8)
- Production and Distribution of Writing
- Research to Build and Present Knowledge
- Range of Writing

Speaking and Listening Standards (6-8)
- Comprehension and Collaboration

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects (6–8)
- Production and Distribution of Writing
- Research to Build and Present Knowledge
- Range of Writing

International Society for Technology in Education

3. Research and Information Fluency
- Students apply digital tools to gather, evaluate, and use information.

4. Critical Thinking, Problem Solving, and Decision Making
- Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Lesson Plan: Improving Study Skills

Day 1

1. Before class, write the word "studying" on the board. Ask students to discuss the first thoughts that come to mind when they see this word. Lead a discussion about how study skills translate inside and outside the classroom.
2. Read aloud the chapter introduction on page 195. Then have students silently read "Taking Classroom Notes" on page 196 and do the "Your Turn" activity at the bottom of the page. Discuss responses as a class, or have students discuss in pairs.
3. Read aloud the introduction of "Using a Learning Log" on page 198. Discuss students' previous experience with learning logs. Then read the remaining guidelines on the page.
4. As an in-class or a take-home activity, have students complete the "Your Turn" activity at the end of page 198.

Day 2

5. Ask students to freewrite for 5-10 minutes about how they prepare for tests. Do they have a routine?
6. As a class, review "Preparing for Tests" on page 200, and ask students if they ever use memory strategies like the one mentioned under "In Focus" at the bottom of the page. (For more examples, see *Inquire* pages 34-35.)
7. As a class, review "Using Test-Taking Skills" on page 201. Then, as an in-class or a take-home activity, have students complete the "Your Turn" activity at the bottom of the page.

Day 3

8. Start a classroom discussion about objective test questions (true/false, matching, multiple choice, fill in the blank). Have students rank the types of objective questions from easiest to hardest. As a class or in pairs, have students discuss their rankings.
9. Review together "Answering Objective Questions" on pages 202–203.

Day 4

10. Have your students silently read "Responding to Prompts" on pages 204–205. Discuss the information and then have students complete the "Your Turn" activity on page 204.
11. As an in-class or a take-home activity, have students write a response to a prompt you supply.

Day 5

12. Assign one or more of the "Study-Skills Activities" on pages 207–208. Consider assigning the extension activity and the study skills review on the next two pages of this teacher's guide.

Extension: Improving Study Skills

Name _____ Date _____

Your Turn

Think about a difficult concept you are currently studying in one of your classes. In a question-answer format, write a learning log entry about the concept. First, ask one or two open-ended questions about the topic, and then answer them.

Subject: _____ **Date:** _____ **Page:** _____

Question: _____

_____

_____

Answer: _____

_____

_____

_____

_____

_____

Question: _____

_____

_____

Answer: _____

_____

_____

_____

_____

_____

Follow-up: Did your answers bring up more questions about the subject? How did this question-answer activity affect your understanding of the concept?

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Review: Improving Study Skills

Name _____ Date _____

Your Turn

Answer each of the following questions.

1. Which of the following are examples of effective note-taking strategies?
   a. Use pictures, abbreviations, and shorthand.
   b. Write only complete sentences with perfect punctuation.
   c. Label the top of the page with the topic and date.
   d. Both "a" and "c"
   e. Items "a," "b," and "c"

2. List four strategies for writing learning logs.

_____

3. How can you get organized while preparing for a test?

_____

_____

_____

4. Which of the following strategies are helpful for answering true/false test questions?
   a. Read each statement carefully.
   b. Watch for key words such as *all, every, always,* and *never.*
   c. Watch for words that mean "not."
   d. All of these

5. What are two things to watch for when answering a fill-in-the-blank test question?

_____

6. If a prompt asks you to "compare" something, what should you do in your response?

_____

_____

Reflect:

What study skill in this chapter did you find most helpful and why?

_____

_____

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Science Minilessons: Improving Study Skills

Current Ocean Affairs

LIST the oceans of the world.
RESEARCH the major currents of a specific ocean, including how currents interact with climate.
CREATE a sample note page (or pages) about what you learned. (See *Inquire* pages 196–197.) The notes should include at least one visual aid.

As a Matter of Fact

LIST the three states of matter.
RESEARCH the changing states of matter.
WRITE a learning-log entry about what you learned. (See *Inquire* pages 198–199.)
RESPOND to the following prompt: Describe what happens to the particles in a piece of matter when they change from a solid to liquid state.

Cellular Processes

LISTEN to a lecture about cell division.
RESEARCH further details about cell division.
LIST key points.
CREATE a learning-log entry about what you learned. (See *Inquire* pages 198–199.)

Math Minilessons: Improving Study Skills

Careful Listening

LISTEN carefully to the math instruction in your class.
TAKE notes on two-thirds of the page and use the other third for comments, questions, definitions, and extra information. (See *Inquire* page 197.)
WRITE a learning-log entry about the concepts you learned. (See *Inquire* pages 198–199.)
ASK your teacher any questions you still have about the concepts.

Create your own problem.

LISTEN carefully to the math instruction in your class.
TAKE notes on two-thirds of the page and use the other third for comments, questions, definitions, and extra information. (See *Inquire* page 197.)
REVIEW your notes.
CREATE a word problem that involves one of the concepts you just learned.

Daily Math Logger

LISTEN carefully to the math instruction in your class.
In your notebook, **WRITE** down a question about one concept discussed in class.
EXPLORE the question as a learning-log entry. (See *Inquire* pages 198–199.)
REPEAT this process each day for a week.

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Social Studies Minilessons: Improving Study Skills

Daily Social Studies Recorder

LISTEN carefully to the social studies instruction in your class.
WRITE down a question in your notebook about a concept discussed in class.
EXPLORE the question as a learning-log entry. (See *Inquire* pages 198–199.)
REPEAT this process each day for a week.

Cultural Revolution

RESEARCH the evolution of a culture from an ancient to a modern society.
TAKE notes about what you've learned. (See *Inquire* page 197.)
RESPOND to the following prompt: Compare the ancient and modern version of this culture.

Civil Records

LISTEN to classroom instruction about an ancient civilization.
TAKE notes on two-thirds of the page and use the other third for comments, questions, definitions, and extra information. (See *Inquire* page 197.)
CREATE a learning-log entry about the day's lesson.
REPEAT this process for each day of the entire unit.
WRITE a final extended learning log about the ancient civilization.

English Minilessons: Improving Study Skills

Theme Reading

READ a short story or novel.
TAKE reading notes.
WRITE down the main point and themes of the text.
ASK your instructor to help you answer any unanswered questions from your notes.
SUMMARIZE a key theme of the text.

Character Profiling

EXAMINE a novel or short story that includes one of your favorite characters.
TAKE reading notes about the character's behavior and personality.
RECORD any quotes that describe the character's personality.
WRITE a personality profile about the character.

Language Diary

Carefully **COMPLETE** a reading assignment.
NOTE the vocabulary words that you are unsure of.
USE context clues to create your own definitions for the words.
FIND the dictionary definitions of the words.
In your notebook, **RECORD** the words and their definitions.

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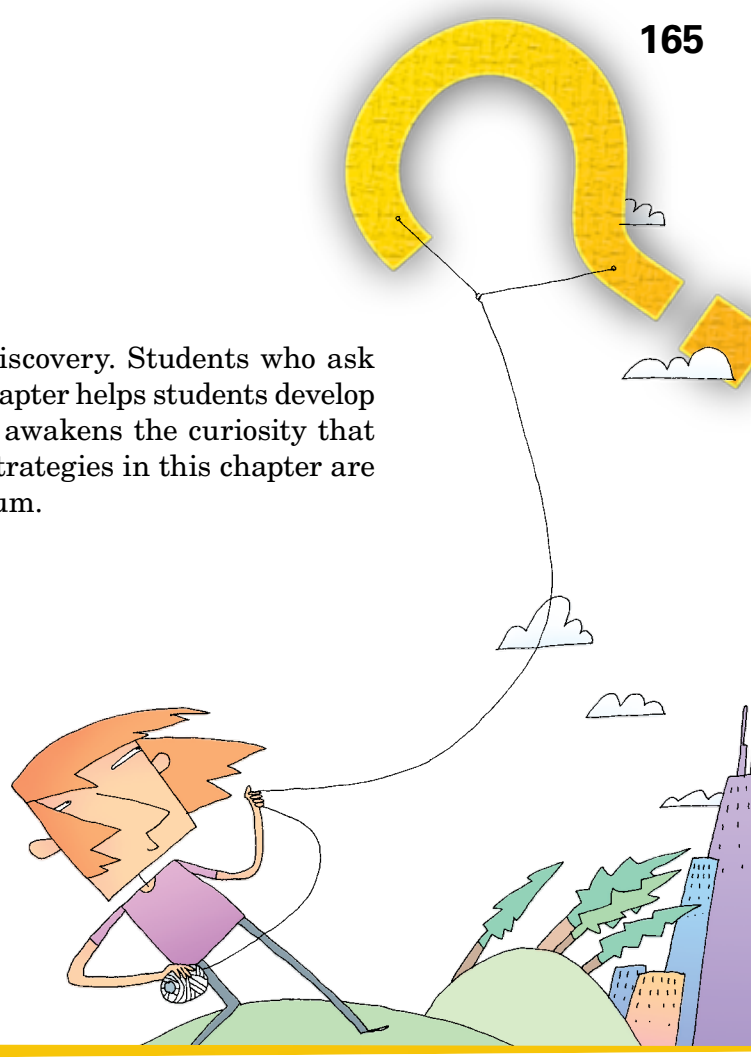
Chapter 17

Questioning

(*Inquire* pages 243–254)

Questioning is the basis for all inquiry, all discovery. Students who ask questions are engaged. They seek answers. This chapter helps students develop many questioning strategies and, in the process, awakens the curiosity that lies at the heart of all learning. The questioning strategies in this chapter are designed to work in any class across the curriculum.



Learning Outcomes

- Ask creative and deep questions.
- Ask sensory and thought questions.
- Ask about your past and future.
- Ask about your world.
- Ask about things around you.
- Ask Socratic questions.

Correlations

Partnership for 21st Century Skills	
Creativity and Innovation ■ Think Creatively ■ Work Creatively with Others ■ Implement Innovations	**Critical Thinking and Problem Solving** ■ Reason Effectively and Use Systems Thinking ■ Make Judgments and Decisions ■ Solve Problems
Common Core State Standards	
Writing Standards (6-8) ■ Research to Build and Present Knowledge **1.** Conduct short research projects to answer a question (including a self-generated question).	**2.** Gather relevant information from multiple print and digital sources, using search terms effectively.
International Society for Technology in Education	
1. Creativity and Innovation ■ Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.	**4. Critical Thinking, Problem Solving, and Decision Making** ■ Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Lesson Plan: Questioning

Day 1

1. Ask students what one thing is the same about each chapter-opening illustration in *Inquire*. (Answer: the gold question mark.) Ask students why. (Answer: Questions are a powerful tool for learning in every situation.) As a class, read over the "Questioning" introduction on page 243.
2. Read aloud the top portion of "Asking Creative Questions" on page 244. Then read the list of questions, asking students for answers. Have students complete the "Your Turn" activity.
3. Read aloud the introductory paragraph of "Asking Deep Questions" on page 245. Point out how the left column of the table lists levels of thinking from simple to more complex. Finally, have students complete the "Your Turn" activity.

Day 2

4. As a class, read over "Asking Sensory Questions" on page 246. Ask students how the different sensory details make them feel. Have students complete the "Your Turn" activity, taking them to an interesting location to do this, if possible. (See TG page 263.)
5. As a class, read over "Asking Thought Questions" on page 247. Pose the question "What do you think about . . . ?" and let students supply a topic of interest. Then have them create mind maps and freewrite to explore the question. Discuss how freewriting, mind maps, and sensory charts deepen their thinking.

Day 3

6. As a class, review "Asking About Your Past" and "Asking About Your Future" on pages 248-249. Have students do the "Your Turn" activities and share their time lines. Lead a discussion about the students' predictions.
7. As a class, read through "Asking About Your World" on pages 250–251. Have students complete the "Your Turn" activity, and, afterward, ask them to share some of their answers.

Day 4

8. As a class, read "What is this like?" on page 252. Have students do the "Your Turn" activity and ask them to share their work with partners. Have them repeat the activity, asking and answering new questions. (This activity practices metaphorical thinking.)
9. Read "Who is this like?" on page 252. Have students do the "Your Turn" activity and share their work with partners.
10. Read over "How can I use SCAMPER?" on page 253. Give students a topic they can use for asking SCAMPER questions—a model airplane, a short film, a project, or an activity. Then have students answer one question for each letter in SCAMPER.

Day 5

11. As a class, read over "Asking Socratic Questions" on page 254 and have partners do the "Your Turn" activity.
12. Consider assigning the extension activity and the questioning review on the next two pages of this teacher's guide.

Extension: Questioning

Name _____ Date _____

Your Turn

Think of a topic you are currently studying in class and write its name below. Then create questions and supply answers as directed. If you can't find an answer, write a different question.

1. Name your topic: _____

2. Write a creative question about your topic. (See *Inquire* page 244.)

Creative Question:	Answer:

3. Write a deep question about your topic. (See *Inquire* page 245.)

Deep Question:	Answer:

3. Write a simile or metaphor question about your topic. (See *Inquire* page 252.)

Simile Question:	Answer:

Follow-up: Play "Question Conversation." With a partner, carry on a conversation in which one person asks a question and the other person answers with a question. Continue talking back and forth, using only questions. See how long you can keep conversing. As soon as one person speaks a non-question, the game ends, and the other person wins.

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Review: Questioning

Name _____ Date _____

Your Turn

Provide answers for each item below.

1. Write a creative question. _____

_____

2. Write a question that would help you analyze something. _____

_____

3. List the five sensory questions. _____

_____

4. What do you think is the most amazing thing that ever happened?

_____

5. What place in the world do you most want to visit? Why? _____

_____

6. Write a simile or metaphor question. _____

_____

7. Answer the question you wrote in number 6. _____

_____

8. Write the word for each letter in this acronym of question types: S _____

C _____

A _____

M _____

P _____

E _____

R _____

Reflect: Imagine that you could ask one question that would get a definite and true answer. What question would you ask? (Make it a question that is important for many people, perhaps the whole world, like "What is the cure for cancer?")

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Social Studies Minilessons: Questioning

Focus on the World

CHOOSE a place you would like to visit. (See *Inquire* pages 250–251.)
USE Google Maps or another program to find a street view of the place.
USE historypin.com or another program to see historical pictures of that place.
CREATE a sensory chart of what it would feel like to be in the place. (See *Inquire* pages 246.)

Question Society

WRITE a creative question about your town or city. (See *Inquire* page 244.)
WRITE a deep question about your state. (See *Inquire* page 245.)
WRITE a simile question about your country. (See *Inquire* page 252.)
SEARCH for answers to your three questions.
WRITE an essay explaining what you found. (See *Inquire* pages 337–340.)

Time Line into the Past

REVIEW an important historical event you have been studying.
CREATE a time line that shows how the event unfolded. (See *Inquire* page 248.)
IMAGINE a similar event happening in the future.
CREATE a time line that shows how the event would unfold. (See *Inquire* page 249.)

English Minilessons: Questioning

Creative Grammar

SEARCH for answers to the following creative question: If there are prepositions, why aren't there postpositions?
ASK your own creative question about grammar.
SEARCH for an answer to your question.

Analyze and Evaluate

READ a short story or an article.
WRITE two questions to help you analyze the reading. (See *Inquire* page 245.)
ANSWER your questions.
WRITE two questions to help you evaluate the reading. (See *Inquire* page 245.)
ANSWER your questions.

Sensational Descriptions

FIND a description in a story you are reading.
ANALYZE the description by creating a sensory chart. (See *Inquire* page 246.)
GO to a favorite place of your own.
ASK yourself what you see, hear, smell, taste, and touch.
CREATE a sensory chart of the place.
WRITE a description of the place.

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Science Minilessons: Questioning

Creative Universe

LOOK for an answer to this creative question: What is beyond the end of the universe?

WRITE your own creative question about the universe. (See *Inquire* page 244.)

SEARCH for an answer to your creative question. If you can't find an answer, write another creative question.

Map Your Mind

WRITE a science topic you are currently studying in the middle of a piece of paper and circle it.

ASK yourself what you think about the topic.

WRITE as many answers as you can around the topic and connect them to make a mind map. (See *Inquire* page 247.)

SCAMPER Around a Piece of Tech

LIST technologies that interest you.

CHOOSE one piece of technology that you want to work with.

For each letter of SCAMPER, **ANSWER** one question about the technology. (See *Inquire* page 253.)

SHARE your ideas about the technology or program with a classmate.

Math Minilessons: Questioning

Metaphorical Math

WRITE a simile question about a math operation or idea you are studying. (See *Inquire* page 252.)

ANSWER your simile question.

WRITE a personification question about a math operation or idea you are studying. (See *Inquire* page 252.)

ANSWER your personification question.

Creative Numbers

SEARCH for an answer to this creative question: What do you get when you divide 5 by 0?

WRITE your own creative question about math facts. (See *Inquire* page 244.)

SEARCH for an answer to your creative math question. If you can't find an answer, write another creative question.

Trace Your Math Past

LIST an important experience in your past, telling the date and time when it happened. (See *Inquire* page 248.)

CALCULATE how many days ago the event happened.

CALCULATE how many hours ago the event happened.

CALCULATE how many minutes ago the event happened.

CALCULATE how many seconds ago the event happened.

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Chapter 19

Conducting Basic Research

(*Inquire* pages 263–272)

Research is an important part of nearly every activity. Before students can produce anything, they must gather and organize information. This chapter helps students understand that process.

Learning Outcomes

- Ask effective questions.
- Find answers in the library and elsewhere.
- Take useful notes and organize information.

Correlations

Partnership for 21st Century Skills

Communication and Collaboration
- Communicate Clearly

Information Literacy
- Access and Evaluate Information

Media Literacy
- Analyze Media

Information and Communication Technologies Literacy
- Apply Technology Effectively

Life and Career Skills
- Productivity and Accountability

Common Core State Standards

Writing Standards (6–8)
- Text Types and Purposes: 1, 2
- Production and Distribution of Writing: 4
- Research to Build and Present Knowledge: 7, 8, 9

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects (6–8)
- Text Types and Purposes: 1, 2
- Research to Build and Present Knowledge: 7, 8, 9

International Society for Technology in Education

3. Research and Information Fluency
- **a.** Plan strategies to guide inquiry.
- **b.** Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
- **c.** Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.

4. Critical Thinking, Problem Solving, and Decision Making
- **a.** Identify and define authentic problems and significant questions for investigation.
- **b.** Plan and manage activities to develop a solution or complete a project.
- **c.** Collect and analyze data to identify solutions and/or make informed decisions.
- **d.** Use multiple processes and diverse perspectives to explore alternative solutions.

5. Digital Citizenship
- **a.** Advocate and practice safe, legal, and responsible use of information and technology.
- **b.** Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.

6. Technology Operations and Concepts
- **a.** Understand and use technology systems.
- **b.** Select and use applications effectively and productively.
- **c.** Troubleshoot systems applications.
- **d.** Transfer current knowledge to learning of new technologies.

Lesson Plan: Conducting Basic Research

Day 1

1. Read aloud the chapter opening on page 263. Then have students think of a time when they were curious about something. Ask volunteers to explain how they went about finding answers to their questions.
2. Review page 264 in class. Explain that "triggering questions" can help students come up with topics for research. Have the class suggest a few triggering questions as you write them on the board.
3. Review page 265 in class and discuss the importance of generating specific, pointed questions to guide research.
4. Choose one of the triggering questions from the board and ask half the class to use it to generate pointed questions. Ask the other half to use the SCAMPER strategy to further explore the question.

Day 2

5. Ask for volunteers to share questions they generated from the previous day's assignment. Have the class attempt to identify whether the person used the pointed-question strategy or the SCAMPER strategy.
6. Review page 266. Brainstorm which types of sources might be best for finding answers to the research questions. In particular, focus on the possibility of using other people, direct observations, or experiences as sources of information.
7. Consider assigning the "Your Turn" activity on page 266.

Day 3

8. Review page 267.
9. If the class has not yet had a library tour, consider arranging one for this day. Assign the "Your Turn" activity to bring a focus to the library visit.

Day 4

10. Ask students to describe their methods for taking notes during research.
11. Review page 268 and ask the students who have used note cards to describe how the cards worked for them. What problems did they have using note cards?
12. Direct students' attention in particular to "What Information to Include." Stress the importance of avoiding plagiarism.
13. Briefly discuss page 269. If students have software available for electronic notes, review this page in depth. Assign the "Your Turn" activity.

Day 5

14. Review and discuss the graphic organizers on pages 270–271. Pay particular attention to those the students have had less practice using. For an activity, provide students with two objects to compare by completing a Venn diagram; or provide a situation for which students can create a 5 W's and H chart. (See TG pages 259–266.)
15. Review page 272. Ask students to discuss how information from different graphic organizers can be turned into an outline.

Extension: Conducting Basic Research

Name _____ Date _____

Your Turn

Think of a topic you are currently studying in class. Answer the questions below to help prepare for researching that topic.

1. Name your topic: _____

2. Use the triggering-questions strategy on *Inquire* page 264 to generate three research questions about this topic:

   a. _____

   b. _____

   c. _____

3. Choose one of the questions above and generate more-specific questions using either the pointed-question or the SCAMPER strategy on *Inquire* page 265.

   _____

   _____

   _____

   _____

   _____

   _____

4. Write a brief paragraph predicting the best places to begin looking for answers to your questions. (See *Inquire* page 266.)

   _____

   _____

   _____

5. Circle the graphic organizer or organizers that would work well for your research:

   a. Venn diagram
   b. Cycle diagram
   c. Line diagram
   d. Time line
   e. Cause-effect chart
   f. Before-after diagram
   g. 5 W's and H chart
   h. Problem-solution chart

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Review: Conducting Basic Research

Name _____ Date _____

Your Turn

Answer the following questions.

1. Define *triggering questions.* _____

_____

2. Which of the following is *not* a category of triggering questions.

a. Ideas
b. Open
c. People
d. Places
e. Things

3. Define *pointed questions.* _____

_____

4. True or false? Other people can be a legitimate source of information for research.

5. Which of the following is *not* a search heading in a computer catalog?

a. Author
b. Location
c. Subject
d. Title

6. List one pro and one con about using electronic notes.

Pro: _____

_____

Con: _____

_____

7. True or false? A line diagram lists things in order: first, next, then, last.

Reflect: When you find information that does not include its source, what might you suspect about the information?

_____

_____

_____

_____

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Social Studies Minilessons: Basic Research

Riverboat Ride

MAKE a 5 W's and H chart about working on a Mississippi River paddleboat during the middle of the 19th century. See *Inquire* page 271.

Industrial Strength

USE a before/after diagram to chart the effects of the Industrial Revolution in America during the 1880s and 1890s. See *Inquire* page 271.

American Empires

USE a time line to track the history of the Aztec or Mayan empires (your choice). See *Inquire* page 270.

Now and Then

FIND out about your city 100 years ago.
USE a Venn diagram to compare then and now. See *Inquire* page 270.

Languages of the World

RESEARCH the origin of different language families (for example, the Romance languages).
USE a line diagram to show how languages are related. See *Inquire* page 270.

Science Minilessons: Basic Research

Star Chart

RESEARCH a constellation.
DRAW it and **MARK** each star's distance from the earth.

Microscope Diagram

DRAW a microscope and **LABEL** its parts.
INCLUDE a one-paragraph history of the microscope's invention.

Leonardo

INVESTIGATE research conducted by Leonardo da Vinci.
DESCRIBE some ways that Leonardo affected modern science.

Galilean Moons

FIND OUT why Jupiter's four largest moons are called the Galilean moons.
RESEARCH how each moon got its name.
REPORT what you find.

Atomic Trading Cards

IMAGINE you are manufacturing atomic-element trading cards.
CREATE a trading-card design that includes important information in a one- or two-sentence history.
REMEMBER to assign each element (and its card) to a rarity category: common, uncommon, rare, or ultra-rare.

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Math Minilessons: Basic Research

Do we decimal?

FIND a library book that explains the history of the decimal point.
MAKE a problem-solution list of the problems that created a need for the decimal point and the ways in which it solved them. See *Inquire* page 271.

Geometry Star!

RESEARCH to find a mathematician who did amazing things with geometry.
MAKE a poster with a portrait of the person and **FEATURE** the person's contributions to geometry.

Math Dictionary

LOOK UP the origins of the following math terms: *simplify, sum, difference, product,* and *quotient.*
DEFINE each in your own words.

Angle Bisection

INVESTIGATE Euclid's method for bisecting an angle.
DEMONSTRATE his solution to a family member or classmate.

Fractions of Rome

RESEARCH the use of fractions in Ancient Rome, during the time of the Caesars.
PRESENT your findings to your class.

English Minilessons: Basic Research

Just a Phrase

LOOK UP the following phrase types and **WRITE** an example of each: *absolute, appositive, gerund, infinitive, participial,* and *prepositional.*

Sharpest Clause

LOOK UP the following clause types and **WRITE** an example of each: *adjective clause, adverb clause,* and *noun clause.* Share your best one in class.

Author Appearances

RESEARCH planned book signings or other appearances by a modern author.
ATTEND one if you can, and **ASK** the author a prepared question.
REPORT the answer to your class.

Adjective and Adverb Positions

FIND one example of each of the following in a favorite book:

1. An adjective that starts a sentence
2. An adverb that starts a sentence
3. An adjective within a sentence
4. An adverb within a sentence

REWRITE each sentence to move a starting adjective or adverb within the sentence and vice versa.

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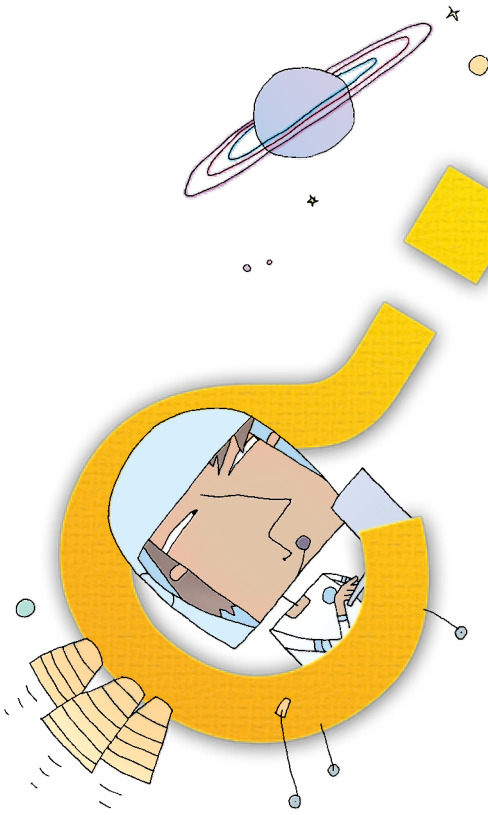
Chapter 20

Conducting Advanced Research

(*Inquire* pages 273–292)



We live in an information age. As a result, every student needs to know how to locate, evaluate, use, and document information. This chapter prepares students to do the more complex research required in school and in life.

Learning Outcomes

- Use primary and secondary sources.
- Understand nonfiction books, periodicals, and the Internet.
- Use MLA citation to avoid plagiarism.
- Evaluate sources.

Correlations

Partnership for 21st Century Skills

Communication and Collaboration
- Communicate Clearly

Information Literacy
- Access and Evaluate Information

Media Literacy
- Analyze Media
- Use and Manage Information

Information and Communication Technologies Literacy
- Apply Technology Effectively

Life and Career Skills
- Initiative and Self-Direction

Common Core State Standards

Writing Standards (6–8)
- Text Types and Purposes: 1, 2
- Production and Distribution of Writing: 4
- Research to Build and Present Knowledge: 7, 8, 9

Speaking and Listening Standards
- Comprehension and Collaboration: 2

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects (6–8)
- Text Types and Purposes: 1, 2
- Research to Build and Present Knowledge: 7, 8, 9

International Society for Technology in Education

3. Research and Information Fluency
- **a.** Plan strategies to guide inquiry.
- **b.** Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
- **c.** Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.

4. Critical Thinking, Problem Solving, and Decision Making
- **a.** Identify and define authentic problems and significant questions for investigation.
- **b.** Plan and manage activities to develop a solution or complete a project.
- **c.** Collect and analyze data to identify solutions and/or make informed decisions.

5. Digital Citizenship
- **a.** Advocate and practice safe, legal, and responsible use of information and technology.
- **b.** Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.

6. Technology Operations and Concepts
- **a.** Understand and use technology systems.
- **b.** Select and use applications effectively and productively.
- **c.** Troubleshoot systems and applications.

Lesson Plan: Conducting Advanced Research

Day 1

1. Discuss in class the bulleted list on page 273. Ask students to predict the difference between primary and secondary resources. Also ask them to define *plagiarism*.
2. Review page 274, paying particular attention to the bulleted list.
3. Have students write about a time they used or experienced one of the primary sources listed. If students are working on a research project, have them complete the "Your Turn" activity at the bottom of page 274.

Day 2

4. Review pages 275–277 in class.
5. Ask students to identify a subject they are currently studying, for which they might interview someone or conduct a survey.
6. Have students prepare a set of interview or survey questions.
7. As a possible weeklong project, assign students to actually conduct interviews or surveys and make in-class presentations.

Day 3

8. Read page 278 in class. Discuss the value of primary and secondary sources.
9. Review page 279. Ask students about their experiences with the books mentioned on that page. Have students complete the "Your Turn" activity.
10. Review pages 280-281. Conduct a "scavenger hunt" in which students look for one fact from each type of page shown on page 281. (Example: "What is the publisher's name on the title page of your *Inquire* handbook?")
11. Read pages 282–283. Consider having students do the "Your Turn" activity on page 282.

Day 4

12. Review pages 284–286. Ask students about their experiences with using the Internet for research. Assign the "Your Turn" activity on page 284 as homework.
13. Review pages 287–289, paying particular attention to the examples shown on pages 288 and 289. Ask for suggestions to correct the errors on page 289.
14. Ask students to describe their previous experiences in documenting sources in reports.

Day 5

15. Review pages 290 and 291. Have students work individually or in small groups to create a works-cited entry for their *Inquire* handbook and for a magazine article and Web page you provide.
16. Discuss page 292, referring as well to the page references under each heading.
17. Have students begin a research project, using what they have learned in this chapter and the previous one. Allow sufficient time (one week or more) for completion.

Extension: Conducting Advanced Research

Name _____ Date _____

Your Turn

Select a topic for a research project and use this planning sheet to prepare your research.

1. Name your topic: _____

2. Identify possible primary sources.

_____

_____

_____

3. List keywords for secondary source searches.

_____ _____

_____ _____

_____ _____

4. Conduct keyword searches and list sources you can use for your research.

_____

_____

_____

_____

Follow-up: Use the information above to begin your research project. Take careful notes (*Inquire* pages 268–269) and document your sources (*Inquire* pages 290–291) to avoid plagiarism (*Inquire* pages 288–289).

_____

_____

_____

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Review: Conducting Advanced Research

Name _____ Date _____

Your Turn

For each of the following items, provide the best answer.

1. True or false? A primary source is a grade-school book.

2. Which of the following is *not* a benefit of a primary source?
   a. It gets you directly involved in a subject.
   b. It is always easier than using a secondary source.
   c. It makes the information more meaningful to you.
   d. It is not filtered through another person's perspective.

3. True or false? An interview is a type of primary source.

4. True or false? A survey is a type of secondary source.

5. True or false? A reference book is a primary source.

6. True or false? A periodical is a secondary source.

7. Label the following parts in the order that they appear in a book.

   ____ Appendix ____ Preface

   ____ Body ____ Table of contents

   ____ Copyright page ____ Title page

   ____ Index

8. In your own words, explain how to avoid plagiarism: _____

_____

_____

Reflect: What is the most interesting research topic you've explored? Explain to a classmate why you find it so interesting. What more do you wish you knew about the topic?

_____

_____

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Social Studies Minilessons: Advanced Research

EPA Overview

RESEARCH the origins and mission of the Environmental Protection Agency.
EXPLAIN its purpose in an essay.

Paleolithic Portraits

RESEARCH the Chauvet Cave paintings.
GIVE a short presentation about their history and possible purposes.

Roots of Democracy

RESEARCH the terms *president, congress, senate,* and *cabinet.*
EXPLAIN where each originated historically.
FIND OUT (as a bonus) why the U.S. government does not have a *parliament.*

Modern Explorers

LOCATE an image of an old map with an unexplored region.
FIND OUT if today's world holds unexplored regions.
EXPLAIN why or why not.

Energy Sites

MAKE a map showing one of the following: (1) global oil and coal deposits, (2) water-power sites, (3) the best areas for wind and solar power, (4) good geothermal areas, (5) nuclear power-plant locations.
COMPARE your energy-site map to a classmate's map.

Science Minilessons: Advanced Research

Ring of Fire

RESEARCH a list of major volcanoes.
MARK their locations on a map.
MARK major earthquakes since 1900.
EXPLAIN where most volcanoes and earthquakes occur and how they are related.

Weather Tracking

For one month, **KEEP** a daily calendar of the high temperature, the low temperature, and any precipitation in your region.
REPORT on any weather patterns you note in that period.

Other Worlds

RESEARCH places in our solar system that might harbor life.
WRITE an essay about the possibilities.

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Math Minilessons: Advanced Research

Pleading the Fifth

INVESTIGATE Euclid's fifth postulate.
WRITE a definition in your own words.
DISCUSS in class why mathematicians have been unable to prove this postulate.

Radical Research

FIND out where the concept and symbols of math radicals originated.
DOCUMENT your findings.
DISCUSS your discoveries in a small group.

Before Zero

INVESTIGATE the origins of the number zero.
EXPLAIN what math was like before the invention of this number.

Dramatic Quadratic

RESEARCH a real-world use of quadratic equations.
GIVE a speech explaining this application.

Blueprint Background

RESEARCH the history of the blueprint.
EXPLAIN how it got its name.
DESCRIBE how the first blueprints were made, and how they are made today.
EXPLAIN how blueprints are used.

English Minilessons: Advanced Research

Top 100

With an adult's help, **CHOOSE** one of the top 100 titles at www.gutenberg.org/browse/scores/top.
READ the book and **EXPLAIN** its theme.

Publisher Facts

LEARN about the publisher of one of your favorite books.
SUMMARIZE the publisher's history.
DESCRIBE the submission policy.

Character Reference

INVESTIGATE the inspiration for a favorite book character.
EXPLAIN what the author says about the character's real-world origins.

Proofreading Practices

INVESTIGATE the techniques of professional proofreaders.
SHARE your favorites in class.

A la Modes

REVIEW a chapter from a favorite book.
WRITE a journal entry discussing how that chapter uses description, exposition, narration, and persuasion. Does it use one mode primarily or a mixture of two or more?
EXPLAIN why you believe the author made that choice.

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Chapter 24

Basic Writing Projects

(*Inquire* pages 317–340)

Writing is a lifetime skill that transcends the English and language arts classroom. Twenty-first century learners and thinkers must be able to apply basic writing skills in all subject areas and communication situations. This chapter reviews the essential writing forms students need to master in order to progress as learners, professionals, and communicators. All the projects fit with any classroom across the curriculum.

Learning Outcomes

- Question the writing situation.
- Learn how to use the inquiry process to complete writing tasks.
- Write for subject areas across the curriculum.
- Produce clear and coherent writing.
- Use paragraphs to build essays.

Correlations

Partnership for 21st Century Skills	
Creativity and Innovation (All standards) **Critical Thinking and Problem Solving** (All standards) **Communication and Collaboration** (All standards)	**Information Literacy; Media Literacy** (All standards) **Information and Communication Technologies Literacy** (All standards)
Common Core State Standards	
Writing Standards (6–8) (All standards) **Speaking and Listening Standards (6–8)** (All standards)	**Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects (6–8)** (All standards)
International Society for Technology in Education	
1. **Creativity and Innovation** (All standards) 2. **Communication and Collaboration** (All standards) 3. **Research and Information Fluency** (All standards)	4. **Critical Thinking, Problem Solving, and Decision Making** (All standards) 5. **Digital Citizenship** (All standards) 6. **Technology Operations and Concepts** (All standards)

Team-Teaching Suggestions

Writing projects offer boundless opportunities for collaboration between teachers and classrooms, regardless of the subject matter or content focus. While some of the projects deal with familiar forms (paragraphs, summaries, and so on.), others deal with more literary forms (poetry, plays, narratives, and so on). As appropriate, pair up with teaching partners who are comfortable with such literary forms. Here are some team-teaching opportunities.

An English or Language Arts Partner

If your project deals with longer or more literary forms of writing, you may consider teaming up with an English or language arts instructor. In fact, an English or language arts teacher is a valuable resource when you have a question about your students' writing, whether it involves a peculiar grammar rule or tips for evaluating prose. Conversely, collaborating with instructors in different subject areas gives English and language arts teachers the opportunity to use writing in a different context. Every project in this chapter benefits from this type of collaboration.

A Computer or Media Specialist Partner

If your writing project involves technology, you may find it helpful to collaborate with your school's computer or media specialist. This person knows how to use the Internet as a research tool and can inform you of new opportunities for publishing your students' writing using Web-based applications. He or she might provide in-class instruction or coordinate your students' use of the school's computer lab. This partnership works well for all the projects in this chapter.

An Arts or Theater Partner

Some of the writing projects in this chapter lend themselves to performance and self-expression. Collaborating with an art or theater partner could offer students exciting opportunities to publish their writing in a theatrical or artistic manner. This partnership would work well with **plays, poems,** and **narratives.**

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Social Studies Basic Writing Projects

U.S. History

Paragraph
Write a paragraph explaining the key points of a major event in U.S. history.

Summary
Summarize a key battle of the Civil War.

Instructions
Write instructions for slaves using the Underground Railroad escape route.

Narrative
Write a historical narrative about an important event in American history.

Poem
Write an ode to an important person in American history.

Play
Write a play that takes place in Jamestown during the birth of America.

Essay
Write an essay that compares and contrasts the views of Federalists with the views of anti-Federalists during the ratification of the Constitution.

World History/Culture

Summary
Summarize an important event in world history.

E-Mail
Write a fictional e-mail to Julius Caesar, warning him of an assassination plot planned for March 15, 44 BC.

Instructions
Write instructions for properly burying an ancient Egyptian pharaoh.

Narrative
Write a narrative about the Renaissance from the perspective of a feudal king, noble, or serf.

Play
Write a comedy or tragedy starring one or more of the ancient Greek gods.

Essay
Write an essay explaining the rise and fall of an ancient civilization.

Government and Civics

Summary
Summarize an important national or international current event.

E-Mail
Write an e-mail to a city, state, or federal politician.

Instructions
Write instructions for ratifying a new amendment to the Constitution.

Essay
Write an essay about the evolution of the checks and balances system in the federal government.

Geography

Paragraph
Write a paragraph about one of the flags of the world.

Summary
Summarize how the geography of the United States changed after the Louisiana Purchase.

Poem
Write a poem about a land formation you are studying.

Essay
Write an essay that tells about a world city that you are studying.

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Science Basic Writing Projects

Earth Science

Paragraph
Write a paragraph that defines a concept in earth science.

Summary
Summarize a multipart process or concept in earth science.

E-Mail
Write an e-mail to a geologist or meteorologist with questions about an earth- or weather-related subject you are studying.

Instructions
Write instructions for identifying a mineral.

Narrative
Write a fictional narrative about traveling to the center of the earth. Describe each layer passed through during the descent.

Poem
Write a poem about a planet.

Essay
Write an essay that explains how the earth's atmosphere supports life.

Life Science

Paragraph
Write a paragraph about a specific concept in life science.

Summary
Summarize the process of cell division.

Instructions
Write instructions a biologist might follow to classify a new organism.

Poem
Write a name poem about a biome, in which the letters of the biome's name are used to begin each line of the poem.

Play
Write a creative play about how the human body's immune system responds to an attack. Two of the characters, for example, might be a white blood cell and a pathogen.

Essay
Write an essay that compares and contrasts invertebrate and vertebrate animals.

Physical Science

Paragraph
Write a paragraph that explains a concept in physical science.

Summary
Summarize how friction affects motion.

Instructions
Write instructions for measuring a substance's acidity.

Poem
Write a poem about an element from the periodic table.

Essay
Write an essay that describes the electromagnetic spectrum.

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Math Basic Writing Projects

Pre-Algebra

Paragraph
Write a paragraph about a math topic you are currently studying.

Summary
Summarize in your own words a concept you just learned.

Instructions
Write instructions for performing operations in the proper order.

Narrative
Start a math diary to log your thoughts, feelings, and questions about the math concepts you learn in class.

E-Mail
Write an e-mail message to a local business owner to see how she or he uses math at work.

Poem
Write a poem that explains a math concept.

Essay
Write an essay that explains the differences between fractions, decimals, and percentages.

Algebra

Paragraph
Write a paragraph that explains the difference between prime and composite numbers.

Summary
Summarize a math concept your teacher just introduced in class.

Instructions
Write instructions for finding the slope of a line.

Poem
Write a poem that explains an algebra concept.

Narrative
Write a narrative about how your knowledge of algebra has developed since the start of the year.

Play
Write a skit that involves two people doing algebra.

Essay
Write an essay about the origins of the Pythagorean theorem.

Geometry

Paragraph
Write a paragraph about finding the area of a trapezoid and a parallelogram.

Summary
Summarize how to find the volume of a cube, cylinder, or sphere.

Instructions
Write instructions for finding the angle measurements of a polygon.

Narrative
Start a math diary to log your thoughts, feelings, and questions about the geometry concepts you learn in class.

Poem
Write a poem about the study of geometry or a concept in geometry.

Essay
Write an essay that explains how a certain profession uses geometry to complete tasks.

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English Basic Writing Projects

Reading

Paragraph
Write a reader's response paragraph.

Summary
Summarize the key plot points of a reading selection.

E-Mail
Write a message to a friend or family member, recommending a book.

Instructions
Write instructions for creating the perfect environment for reading a book.

Narrative
Write an alternative ending to a book that you recently finished reading.

Poem
Write a poem about one of your favorite characters.

Play
Write a short sequel, in the form of a play, to one of your favorite books.

Essay
Write an essay that analyzes the themes in an extended piece of reading.

Writing

Paragraph
Write a narrative, explanatory, or persuasive paragraph.

Summary
Summarize in your own words an academic or newspaper article.

E-Mail
Write an e-mail to a person who inspires you.

Instructions
Write instructions explaining how to do something or how something works.

Narrative
Write a narrative about a real or imagined event.

Poem
Write a poem about a special person, place, or thing.

Play
Write a comedic play, about something either real or imagined.

Essay
Write an essay that compares two subjects or describes a cause-effect relationship.

Grammar

Paragraph
Write a paragraph about two commonly confused words.

Summarize
Summarize the essential capitalization rules.

E-Mail
Edit one of your informal e-mails so that it contains no errors.

Instructions
Write instructions for editing a piece of writing.

Essay
Write an essay that explains the importance of proper grammar in communication.

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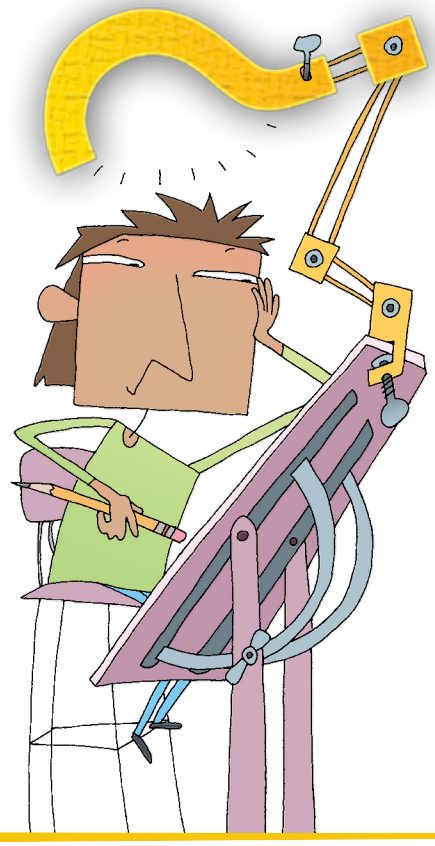
Chapter 29

Design Projects

(*Inquire* pages 411–436)



Design projects bring many intelligences together—visual, linguistic, kinesthetic, spatial, mechanical, and so on—making the work both challenging and engaging. This chapter covers several design projects and offers guidelines to take students from planning through developing to presenting their creations.

Learning Outcomes

- Question the design situation.
- Plan an effective design project.
- Conduct research to gather the ideas and materials you need.
- Create a design project.
- Evaluate and improve your project.
- Present your project in an authentic environment.

Correlations

Partnership for 21st Century Skills

Creativity and Innovation
(All standards)

Critical Thinking and Problem Solving
(All standards)

Communication and Collaboration
(All standards)

Information and Media Literacy
(All standards)

Life and Career Skills
(All standards)

Common Core State Standards

Writing Standards (6–8)

- Research to Build and Present Knowledge
  - **7.** Conduct short research projects to answer a question.
  - **8.** Gather relevant information from multiple print and digital sources.
  - **9.** Draw evidence from literary or informational texts.

Speaking and Listening Standards (6–8)

- Present Knowledge and Ideas
  - **4.** Present claims and findings.
  - **5.** Integrate multimedia and visual displays into presentations.
  - **6.** Adapt speech to a variety of contexts and tasks.

International Society for Technology in Education

Creativity and Innovation
(All standards)

Communication and Collaboration
(All standards)

Research and Information Fluency
(All standards)

Critical Thinking, Problem Solving, and Decision Making
(All standards)

Team-Teaching Suggestions

Design projects often involve drawing, drafting, measuring, using proportions, rapid prototyping, building, bench testing, and similar experimental activities. These projects may also require unfamiliar tools and materials as well as special work and storage space. As a result, some design projects are best done in collaboration with teaching partners. Here are some suggestions.

A Tech-Ed Partner

If your design project involves wood or metal, tools, power tools, tinkering time, and the space to build and store bulky projects, consider working with a tech-ed teacher. Perhaps the project could be housed in the workshop rather than in your classroom. This partnership works especially well for **scale models, Rube Goldberg machines,** and even for **blueprints.**

An Art Partner

If your design project requires sketching, drafting, showing proportion, molding, designing, decorating, and so on, consider asking an art teacher to assist you. Possibilities include in-class presentations or coordinated study units that would allow students to work on a project in both classes. This partnership works especially well for **cartoons, posters, T-shirts,** and **dioramas.**

A Math Partner

If your design project involves measurements, conversion charts, ratios, proportion, angles, and so on, consider pairing up with the math teacher. He or she could provide a class session on the necessary math skills, or you might team-teach the project. This partnership works especially well for **blueprints, scale models,** and **Rube Goldberg machines.**

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Social Studies Design Projects

U.S. History

Cartoon
Design a political cartoon about a historical or current issue in U.S. politics.

Poster
Design a poster for a historical group, event, party, or worldview.

Brochure
Create a brochure for a location that is important in American history.

Diorama
Create a diorama to depict a scene from American history.

Blueprint
Gather information about a historical building or vessel and create a blueprint of it.

Scale Model
Build a scale model of a historical building or vessel.

World History/Culture

Cartoon
Design a political cartoon that expresses your opinion about modern-day or historic world events.

Poster
Create a propaganda poster showing the viewpoint of one country during a war.

T-Shirt
Design a T-shirt that expresses an opinion about world affairs.

Brochure
Create a brochure for an important location in world history/culture.

Diorama
Design a diorama that depicts a key event or location in world history/culture.

Scale Model
Build a scale model of a machine that changed the course of world history.

Geography

Poster or Brochure
Create a travel poster or brochure to entice people to visit a location you are studying.

T-Shirt
Design a T-shirt with a map of a continent, showing the major nations.

Diorama or Scale Model
Create a diorama or scale model showing part of a world capital.

Government and Civics

Cartoon
Design a political cartoon about a government or civics topic.

Poster
Create a poster that encourages good citizenship.

T-Shirt
Design a T-shirt that expresses a message of patriotism or protest.

Brochure
Create a brochure that explains the voting process.

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Science Design Projects

Earth Science

Cartoon
Design a vocabulary cartoon that defines the special features of earth science.

Poster
Create a museum-quality poster that explains an important process in earth science.

T-Shirt
Design a T-shirt that demonstrates something amazing or beautiful about earth's landforms or oceans.

Brochure
Design a brochure that explains how the earth has changed over time.

Diorama
Create a diorama that depicts a natural disaster in progress.

Scale Model
Build a scale model of an interesting natural feature (such as an island, a volcano, a canyon, or a delta).

Rube Goldberg Machine
Create a Rube Goldberg machine that depicts the water cycle or rock cycle.

Life Science

Cartoon
Design a comic strip that shows how a given species developed.

Poster
Create a poster showing some aspect of human biology (skeletal structure, neural networks, types of blood cells, and so on).

T-Shirt
Design a T-shirt displaying life-forms in the tree of life.

Brochure
Create a brochure that explains an important biome.

Diorama
Design a diorama of a specific ecosystem.

Scale Model
Create a scale model of a plant or animal cell, showing its main features.

Rube Goldberg Machine
Design a Rube Goldberg machine that depicts a food chain.

Physical Science

Cartoon
Create a photo cartoon that presents a chemical reaction in progress.

Poster
Design a poster that explains the properties of matter or energy.

T-Shirt
Design a T-shirt that shows the structure of a specific atom or molecule.

Brochure
Create a brochure that explains how a chemical reaction takes place.

Scale Model
Create a working scale model showing how energy is transferred through a simple machine.

Rube Goldberg Machine
Design a Rube Goldberg machine and label the way energy is stored and released.

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Math Design Projects

Pre-Algebra

Cartoon
Design a photo cartoon, showing the use of fractions in daily life.

Poster
Design a poster that displays amounts using a bar or line graph.

T-Shirt
Design a T-shirt that shows and labels the different types of triangles.

Brochure
Create a brochure that explains decimals, fractions, and percents, showing how to convert one to another.

Blueprint
Create a blueprint of your classroom, using accurate scale measurements to depict each part.

Scale Model
Measure something large (a building or vehicle) and make a model of it to precise scale.

Rube Goldberg Machine
Create a Rube Goldberg machine that depicts the order of operations to use in solving math problems.

Algebra

Cartoon
Design a comic strip showing the steps for solving an algebra equation.

Poster
Create a poster that graphs different slopes when variables change in a linear equation.

Brochure
Create a brochure that explains what variables are and shows how to isolate them to solve equations.

Blueprint
Create a blueprint for a small building (for example, a shed) and write formulas for calculating the amounts of various materials necessary for its construction.

Scale Model
Build a scale model of a vehicle, calculating proportions for each part.

Rube Goldberg Machine
Design a Rube Goldberg machine using parts that involve probability, such as bouncing marbles, pouring sand, falling dominoes, and so on.

Geometry

Cartoon
Create a photo cartoon showing objects with line symmetry and rotational symmetry.

Poster
Design a poster that shows how to find the volume of a cube, cylinder, or sphere.

Brochure
Create a brochure that explains the different types of triangles.

Blueprint
Create a blueprint for a building in which each room is a non-square quadrilateral.

Scale Model
Build a scale model of a regular solid.

Rube Goldberg Machine
Create a Rube Goldberg machine using geometric shapes for each component.

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English Design Projects

Reading

Cartoon
Design a comic strip that illustrates part of a novel or short story you have read.

Poster
Create a poster that captures the main theme and characters in a piece of literature.

T-Shirt
Design a T-shirt depicting the main character in a story and displaying her or his outlook on life.

Brochure
Create a brochure that summarizes information from a longer document.

Diorama or Scale Model
Create a diorama or scale model of a scene in a favorite story.

Rube Goldberg Machine
Create a Rube Goldberg machine that traces the plot of a specific novel.

Writing

Cartoon
Create a comic strip that depicts a favorite joke in words and pictures.

Poster
Make a poster that combines words and images to describe a person, place, or thing.

Brochure
Create a brochure that teaches techniques for writing persuasively.

Diorama or Scale Model
Create a diorama or scale model of a "bedroom of the future" and write an essay describing how things have changed.

Rube Goldberg Machine
Design a Rube Goldberg machine that depicts how nouns, verbs, conjunctions, adverbs, and adjectives work.

Grammar

Cartoon
Create a photo cartoon of signs that use incorrect grammar. Provide corrections.

Poster
Create a poster that explains and demonstrates a key rule of grammar.

T-Shirt
Create a T-shirt that explains your biggest grammar pet peeve (for example, using the expression "I could care less").

Brochure
Create a brochure that lists commonly confused words and shows how they should be used correctly.

Diorama
Create a diorama that demonstrates the use of prepositions that show position: *on, in, under, beside, through, behind,* and so on.

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Answer Key

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Critical-Thinking Review

Name _____ Date _____

Your Turn

Answer each of the following questions.

1. Which of the following are examples of critical thinking?
   a. Tracing the causes and effects of something
   b. Using a rubric to evaluate something
   c. Answering *who, what, where, when, why,* and *how* about something
   d. Organizing details in a logical order
   (e.) All of these are examples of critical thinking.

2. Reorder these thinking skills from simple to complex.

Creating	Remembering
Applying	Understanding
Remembering	Applying
Evaluating	Analyzing
Analyzing	Evaluating
Understanding	Creating

3. To analyze a period or event in history, what critical thinking strategy would work well?
   Putting events or details in order with a time line.

4. What does it mean to reason deductively? It means working from a general idea or principle to specific details.

5. What does it mean to reason inductively? It means working from specific details to a general idea or conclusion.

6. What is the three-part structure? A three part structure has a beginning, middle, and ending. It is the structure used for anything experienced over time.

Reflect:

Which critical thinking strategy in this chapter do you find most helpful and why?
Answers will vary.

Describe one way that you could use critical thinking in one of your classes.
Answers will vary.

90

Communicating Review

Name _____ Date _____

Your Turn

Answer each of the following questions.

1. Reorder these types of communication, from casual to formal.

interviews	friendly talk
texting	texting
essay/reports	class notes
project presentations	interviews
class notes	essays/reports
friendly talk	project presentations

2. What does it mean to use tact in a group discussion?
   Using tact means "responding with understanding and care."

3. What is an entertainment speech? An entertainment speech engages the audience with a personal story, a reading, a monologue, and so on.

4. How can a speaker overcome stage fright? (Name at least three tips.)
   Know your topic. Practice often. Feel ready to speak. Get through the first part.
   Focus on your message.

5. How are speakers and listeners like pilots and copilots?
   A speaker is the pilot because he or she controls the speed and directions of the words.
   The copilot, or listener, must follow along, ready to take the controls.

6. What are the steps in the writing process? (List them in order.)
   prewriting, writing, revising, editing, publishing

Reflect:

List the two most helpful things you learned about speaking from this chapter?
Answers will vary.

List the two most helpful things you learned about writing from this chapter?
Answers will vary.

96

Collaborating Review

Name _____ Date _____

Your Turn

Answer each of the following questions.

1. Which of the following is not an example of respectful group behavior?
   a. showing trust in each other
   b. encouraging everyone to participate
   (c.) trying to ignore problems
   d. volunteering to help with next steps

2. What five questions should you answer at the start of a group project?
   Why are you working together?
   What is your goal?
   Who is involved?
   Where will you do the work?
   When must it be ready?

3. Why is it important to answer the above questions? You need to understand what your group is trying to accomplish.

4. What is meant by netiquette and why is it important? Netiquette refers to proper conduct online. When communicating online, you are still communicating with people, so you should show proper respect.

5. When resolving a group conflict, what must the group members do?
   a. practice good group skills, b. focus on the conflict rather that on the group members,
   c. explore the situation or options, d. agree on a solution

Reflect:

How has technology affected group work?
Answers will vary.

What parts of this chapter do you think are the most helpful? Name two or three.
Answers will vary.

120

Reading-to-Learn Review

Name _____ Date _____

Your Turn

Answer each of the following questions.

1. Which of the following should you *not* do before reading nonfiction?
   a. Understand why you are reading.
   b. Skim the selection.
   (c.) Summarize the reading.
   d. Decide on a reading plan.

2. When reading a Web site, how can you check the accuracy of the material?
   Compare it to other sources.

3. Government and education sites, as well as most nonprofit-organization and professional sites, provide reliable information. What letters do these sites often end with?
   edu org gov

4. In the KWL reading strategy, what do the letters stand for?
   what I *know* what I *want* to know what I *learned*

5. How do two-column notes differ from traditional one-column notes?
   The second column is for the note taker's comments

6. What does it mean to annotate a text?
   It means to highlight, underline, and make comments on the page of a text.

7. What should you do while reading novels and short stories?
   a. Think about the story as it unfolds.
   b. Consider the characters and setting.
   c. Consider the style.
   (d.) All of the above
   e. None of the above

Reflect:

What nonfiction reading strategy in this chapter will prove most helpful and why?
Answers will vary.

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Study Skills Review

Name _____ Date _____

Your Turn

Answer each of the following questions.

1. Which of the following are examples of effective note-taking strategies?
   a. Use pictures, abbreviations, and shorthand.
   b. Write only complete sentences with perfect punctuation.
   c. Label the top of the page with the topic and date.
   (d.) Both "a" and "c"
   e. Items "a," "b," and "c"

2. List four strategies for writing learning logs.
   predicting, summarizing, question of the day, dialoging

3. How can you get organized while preparing for a test?
   Answers should include at least one of the following: make a list of everything that will be covered on the test, organize your notes and handouts accordingly, gather any notes that you may have missed, note the pages in your textbook that you will need to review

4. Which of the following strategies are helpful for answering true/false test questions?
   a. Read each statement carefully.
   b. Watch for key words such as *all*, *every*, *always*, and *never*.
   c. Watch for words that mean "not."
   (d.) All of these

5. What are two things to watch for when answering a fill-in-the-blank test question?
   Watch for the number of blanks and for the article preceding each blank.

6. If a prompt asks you to "compare" something, what should you do in your response?
   Show how two things are alike and different.

Reflect:

What study skill in this chapter did you find most helpful and why?
Answers will vary.

168

Questioning Review

Name _____ Date _____

Your Turn

Provide answers for each item below.

1. Write a creative question. Answers will vary.

2. Write a question that would help you analyze something. Answers will vary.

3. List the five sensory questions. What do I see? Hear? Smell? Taste? Touch?

4. What do you think is the most amazing thing that ever happened?
   Answers will vary.

5. What place in the world do you most want to visit? Why? Answers will vary.

6. Write a simile or metaphor question. Answers will vary.

7. Answer the question you wrote in number 6. Answers will vary.

8. Write the word for each letter in this acronym of question types:
   S Substitute
   C Combine
   A Adapt
   M Magnify
   P Put to Other Uses
   E Eliminate
   R Rearrange

Reflect: Imagine that you could ask one question that would get a definite and true answer. What question would you ask? (Make it a question that is important for many people, perhaps the whole world, like "What is the cure for cancer?")

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Conducting Basic Research Review

Name _____ Date _____

Your Turn

For each of the following items, provide the best answer.

1. Define *triggering questions.* Triggering questions suggest starting points for research. (Answers may vary.)

2. Which of the following is *not* a category of triggering questions.
   a. Ideas
   (b.) Open
   c. People
   d. Places
   e. Things

3. Define *pointed questions.* Pointed questions help to plan and organize research. (Answers may vary.)

4. (True) or False: Other people can be a legitimate source of information for research.

5. Which of the following is *not* a heading for searching in a computer catalog?
   a. Author
   (b.) Location
   c. Subject
   d. Title

6. List one pro and one con about using electronic notes:
   Pro: Answers may vary. See page 269.
   Con: _____

7. True or (False) A line diagram lists things in order: first, next, then, last.

Reflect: What information have you heard that didn't include its source? Why do you suppose that source wasn't included? Answers may vary.

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Conducting Advanced Research Review

Name _____ Date _____

Your Turn

For each of the following items, provide the best answer.

1. True or (False) A primary source is a grade-school book.

2. Which of the following is *not* a benefit of a primary source?
   a. It gets you directly involved in a subject.
   (b.) It is easier than a secondary source.
   c. It makes the information more meaningful to you.
   d. It is not filtered through another person's perspective.

3. (True) or False: An interview is a type of primary source.

4. True or (False) A survey is a type of secondary source.

5. True or (False) A reference book is a primary source.

6. (True) or False: A periodical is a secondary source.

7. Label the following book parts in the order that they appear.
   6 Appendix
   5 Body
   2 Copyright page
   7 Index
   3 Preface
   4 Table of contents
   1 Title page

8. In your own words, explain how to avoid plagiarism: _____
   Answers may vary. See pages 287–291.

Reflect: What is the most interesting research project you've ever heard of? Explain to a classmate why you find it so interesting. What more do you wish you knew about that research? Answers may vary.