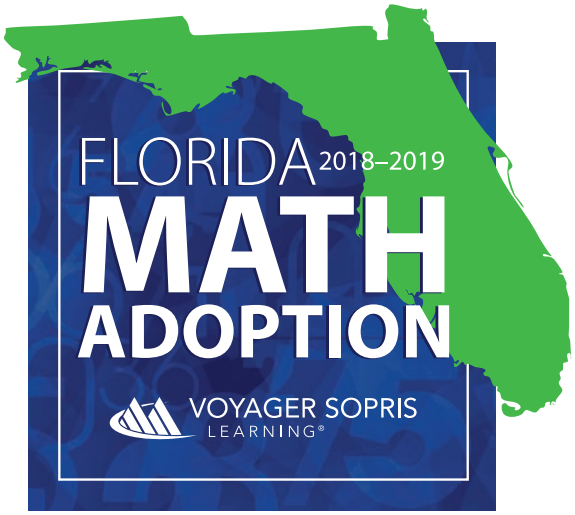


INSIDE ALGEBRA

REVIEWER GUIDE

Get to Know

INSIDE ALGEBRA

Getting Started

1. Watch ***Inside Algebra*** Video
2. Review Standards Alignment
3. ***Inside Algebra*** Materials
4. Log in to ***Inside Algebra***
5. Teacher Center Overview
6. Access the Teacher Guide

Instruction & Pedagogy

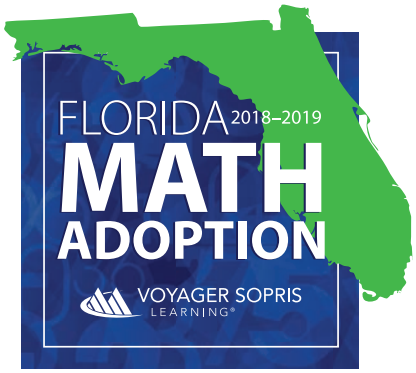
1. Interactive Standards Alignment
2. Curriculum Structure
3. Planning & Prep
4. Instructional Design

Assessments & Reports

1. Assessments
2. Viewing Reports
3. Examples of Reports

Student Technology & Engagement

1. Log in to ***Inside Algebra*** Student Center
2. Student Center Overview
3. ExploreLearning Gizmos®
4. Hands-On Manipulatives
5. Interactive Games



Watch the *Inside Algebra* Overview Video

1. ***Visit the Inside Algebra Adoption Review Website***

2. ***View the video*** on the *Inside Algebra* review site for an overview of the program and purpose.

Review the Standards Alignment Document

Inside Algebra aligns to all the standards for the Algebra 1-A and Algebra 1-B courses..

1. ***Download this document*** to view a complete list of MAFS and Course standards covered in *Inside Algebra*.

2. During the Instructional Design section of this Reviewer Guide, **you will be directed to several examples of standards coverage** using the live links of the Interactive Standards Alignment tool in the eBook.

All *Inside Algebra* Materials

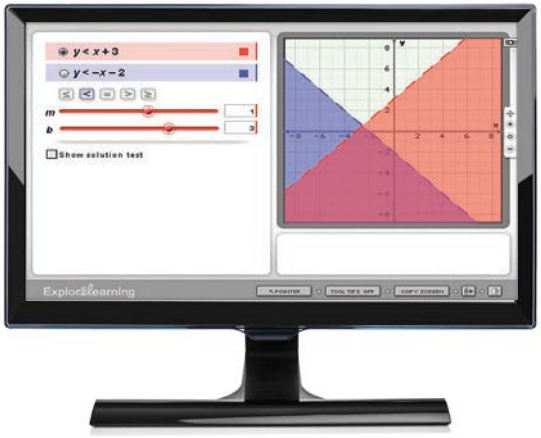
This Reviewer Guide was created for Florida educators to explore and review all ***Inside Algebra*** components in a digital format. Outside of this Guide, ***Inside Algebra*** is available as a blend of print materials and engaging technology.

Teacher Materials:

- Teacher Guides (Two-volume set)
- Teacher Placement Guide
- VPORT® Online Data Management System
- Online Resources
- Access to Selected ExploreLearning *Gizmos*
- Algebra Skill Builders Blackline Masters
- Hands-on Manipulatives Class Set

Student Materials:

- Student Interactive Text
- Assessment Book
- Student Placement Test
- Access to Selected ExploreLearning *Gizmos*



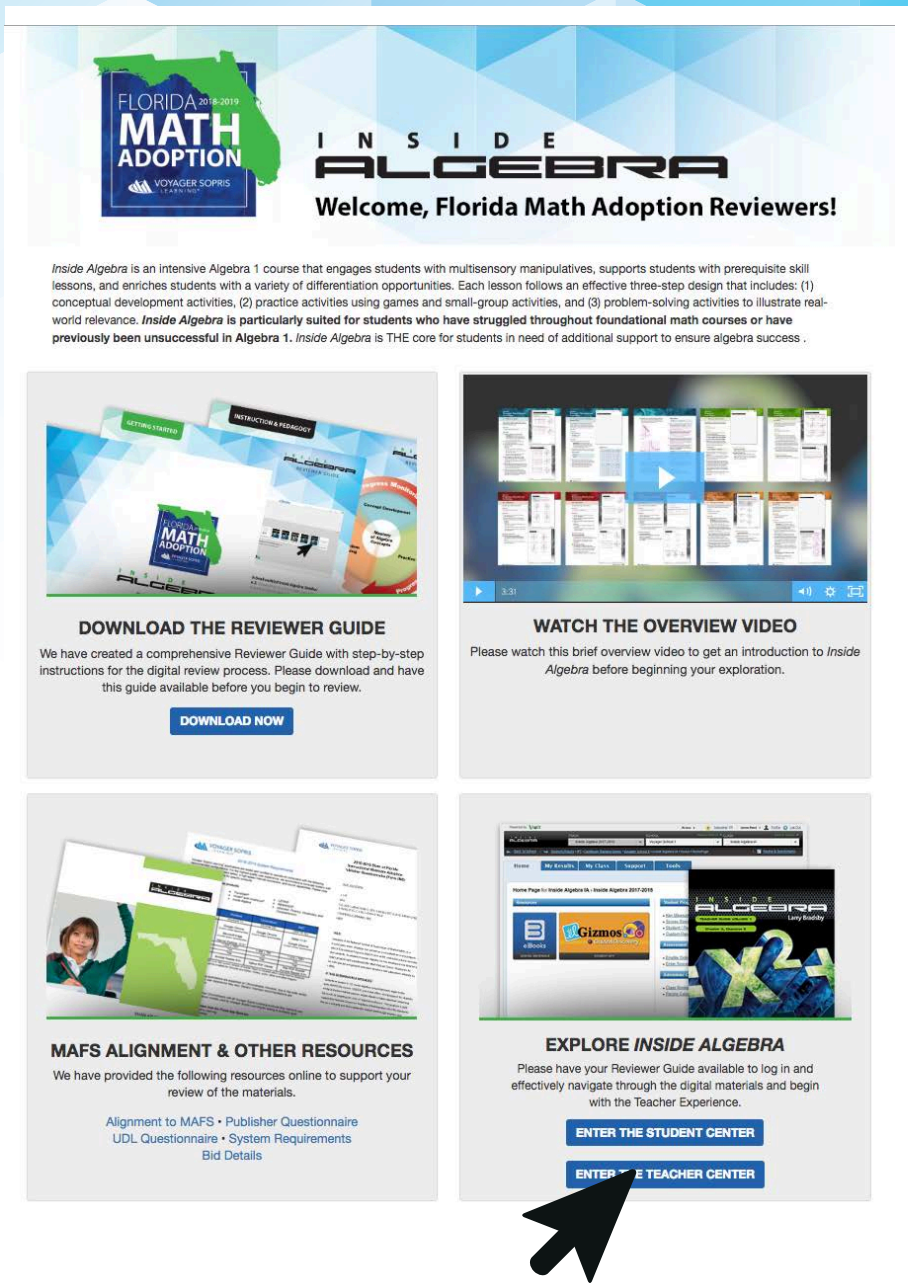
Log in to the *Inside Algebra* Teacher Center

1. ***Click on Enter the Teacher Center*** from the Adoption Review site to begin.

Please note Voyager Sopris Learning® offers single sign-on integrations to simplify accessibility and interoperate with pre-existing district technologies.

2. ***Enter the username and password below*** to enter the *Inside Algebra* Teacher Center website.

Username: **Insidealgebrad16**
Password: **Livekite0**



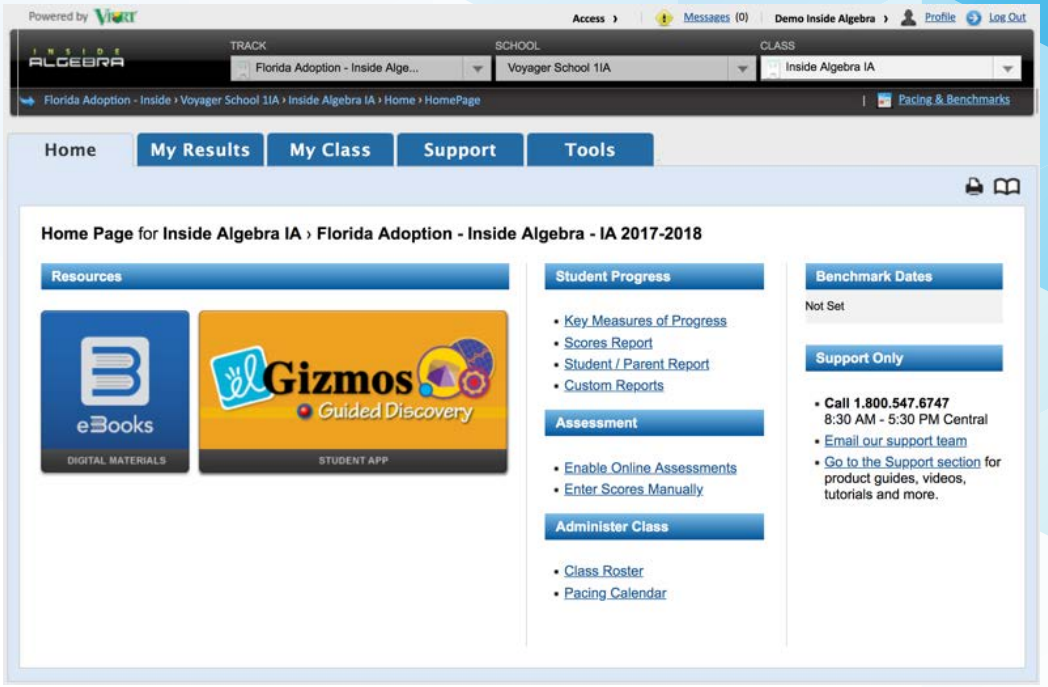
Teacher Center Overview

The Teacher Center is the landing page from which teachers can access all digital materials and resources used in *Inside Algebra* including:

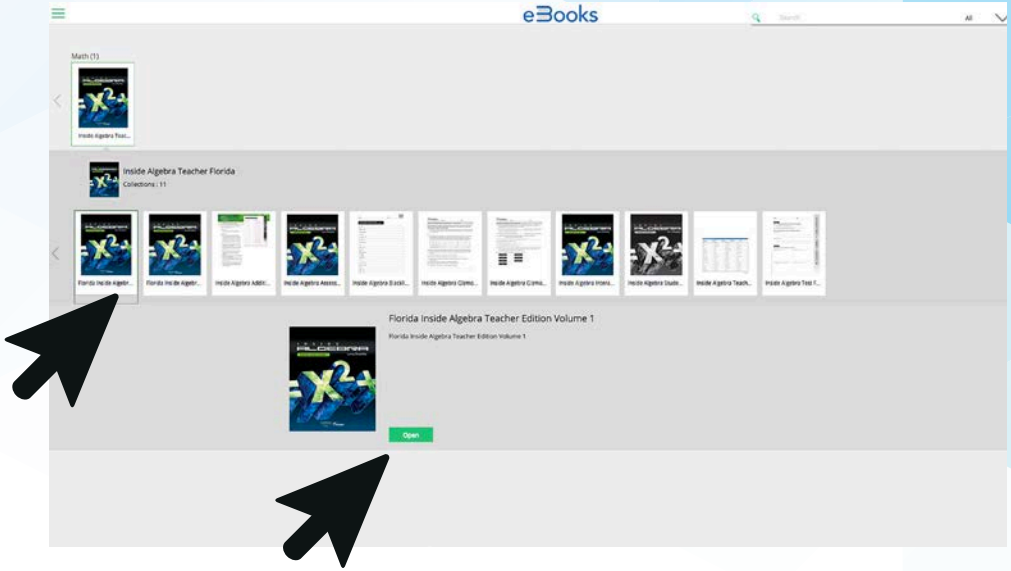
1. **eBooks:** Includes digital versions of the print and digital-only books.

2. **ExploreLearning *Gizmos*:** Provides access to digital manipulatives

3. **Student Progress:** Links to specific reports and data.



Access Teacher Guide eBooks



1. ***Click on the eBooks icon*** from the Teacher Center bookshelf.

2. ***Select the book entitled Florida Inside Algebra Teacher Edition Volume 1.*** Depending on your screen, you may need to click the right scroll arrow to view all books.

3. ***Click the green "Open" button to enter.*** The eBook has fully loaded once the toolbar appears across the top.

Instruction & Pedagogy

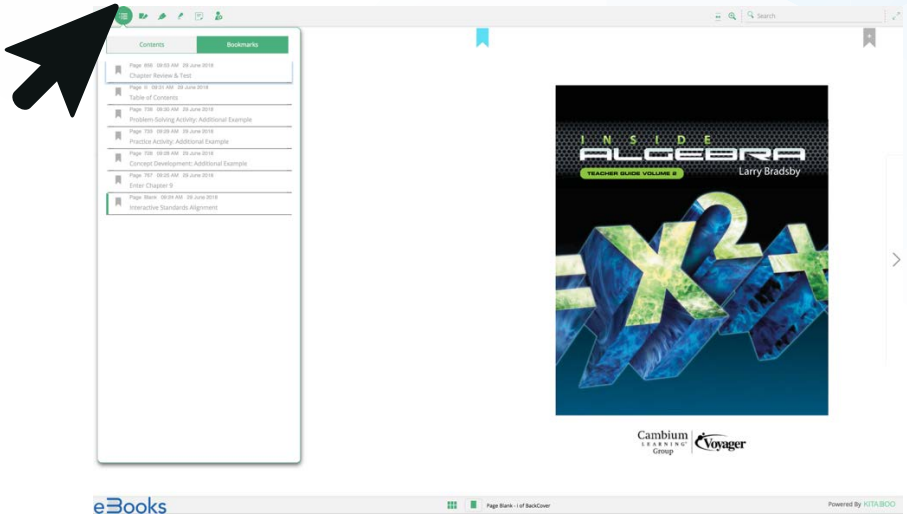
Take a look at *Inside Algebra's* unique instruction, pedagogy, and the supportive tools and resources that make it easy for teachers to implement and effective for students to achieve mastery in algebra.

THIS SECTION ADDRESSES:

- Interactive Standards Alignment
- Curriculum Structure
- Planning & Prep
- Instructional Design

Review Interactive Standards Alignment

Explore how ***Inside Algebra*** aligns to the MAFS and course standards.
The Interactive Standards Alignment tool provides an easy way for teachers to search and review the standards inside the instruction.



1. ***Click*** the Contents"icon in the toolbar on top.
Click Bookmarks.
Click Interactive Standards Alignment.

2. The Interactive Standards Alignment tool links directly to the point of instruction where a standard is taught.

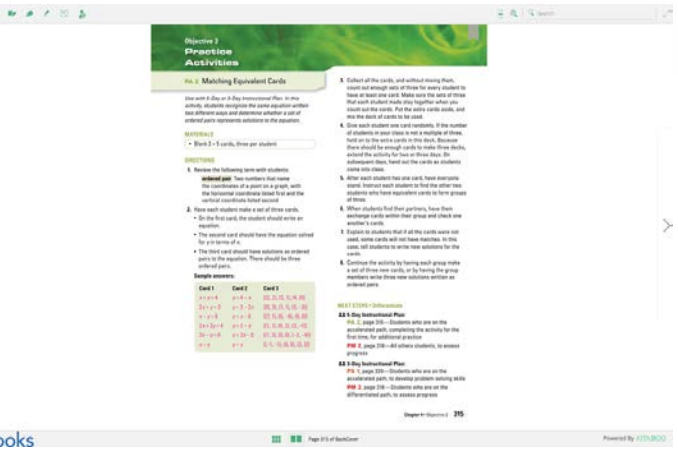
Review Interactive Standards Alignment

RELATIONSHIPS BETWEEN QUANTITIES & REASONING WITH EQUATIONS

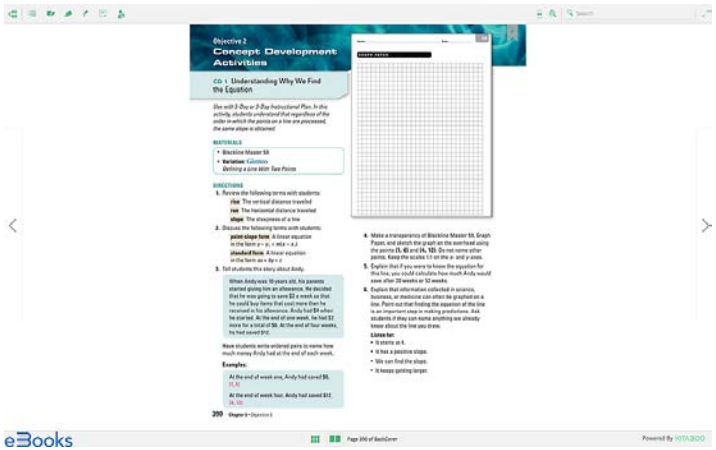
Please review a few examples of how *Inside Algebra* covers standards related to **Relationships Between Quantities and Reasoning with Equations**, a critical area of Algebra 1A.

To view examples in eBooks:

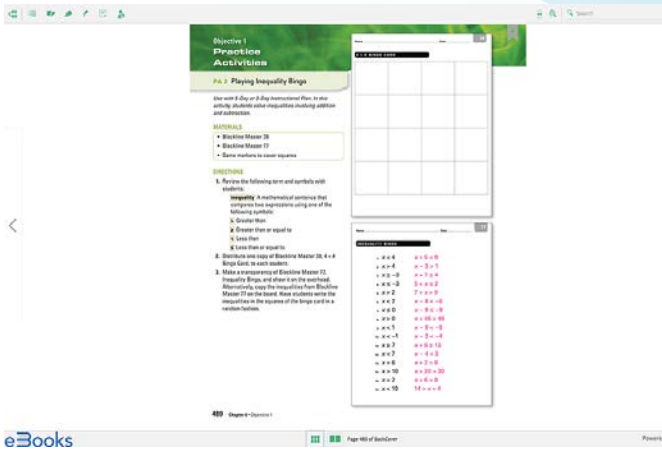
1. ***Click*** the Contents icon in the toolbar on top.
   Click Bookmarks.
   Click on the corresponding MAFS standard from the examples below.



#1 MAFS.912.A-CED.1.2: Teacher Guide Volume 1, page 315



#2 MAFS.912.A-SSE.1.1: Teacher Guide Volume 1, page 390



#3 MAFS.912.A-REI.4.12: Teacher Guide Volume 1, page 480

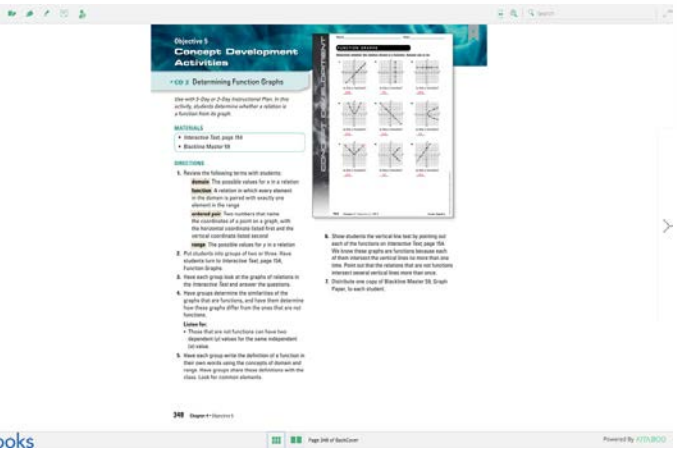
Review Interactive Standards Alignment

LINEAR & EXPONENTIAL EQUATIONS

Please review a few examples of how ***Inside Algebra*** covers standards related to **Linear and Exponential Equations**, a critical area of Algebra 1A.

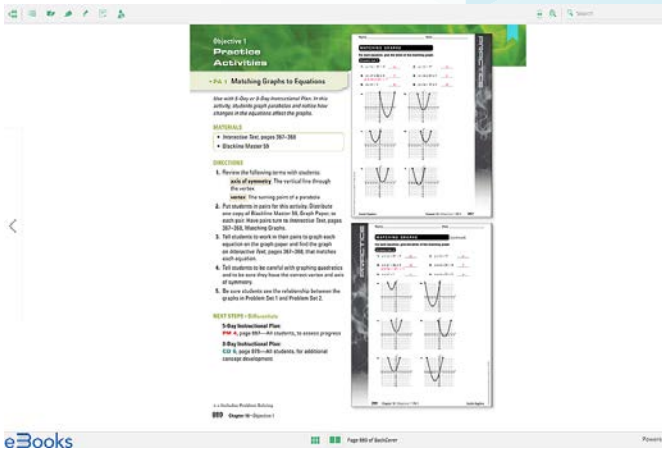
These examples begin in ***Florida Inside Algebra Teacher Editioin Volume 1***. After #4 MAFS Standard, please return to the Teacher Center and click on eBooks. In the eBookshelf, choose ***Florida Inside Algebra Teacher Edition Volume 2*** to continue your review. To view standards examples in the eBooks:

1. ***Click*** the Contents icon in the toolbar on top.
   Click Bookmarks.
   Click on the corresponding MAFS standard from the examples below.



#4 MAFS.912.F-IF.1.2: Teacher Guide
Volume 1, page 348

#5 MAFS.912.A-CED.1.3: Teacher Guide
Volume 2, page 582



#6 MAFS.912.F-BF.1.1: Teacher Guide
Volume 2, page 880

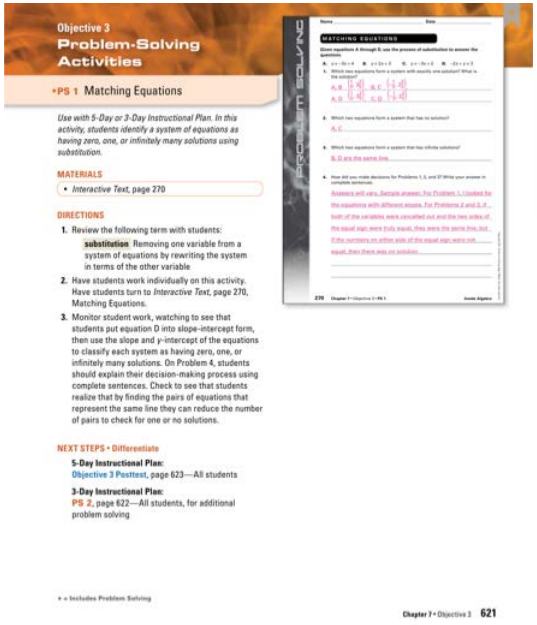
Review Interactive Standards Alignment

EXPRESSIONS & EQUATIONS

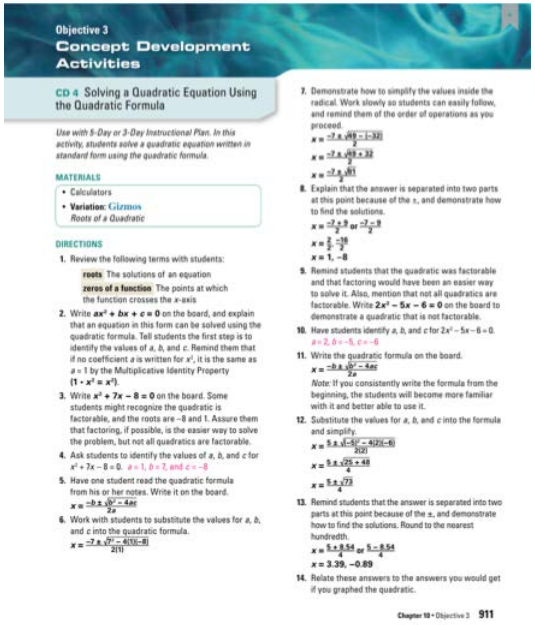
Please review a few examples of how ***Inside Algebra*** covers standards related to **Expressions and Equations,** a critical area of Algebra 1B.

To view examples in eBooks:

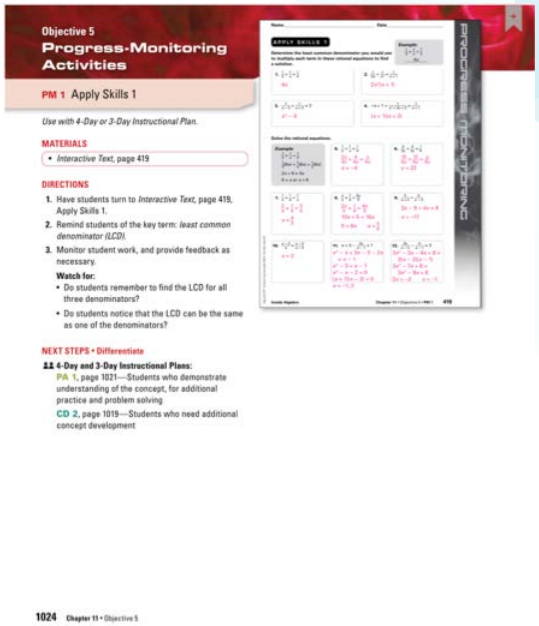
1. ***Click*** the Contents icon in the toolbar on top.
   Click Bookmarks.
   Click on the corresponding MAFS standard from the examples below.



#7 MAFS.912.A-CED.1.1: Teacher Guide Volume 2, page 621



#8 MAFS.912.A-REI.2.4: Teacher Guide Volume 2, page 911



#9 MAFS.912.A-CED.1.1: Teacher Guide Volume 2, page 1024

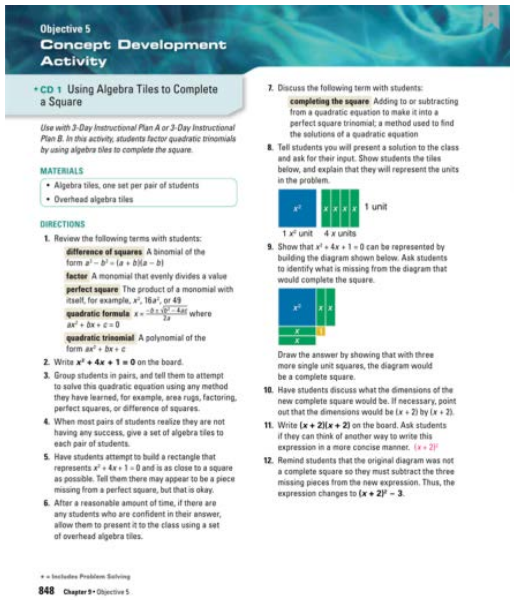
Review Interactive Standards Alignment

QUADRATIC FUNCTIONS & MODELING

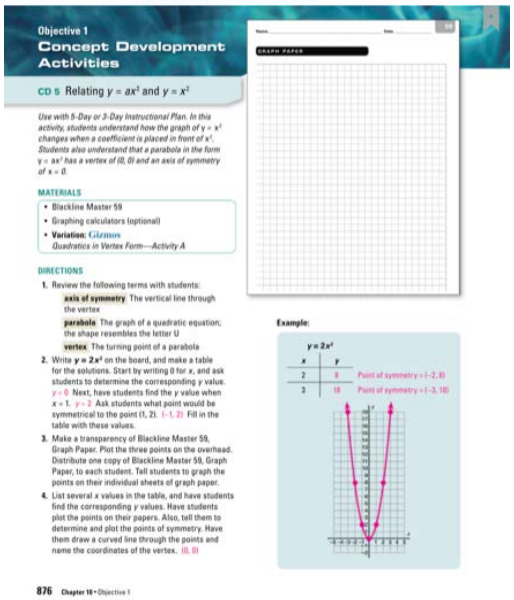
Please review a few examples of how ***Inside Algebra*** covers standards related to **Quadratic Functions and Modeling**, a critical area of Algebra 1B.

To view examples in eBooks (these examples will be in two different Teacher Guides):

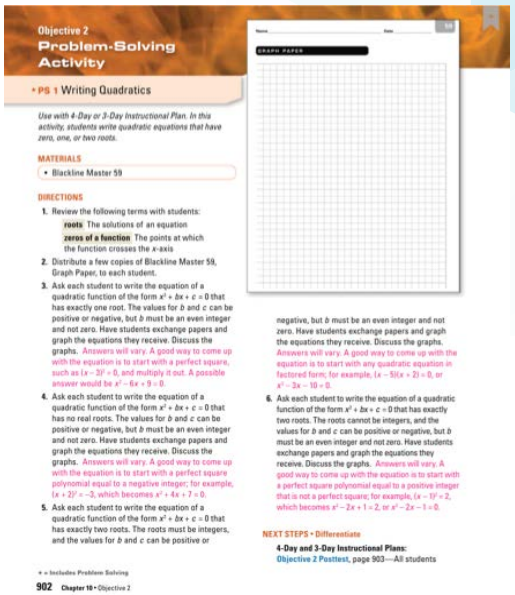
1. ***Click*** the Contents icon in the toolbar on top.
   Click Bookmarks.
   Click on the corresponding MAFS standard from the examples below.


Objective 5
Concept Development Activity
CD 1 Using Algebra Tiles to Complete a Square
848

#10 MAFS.912.A-REI.2.4: Teacher Guide Volume 2, page 848


Objective 1
Concept Development Activities
CD 5 Relating $y = ax^2$ and $y = x^2$
876

#11 MAFS.912.A-CED.1.2: Teacher Guide Volume 2, page 876


Objective 2
Problem-Solving Activity
PS 1 Writing Quadratics
902

#12 MAFS.912.A-REI.2.4: Teacher Guide Volume 2, page 902

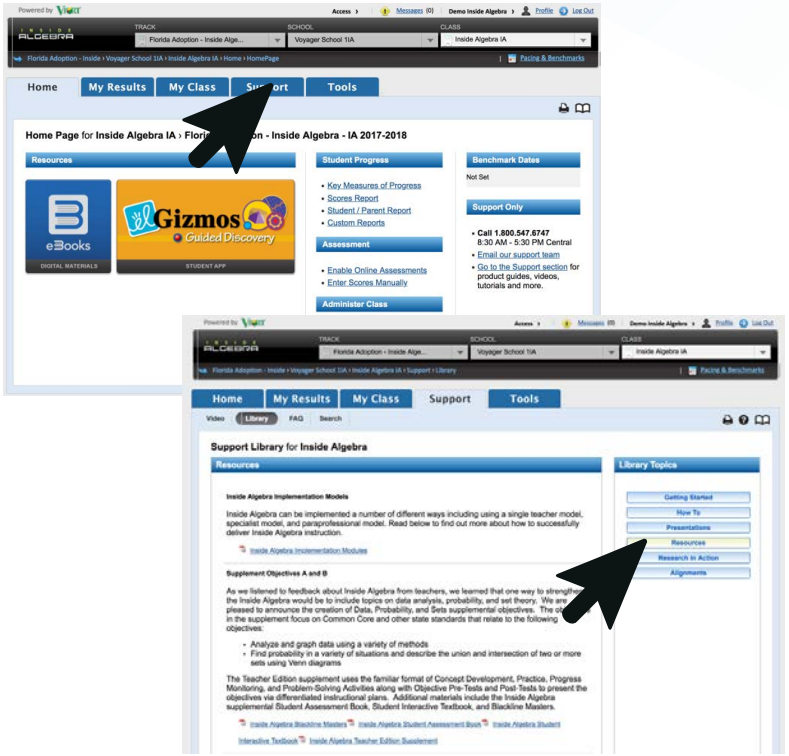
Review Interactive Standards Alignment

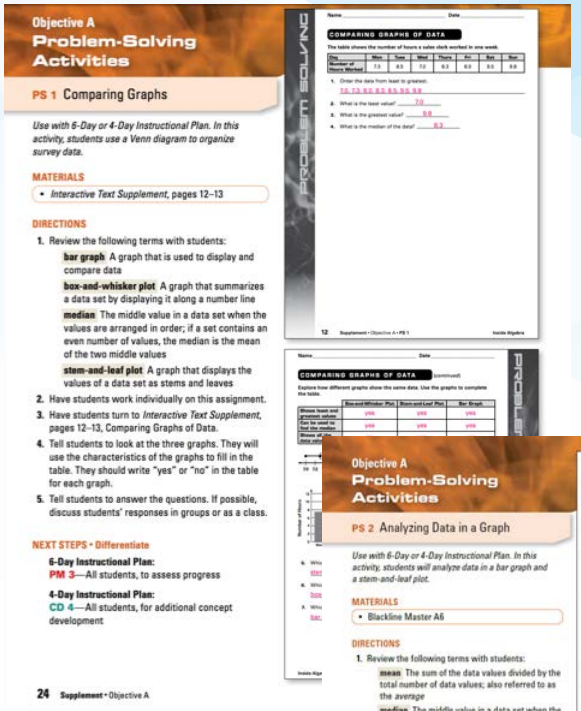
DESCRIPTIVE STATISTICS

Please review a few examples of how *Inside Algebra* covers standards related to **Descriptive Statistics**, a critical area of Algebra 1B.

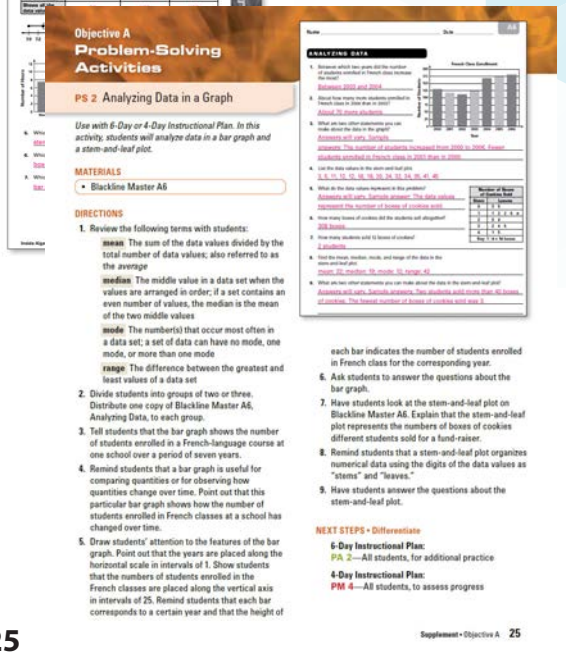
To view examples in eBooks:

1. ***Click*** the Support tab in the Teacher Center.
   Click Resources on the right side.
   Click and download the *Inside Algebra* Teacher Edition Supplement.





MAFS.912.S-ID.1.1: Teacher Guide Supplement, page 24



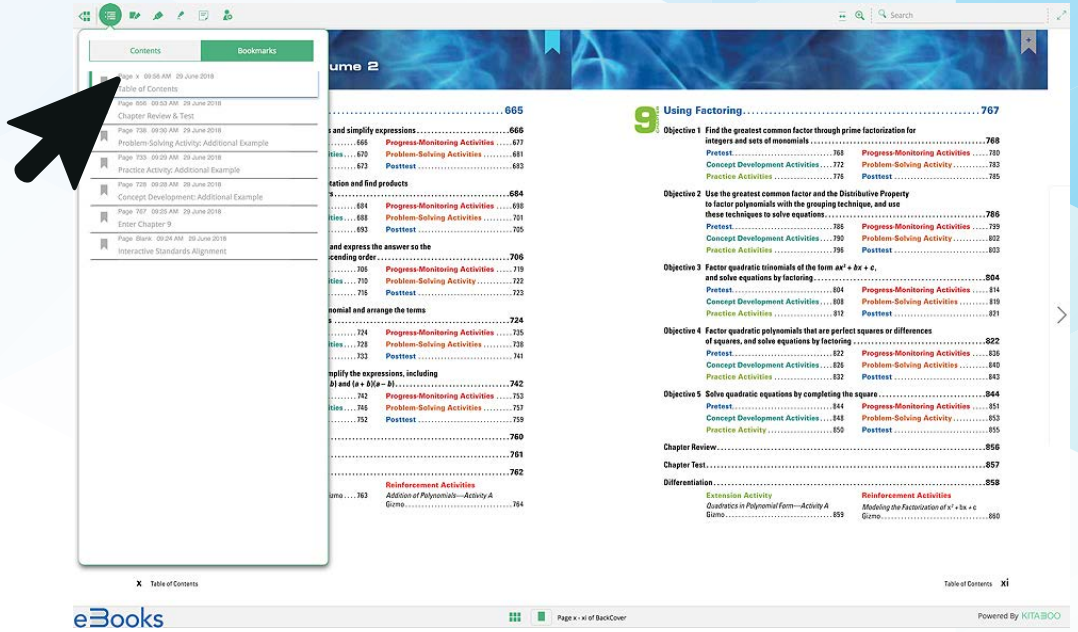
MAFS.9.12.S-ID.3.9 Teacher Guide Supplement, page 25

Curriculum Structure:
OBJECTIVES-BASED APPROACH

What is the Objectives-based Approach?
Inside Algebra is organized in a logical scope and sequence of objectives. Each chapter is divided into four-six objectives.

Why is the Objectives-based Approach important?
The objectives-based approach breaks down algebra skills and standards into smaller, accessible components that are more suited to students who have struggled with math. For teachers, this approach maximizes the potential for differentiating instruction and adapting to the needs of students.

Note on Chapter Layout:
All components within the objective are color-coded to clearly identify the purpose of each activity.

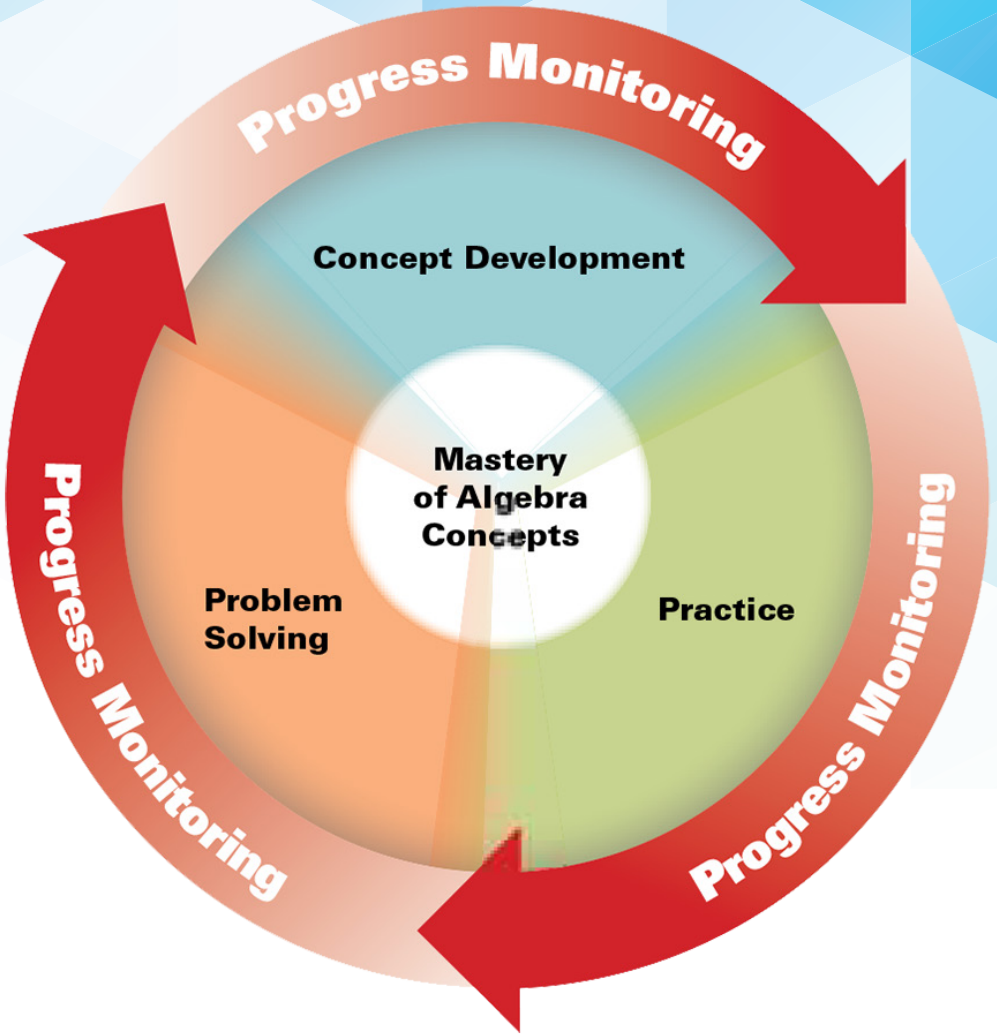


1. ***Click*** the Contents icon in the toolbar on top.
   Click Bookmarks.
   Click Table of Contents.

Curriculum Structure:
FOUR-STEP LESSON DESIGN

What is the Four-Step Lesson design?
Each objective includes a four-step lesson design with each step leading to mastery of algebra concepts. The four steps are Concept Development, Practice, Progress Monitoring, and Problem Solving.

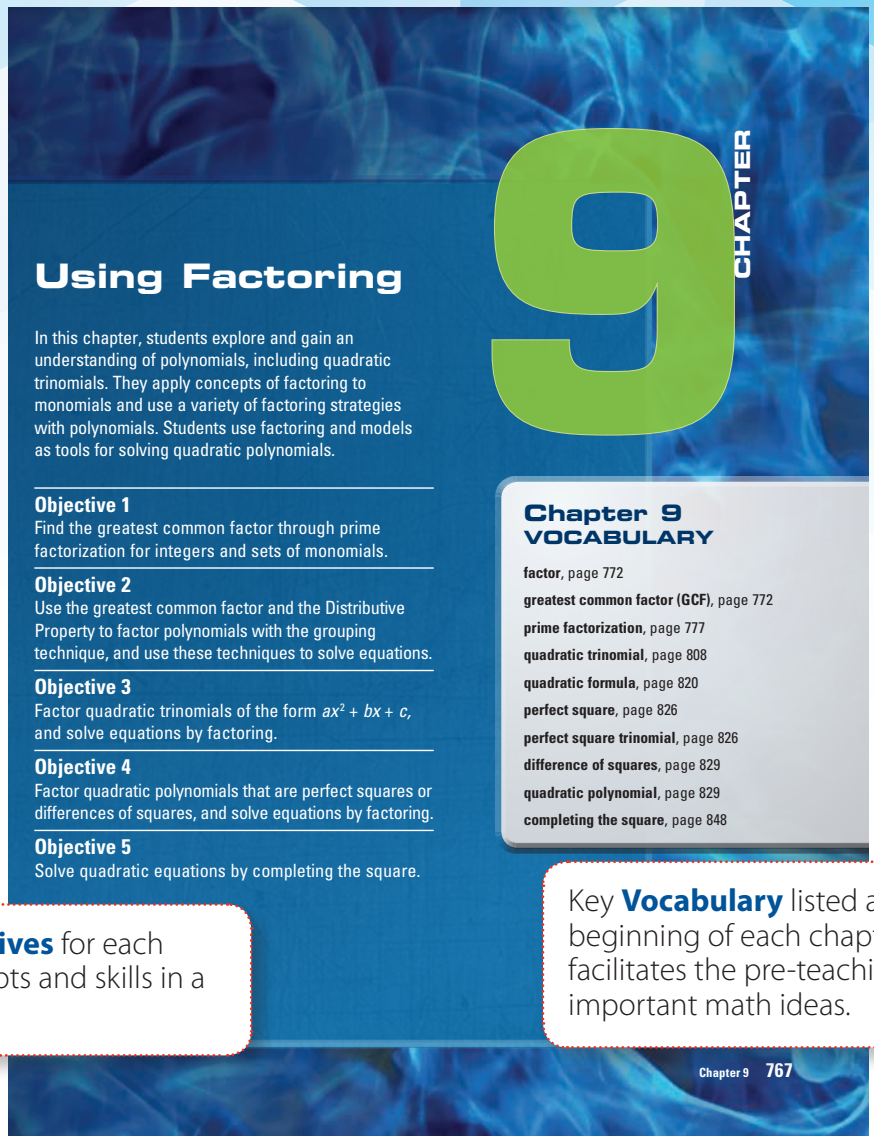
Why is the Four-Step Lesson design important?
Supported by research and the National Mathematics Advisory Panel, the four-step design provides a balanced approach to algebra instruction that focuses on conceptual understanding, developing fluency in procedures and number operations, and building strong problem-solving skills.



Planning & Prep:
CHAPTER INTRODUCTION

The chapter Introduction page provides a summation and preview of the chapter's instructional purpose and the objectives that will lead to student mastery.

1. ***Click*** the Contents icon in the toolbar on top.
   Click Bookmarks.
   Click Enter Chapter 9 Introduction.



Clearly defined **Objectives** for each chapter present concepts and skills in a logical sequence.

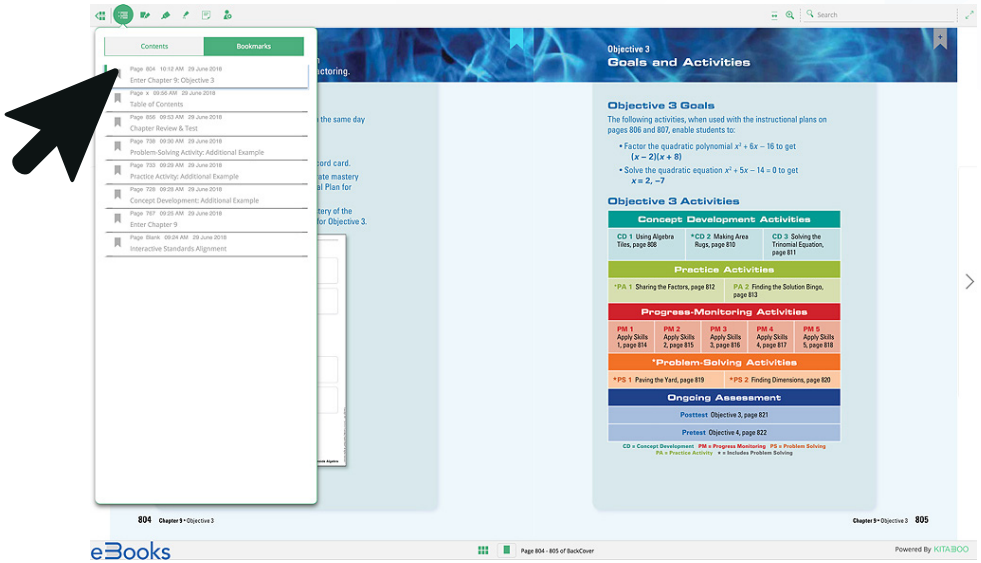
Key **Vocabulary** listed at the beginning of each chapter facilitates the pre-teaching of important math ideas.

Page 767: Chapter 9 Introduction

Planning & Prep:
OBJECTIVE PRETEST

The Objective Pretest quickly assesses a student's pre-existing knowledge before instruction begins. Based on the results, teachers will determine the best pacing model for students to achieve mastery in the skill/concept.

1. ***Click*** the Contents icon in the toolbar on top.
Click Bookmarks.
Click Enter Chapter 9: Objective 3.



Each **Objective Pretest** provides baseline data to determine the instructional path.

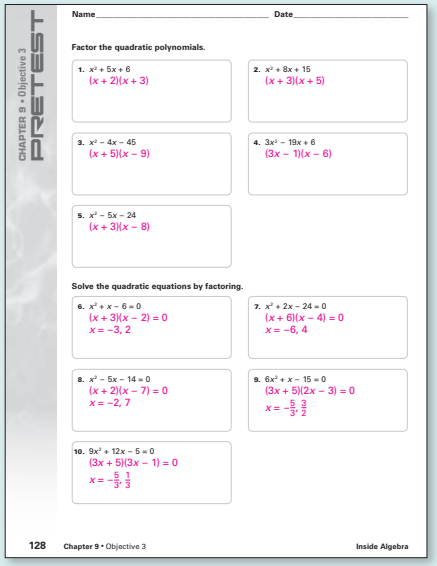
CHAPTER 9 **Objective 3**
Factor quadratic trinomials of the form $ax^2 + bx + c$, and solve equations by factoring.

Objective 3 Pretest

Students complete the Objective 3 Pretest on the same day as the Objective 2 Posttest.

Using the Results

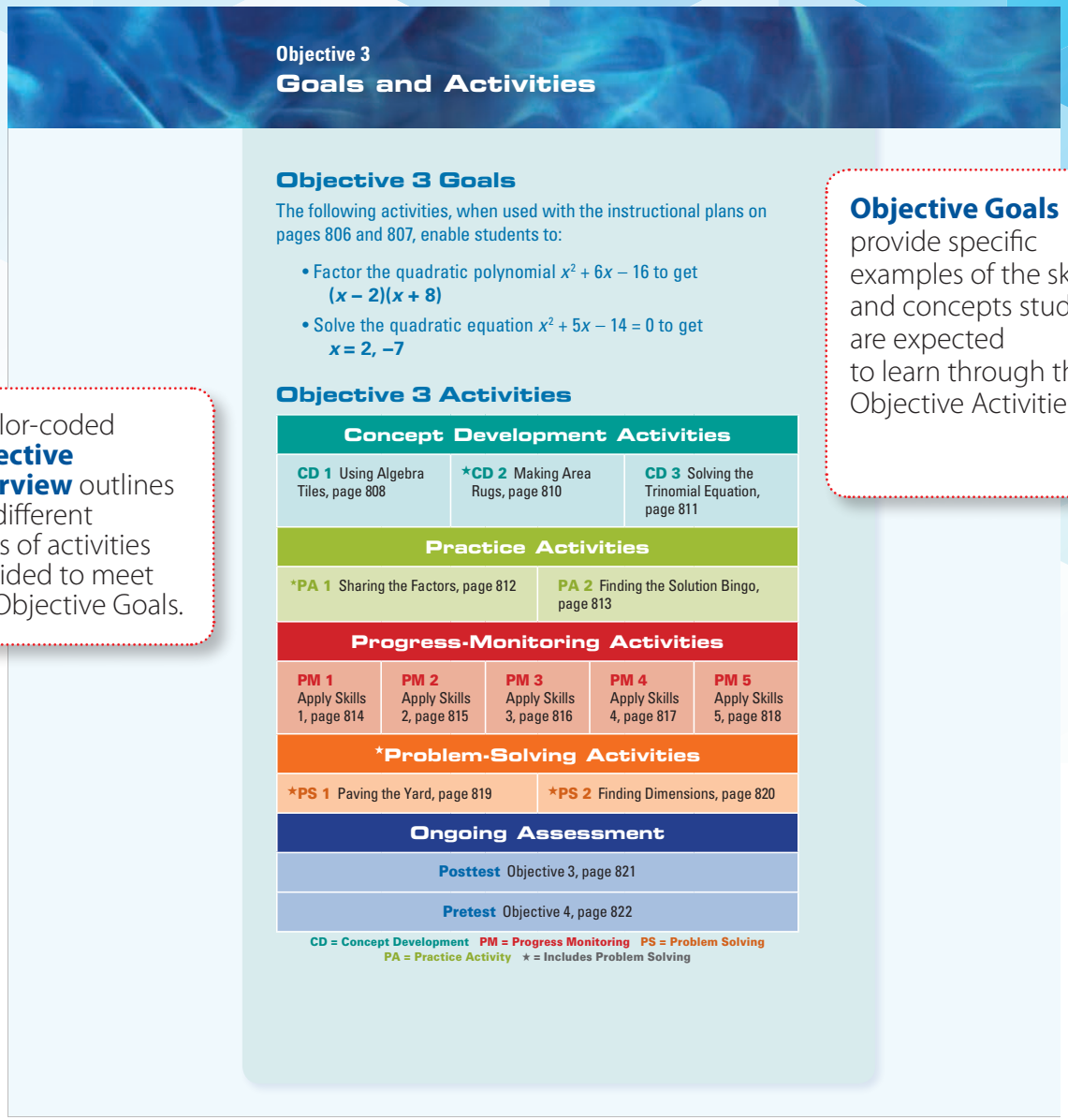
- Score the pretest and update the class record card.
- If the majority of students do not demonstrate mastery of the concepts, use the 5-Day Instructional Plan for Objective 3.
- If the majority of students demonstrate mastery of the concepts, use the 4-Day Instructional Plan for Objective 3.



Page 804: Objective 3 Pretest

Planning & Prep:
OBJECTIVES GOAL PAGE

This page clearly states the ultimate goal of the objective with an at-a-glance view of all of the various activities in the four-step lesson design that will support instruction.



Objective 3
Goals and Activities

Objective 3 Goals

The following activities, when used with the instructional plans on pages 806 and 807, enable students to:

- Factor the quadratic polynomial $x^2 + 6x - 16$ to get **$(x - 2)(x + 8)$**
- Solve the quadratic equation $x^2 + 5x - 14 = 0$ to get **$x = 2, -7$**

Objective 3 Activities

Concept Development Activities

CD 1 Using Algebra Tiles, page 808	*CD 2 Making Area Rugs, page 810	CD 3 Solving the Trinomial Equation, page 811

Practice Activities

*PA 1 Sharing the Factors, page 812	PA 2 Finding the Solution Bingo, page 813

Progress-Monitoring Activities

PM 1 Apply Skills 1, page 814	PM 2 Apply Skills 2, page 815	PM 3 Apply Skills 3, page 816	PM 4 Apply Skills 4, page 817	PM 5 Apply Skills 5, page 818

***Problem-Solving Activities**

*PS 1 Paving the Yard, page 819	*PS 2 Finding Dimensions, page 820

Ongoing Assessment

Posttest Objective 3, page 821
Pretest Objective 4, page 822

CD = Concept Development PM = Progress Monitoring PS = Problem Solving
PA = Practice Activity * = Includes Problem Solving

A color-coded **Objective Overview** outlines the different types of activities provided to meet the Objective Goals.

Objective Goals provide specific examples of the skills and concepts students are expected to learn through the Objective Activities.

Page 805: Objective 3 Goals

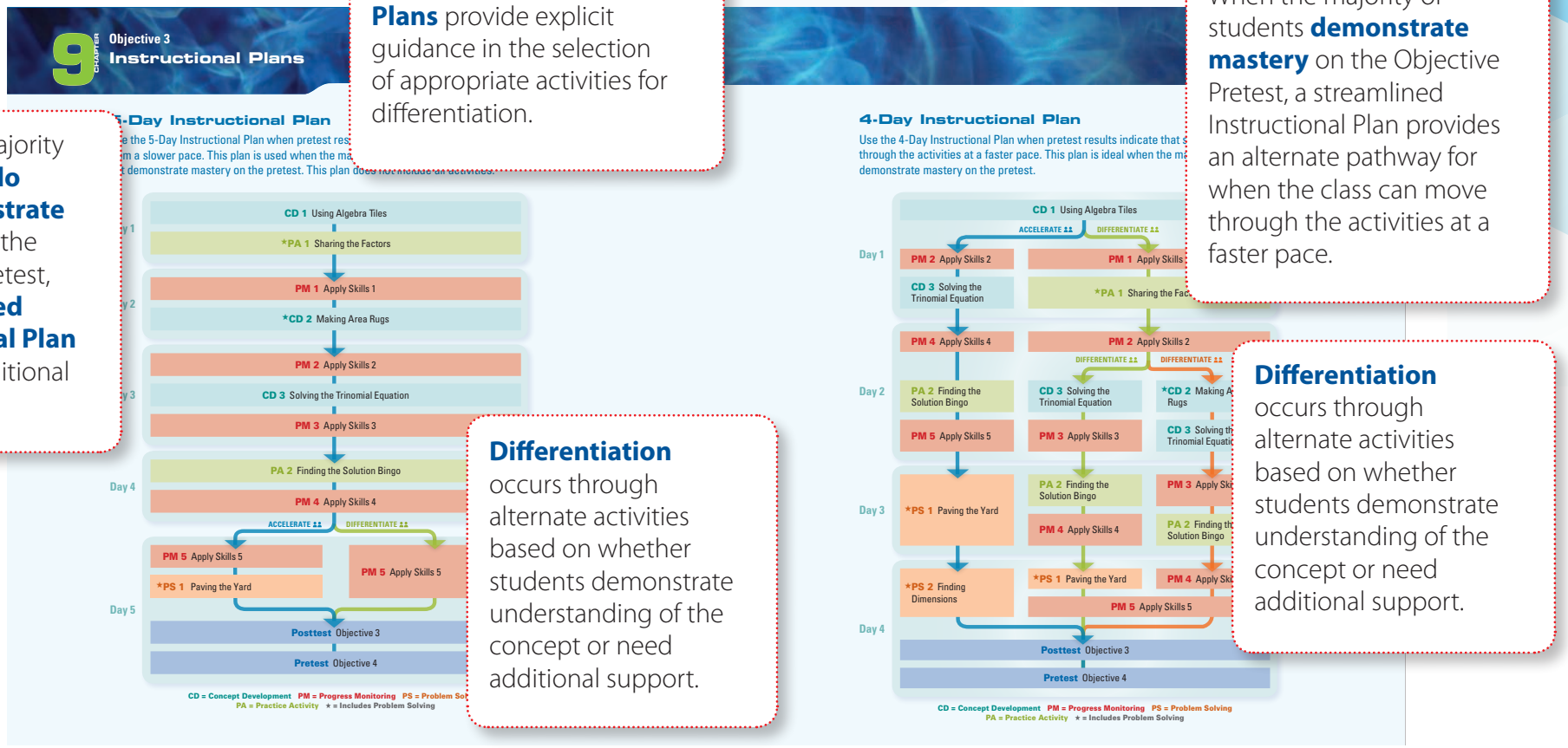
Planning & Prep:
INSTRUCTIONAL PLANS

Using data from the pretest, teachers can choose between two differentiated Instructional Plans to complete the objective: an intensive five-day plan or a streamlined three- or four-day plan. Notice that embedded in each plan is another layer of differentiation to ensure instruction is always suited to the needs of students.

Two distinct **Instructional Plans** provide explicit guidance in the selection of appropriate activities for differentiation.

When the majority of students **do not demonstrate mastery** on the Objective Pretest, an **intensified Instructional Plan** provides additional activities.

When the majority of students **demonstrate mastery** on the Objective Pretest, a streamlined Instructional Plan provides an alternate pathway for when the class can move through the activities at a faster pace.



Differentiation occurs through alternate activities based on whether students demonstrate understanding of the concept or need additional support.

Differentiation occurs through alternate activities based on whether students demonstrate understanding of the concept or need additional support.

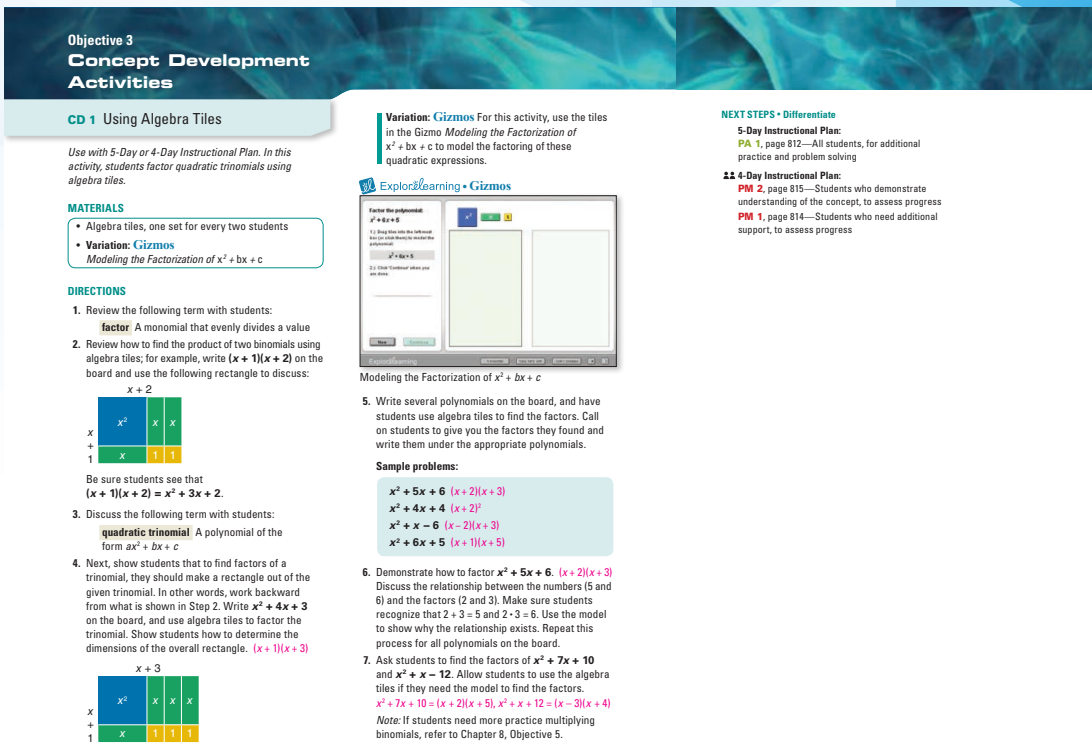
Instructional Design:
CONCEPT DEVELOPMENT ACTIVITIES

What are Concept Development Activities?

In *Inside Algebra*, these activities are teacher-directed, explicit lessons that provide modeling and guided practice through the use of pictorial representations, hands-on manipulatives, and ExploreLearning *Gizmos*.

Why are Concept Development Activities important?

When learning algebra, many students focus on memorizing the right algorithms to solve math problems instead of the underlying concepts that can be applied to real-world, tangible problems. As algebra instruction increases in complexity, these students consistently struggle because they lack the full knowledge needed to be proficient. In *Inside Algebra's* Conceptual Development Activities, algebra instruction is taken from the abstract to the concrete, and students learn how concepts relate to other concepts and how to apply what they have learned to new skills.



Objective 3
Concept Development Activities

CD 1 Using Algebra Tiles

Use with 5-Day or 4-Day Instructional Plan. In this activity, students factor quadratic trinomials using algebra tiles.

MATERIALS
- Algebra tiles, one set for every two students
- **Variation:** Gizmos *Modeling the Factorization of* $x^2 + bx + c$

DIRECTIONS
1. Review the following term with students:
   factor A monomial that evenly divides a value
2. Review how to find the product of two binomials using algebra tiles; for example, write $(x + 1)(x + 2)$ on the board and use the following rectangle to discuss:

$x + 2$

x		
x^2	x	x
x	1	1

Be sure students see that $(x + 1)(x + 2) = x^2 + 3x + 2$.

3. Discuss the following term with students:
   quadratic trinomial A polynomial of the form $ax^2 + bx + c$
4. Next, show students that to find factors of a trinomial, they should make a rectangle out of the given trinomial. In other words, work backward from what is shown in Step 2. Write $x^2 + 4x + 3$ on the board, and use algebra tiles to factor the trinomial. Show students how to determine the dimensions of the overall rectangle. $(x + 1)(x + 3)$

$x + 3$

x			
x^2	x	x	x
x	1	1	1

Variation: Gizmos For this activity, use the tiles in the Gizmo *Modeling the Factorization of* $x^2 + bx + c$ to model the factoring of these quadratic expressions.

ExploreLearning • Gizmos

Modeling the Factorization of $x^2 + bx + c$

5. Write several polynomials on the board, and have students use algebra tiles to find the factors. Call on students to give you the factors they found and write them under the appropriate polynomials.

Sample problems:

$x^2 + 5x + 6$ $(x + 2)(x + 3)$
$x^2 + 4x + 4$ $(x + 2)^2$
$x^2 + x - 6$ $(x - 2)(x + 3)$
$x^2 + 6x + 5$ $(x + 1)(x + 5)$

6. Demonstrate how to factor $x^2 + 5x + 6$. $(x + 2)(x + 3)$ Discuss the relationship between the numbers (5 and 6) and the factors (2 and 3). Make sure students recognize that $2 + 3 = 5$ and $2 \cdot 3 = 6$. Use the model to show why the relationship exists. Repeat this process for all polynomials on the board.
7. Ask students to find the factors of $x^2 + 7x + 10$ and $x^2 + x - 12$. Allow students to use the algebra tiles if they need the model to find the factors.
   $x^2 + 7x + 10 = (x + 2)(x + 5)$, $x^2 + x + 12 = (x - 3)(x + 4)$
   Note: If students need more practice multiplying binomials, refer to Chapter 8, Objective 5.

NEXT STEPS • Differentiate

5-Day Instructional Plan:
PA 1, page 812—All students, for additional practice and problem solving

4-Day Instructional Plan:
PM 2, page 815—Students who demonstrate understanding of the concept, to assess progress
PM 1, page 814—Students who need additional support, to assess progress

Page 808 - 811: Objective 3 Concept Development Activities

Instructional Design:
CONCEPT DEVELOPMENT ACTIVITIES EXAMPLE

Concept Development Activities use manipulatives to develop algebraic thinking and provide concrete representations of abstract concepts.

Consistent lesson format provides explicit direction for teachers to present instruction to support student mastery.

Objective 3
Concept Development Activities

CD 1 Using Algebra Tiles

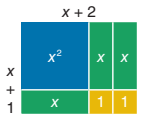
Use with 5-Day or 4-Day Instructional Plan. In this activity, students factor quadratic trinomials using algebra tiles.

MATERIALS

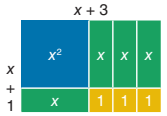
- Algebra tiles, one set for every two students
- **Variation:** Gizmos
  Modeling the Factorization of $x^2 + bx + c$

DIRECTIONS

1. Review the following term with students:
   factor A monomial that evenly divides a value
2. Review how to find the product of two binomials using algebra tiles; for example, write $(x + 1)(x + 2)$ on the board and use the following rectangle to discuss:



   Be sure students see that
   $(x + 1)(x + 2) = x^2 + 3x + 2$.
3. Discuss the following term with students:
   quadratic trinomial A polynomial of the form $ax^2 + bx + c$
4. Next, show students that to find factors of a trinomial, they should make a rectangle out of the given trinomial. In other words, work backward from what is shown in Step 2. Write $x^2 + 4x + 3$ on the board, and use algebra tiles to factor the trinomial. Show students how to determine the dimensions of the overall rectangle. $(x + 1)(x + 3)$



Variation: Gizmos For this activity, use the tiles in the Gizmo *Modeling the Factorization of* $x^2 + bx + c$ to model the factoring of these quadratic expressions.

ExploreLearning • Gizmos

Modeling the Factorization of $x^2 + bx + c$

5. Write several polynomials on the board, and have students use algebra tiles to find the factors. Call on students to give you the factors they found and write them under the appropriate polynomials.

   Sample problems:

   $x^2 + 5x + 6$ $(x + 2)(x + 3)$
   $x^2 + 4x + 4$ $(x + 2)^2$
   $x^2 + x - 6$ $(x - 2)(x + 3)$
   $x^2 + 6x + 5$ $(x + 1)(x + 5)$

6. Demonstrate how to factor $x^2 + 5x + 6$. $(x + 2)(x + 3)$ Discuss the relationship between the numbers (5 and 6) and the factors (2 and 3). Make sure students recognize that $2 + 3 = 5$ and $2 \cdot 3 = 6$. Use the model to show why the relationship exists. Repeat this process for all polynomials on the board.
7. Ask students to find the factors of $x^2 + 7x + 10$ and $x^2 + x - 12$. Allow students to use the algebra tiles if they need the model to find the factors.
   $x^2 + 7x + 10 = (x + 2)(x + 5)$, $x^2 + x + 12 = (x - 3)(x + 4)$
   Note: If students need more practice multiplying binomials, refer to Chapter 8, Objective 5.

ExploreLearning *Gizmos* provide alternate presentations of concepts using interactive simulations and virtual manipulatives.

Page 808: Concept Development Example

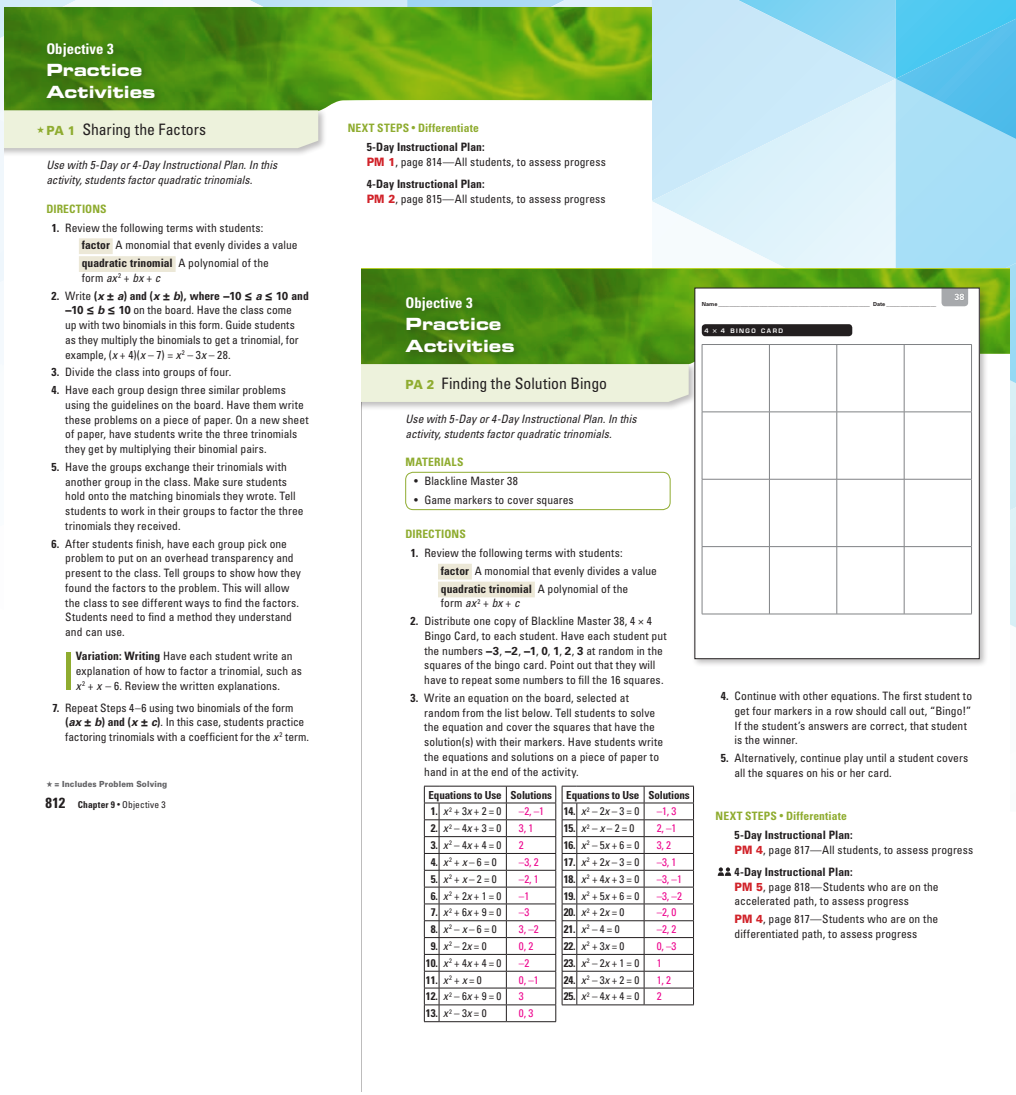
Instructional Design:
PRACTICE ACTIVITIES

What are Practice Activities?

In *Inside Algebra*, the Practice Activities give students time and opportunity to truly master the skills and standards being taught. Students work independently or in small groups on activities that often include games or engaging challenges to motivate students.

Why are Practice Activities important?

To achieve mastery, students must engage in repetitive practice of the skills and standards being taught. While students focus on independent work or interact in small groups, teachers can informally monitor students and provide additional support when needed.



Objective 3
Practice Activities

★ PA 1 Sharing the Factors

Use with 5-Day or 4-Day Instructional Plan. In this activity, students factor quadratic trinomials.

DIRECTIONS

1. Review the following terms with students:
   factor A monomial that evenly divides a value
   quadratic trinomial A polynomial of the form $ax^2 + bx + c$
2. Write **$(x \pm a)$ and $(x \pm b)$, where $-10 \le a \le 10$ and $-10 \le b \le 10$** on the board. Have the class come up with two binomials in this form. Guide students as they multiply the binomials to get a trinomial, for example, $(x + 4)(x - 7) = x^2 - 3x - 28$.
3. Divide the class into groups of four.
4. Have each group design three similar problems using the guidelines on the board. Have them write these problems on a piece of paper. On a new sheet of paper, have students write the three trinomials they get by multiplying their binomial pairs.
5. Have the groups exchange their trinomials with another group in the class. Make sure students hold onto the matching binomials they wrote. Tell students to work in their groups to factor the three trinomials they received.
6. After students finish, have each group pick one problem to put on an overhead transparency and present to the class. Tell groups to show how they found the factors to the problem. This will allow the class to see different ways to find the factors. Students need to find a method they understand and can use.

   Variation: Writing Have each student write an explanation of how to factor a trinomial, such as $x^2 + x - 6$. Review the written explanations.
7. Repeat Steps 4–6 using two binomials of the form **$(ax \pm b)$ and $(x \pm c)$**. In this case, students practice factoring trinomials with a coefficient for the x^2 term.

★ = Includes Problem Solving

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NEXT STEPS • Differentiate

5-Day Instructional Plan:
PM 1, page 814—All students, to assess progress

4-Day Instructional Plan:
PM 2, page 815—All students, to assess progress

Objective 3
Practice Activities

PA 2 Finding the Solution Bingo

Use with 5-Day or 4-Day Instructional Plan. In this activity, students factor quadratic trinomials.

MATERIALS

- Blackline Master 38
- Game markers to cover squares

DIRECTIONS

1. Review the following terms with students:
   factor A monomial that evenly divides a value
   quadratic trinomial A polynomial of the form $ax^2 + bx + c$
2. Distribute one copy of Blackline Master 38, 4 × 4 Bingo Card, to each student. Have each student put the numbers **–3**, **–2**, **–1**, **0**, **1**, **2**, **3** at random in the squares of the bingo card. Point out that they will have to repeat some numbers to fill the 16 squares.
3. Write an equation on the board, selected at random from the list below. Tell students to solve the equation and cover the squares that have the solution(s) with their markers. Have students write the equations and solutions on a piece of paper to hand in at the end of the activity.

Equations to Use	Solutions
1. $x^2 + 3x + 2 = 0$	–2, –1
2. $x^2 - 4x + 3 = 0$	3, 1
3. $x^2 - 4x + 4 = 0$	2
4. $x^2 + x - 6 = 0$	–3, 2
5. $x^2 + x - 2 = 0$	–2, 1
6. $x^2 + 2x + 1 = 0$	–1
7. $x^2 + 6x + 9 = 0$	–3
8. $x^2 - x - 6 = 0$	3, –2
9. $x^2 - 2x = 0$	0, 2
10. $x^2 + 4x + 4 = 0$	–2
11. $x^2 + x = 0$	0, –1
12. $x^2 - 6x + 9 = 0$	3
13. $x^2 - 3x = 0$	0, 3

Equations to Use	Solutions
14. $x^2 - 2x - 3 = 0$	–1, 3
15. $x^2 - x - 2 = 0$	2, –1
16. $x^2 - 5x + 6 = 0$	3, 2
17. $x^2 + 2x - 3 = 0$	–3, 1
18. $x^2 + 4x + 3 = 0$	–3, –1
19. $x^2 + 5x + 6 = 0$	–3, –2
20. $x^2 + 2x = 0$	–2, 0
21. $x^2 - 4 = 0$	–2, 2
22. $x^2 + 3x = 0$	0, –3
23. $x^2 - 2x + 1 = 0$	1
24. $x^2 - 3x + 2 = 0$	1, 2
25. $x^2 - 4x + 4 = 0$	2

38

Name _____ Date _____

4 × 4 BINGO CARD

4. Continue with other equations. The first student to get four markers in a row should call out, "Bingo!" If the student's answers are correct, that student is the winner.
5. Alternatively, continue play until a student covers all the squares on his or her card.

NEXT STEPS • Differentiate

5-Day Instructional Plan:
PM 4, page 817—All students, to assess progress

4-Day Instructional Plan:
PM 5, page 818—Students who are on the accelerated path, to assess progress
PM 4, page 817—Students who are on the differentiated path, to assess progress

Pages 812 and 813: Objective 3 Practice Activities

Instructional Design:
PRACTICE ACTIVITIES EXAMPLE

Practice Activities use games and small-group interaction to strengthen conceptual understanding.

Important **vocabulary** is highlighted and reviewed at point of use to promote math language development.

Objective 3
Practice Activities

PA 2 Finding the Solution Bingo

Use with 5-Day or 4-Day Instructional Plan. In this activity, students factor quadratic trinomials.

MATERIALS

- Blackline Master 38
- Game markers to cover squares

DIRECTIONS

1. Review the following terms with students:
   factor A monomial that evenly divides a value
   quadratic trinomial A polynomial of the form $ax^2 + bx + c$
2. Distribute one copy of Blackline Master 38, 4 × 4 Bingo Card, to each student. Have each student put the numbers **–3**, **–2**, **–1**, **0**, **1**, **2**, **3** at random in the squares of the bingo card. Point out that they will have to repeat some numbers to fill the 16 squares.
3. Write an equation on the board, selected at random from the list below. Tell students to solve the equation and cover the squares that have the solution(s) with their markers. Have students write the equations and solutions on a piece of paper to hand in at the end of the activity.

Equations to Use	Solutions
1. $x^2 + 3x + 2 = 0$	–2, –1
2. $x^2 - 4x + 3 = 0$	3, 1
3. $x^2 - 4x + 4 = 0$	2
4. $x^2 + x - 6 = 0$	–3, 2
5. $x^2 + x - 2 = 0$	–2, 1
6. $x^2 + 2x + 1 = 0$	–1
7. $x^2 + 6x + 9 = 0$	–3
8. $x^2 - x - 6 = 0$	3, –2
9. $x^2 - 2x = 0$	0, 2
10. $x^2 + 4x + 4 = 0$	–2
11. $x^2 + x = 0$	0, –1
12. $x^2 - 6x + 9 = 0$	3
13. $x^2 - 3x = 0$	0, 3
14. $x^2 - 2x - 3 = 0$	–1, 3
15. $x^2 - x - 2 = 0$	2, –1
16. $x^2 - 5x + 6 = 0$	3, 2
17. $x^2 + 2x - 3 = 0$	–3, 1
18. $x^2 + 4x + 3 = 0$	–3, –1
19. $x^2 + 5x + 6 = 0$	–3, –2
20. $x^2 + 2x = 0$	–2, 0
21. $x^2 - 4 = 0$	–2, 2
22. $x^2 + 3x = 0$	0, –3
23. $x^2 - 2x + 1 = 0$	1
24. $x^2 - 3x + 2 = 0$	1, 2
25. $x^2 - 4x + 4 = 0$	2

Name _____ Date _____ 38

4 × 4 BINGO CARD

4. Continue with other equations. The first student to get four markers in a row should call out, "Bingo!" If the student's answers are correct, that student is the winner.
5. Alternatively, continue play until a student covers all the squares on his or her card.

NEXT STEPS • Differentiate

5-Day Instructional Plan:
PM 4, page 817—All students, to assess progress

4-Day Instructional Plan:
PM 5, page 818—Students who are on the accelerated path, to assess progress
PM 4, page 817—Students who are on the differentiated path, to assess progress

Next Steps provide guidance based on student performance along the instructional path.

Page 813: Practice Example

Instructional Design:
PROGRESS-MONITORING ACTIVITIES

What are Progress-Monitoring Activities?

In *Inside Algebra*, the Progress Monitoring activities assess computational fluency of the skills and standards being taught.

Why are the Progress Monitoring Activities important?

The foundation of *Inside Algebra's* instruction is based on differentiation and the additional support students need to achieve mastery. Frequent, informal progress-monitoring opportunities provide the data to drive these instructional decisions and identify students in need of support.

Note for Teacher:

In the Teacher Guide, common computational errors are listed with recommendations about immediate corrective feedback for the student.

Objective 3
Progress-Monitoring Activities

PM 1 Apply Skills 1

Use with 5-Day or 4-Day Instructional Plan.

MATERIALS
- *Interactive Text*, page 346

DIRECTIONS
1. Have students turn to *Interactive Text*, page 346, Apply Skills 1.
2. Remind students of the key ter *trinomial* and *factor*.
3. Monitor student work, and pro necessary.

Watch for:
- Do students factor the trinon tiles to complete the rectang
- Do any students try an algeb

NEXT STEPS • Differentiate

5-Day Instructional Plan:
CD 2, page 810—All students, concept development and prob

4-Day Instructional Plan:
PA 1, page 812—All students, practice and problem solving

PROGRESS MONITORING

APPLY SKILLS 1

Factor each of the quadratic trinomials.

Example: $x^2 + 6x + 8 = (x + 2)(x + 4)$

1. $x^2 + 9x + 20 = (x + 4)(x + 5)$
2. $x^2 + 12x + 20 = (x + 2)(x + 10)$
3. $x^2 - 4x - 32 = (x + 4)(x - 8)$
4. $x^2 + 4x + 3 = (x + 1)(x + 3)$
5. $x^2 + x - 6 = (x - 2)(x + 3)$
6. $x^2 + 8x + 12 = (x + 2)(x + 6)$
7. $x^2 + 6x + 5 = (x + 1)(x + 5)$
8. $x^2 + x - 2 = (x - 1)(x + 2)$
9. $x^2 - 6x + 8 = (x - 2)(x - 4)$
10. $x^2 - 3x - 18 = (x + 3)(x - 6)$
11. $x^2 - 4x + 3 = (x - 1)(x - 3)$
12. $x^2 + 10x + 21 = (x + 3)(x + 7)$
13. $x^2 + x - 12 = (x - 3)(x + 4)$
14. $x^2 - 7x + 12 = (x - 3)(x - 4)$

Objective 3
Progress-Monitoring Activities

PM 2 Apply Skills 2

Use with 5-Day or 4-Day Instructional Plan.

MATERIALS
- *Interactive Text*, page 347

DIRECTIONS
1. Have students turn to *Interactive Text*, page 347, Apply Skills 2.
2. Remind students of the key terms: *quadratic trinomial* and *factor*.
3. Monitor student work, and provide feedback as necessary.

Watch for:
- Do students factor the trinomials using area rugs?
- Do students check their answers by multiplying the resulting binomials?

NEXT STEPS • Differentiate

5-Day Instructional Plan:
CD 3, page 811—All students, for additional concept development

3-Day Instructional Plan:
CD 3, page 811—Students who are on the accelerated path, for additional concept development

CD 3, page 811—Students on the differentiated path who demonstrate understanding of the concept, to extend understanding

CD 2, page 810—All other students, for additional concept development

PROGRESS MONITORING

APPLY SKILLS 2

Factor each of the quadratic trinomials.

Example: $2x^2 - x - 6 = (2x + 3)(x - 2)$

1. $x^2 + 3x + 2 = (x + 1)(x + 2)$
2. $5x^2 - 33x - 14 = (5x + 2)(x - 7)$
3. $7x^2 + 11x - 6 = (7x - 3)(x + 2)$
4. $8x^2 - 19x + 6 = (8x - 3)(x - 2)$
5. $14x^2 - x - 4 = (7x - 4)(2x + 1)$
6. $x^2 + 9x + 20 = (x + 4)(x + 5)$
7. $2x^2 + 3x - 5 = (2x + 5)(x - 1)$
8. $3x^2 - 10x - 8 = (3x + 2)(x - 4)$
9. $6x^2 + 17x + 10 = (6x + 5)(x + 2)$
10. $8x^2 - 2x - 3 = (2x + 1)(4x - 3)$
11. $16x^2 - 8x - 3 = (4x - 3)(4x + 1)$
12. $12x^2 - 29x + 15 = (3x - 5)(4x - 3)$
13. $12x^2 - 16x + 5 = (2x - 1)(6x - 5)$
14. $32x^2 - 4x - 1 = (4x - 1)(8x + 1)$
15. $2x^2 - x - 3 = (2x - 3)(x + 1)$
16. $20x^2 + 12x + 1 = (2x + 1)(10x + 1)$
17. $5x^2 - 22x - 15 = (5x + 3)(x - 5)$
18. $30x^2 + 1x - 3 = (3x + 1)(10x - 3)$
19. $6x^2 - 7x - 3 = (3x + 1)(2x - 3)$
20. $3x^2 - x - 2 = (3x + 2)(x - 1)$

Inside Algebra Chapter 9 • Objective 3 • PM 2 347

Pages 814-818: Objective 3 Progress-Monitoring Activities

Instructional Design:
PROGRESS-MONITORING ACTIVITIES EXAMPLE

Progress-Monitoring Activities determine differentiation through alternate activities as they build fluency with basic algebra skills.

Informal assessment strategies such as **ask for, watch for**, and **listen for** provide further insight into student progress.

Objective 3
Progress-Monitoring Activities

PM 1 Apply Skills 1

Use with 5-Day or 4-Day Instructional Plan.

MATERIALS

- *Interactive Text*, page 346

DIRECTIONS

1. Have students turn to *Interactive Text*, page 346, Apply Skills 1.
2. Remind students of the key terms: *quadratic trinomial* and *factor*.
3. Monitor student work, and provide feedback as necessary.

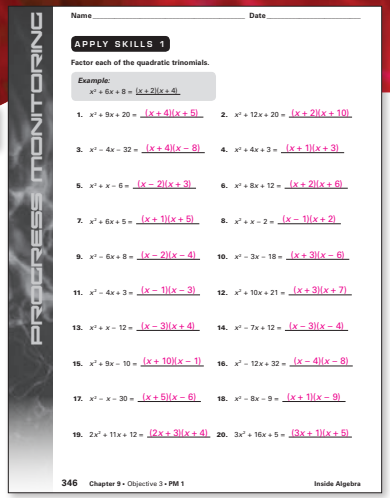
Watch for:

- Do students factor the trinomials using algebra tiles to complete the rectangle?
- Do any students try an algebraic method?

NEXT STEPS • Differentiate

5-Day Instructional Plan:
CD 2, page 810—All students, for additional concept development and problem solving

4-Day Instructional Plan:
PA 1, page 812—All students, for additional practice and problem solving



PROGRESS MONITORING

Name _____ Date _____

APPLY SKILLS 1

Factor each of the quadratic trinomials.

Example:
$x^2 + 6x + 8 = (x + 2)(x + 4)$

1. $x^2 + 9x + 20 = (x + 4)(x + 5)$
2. $x^2 + 12x + 20 = (x + 2)(x + 10)$
3. $x^2 - 4x - 32 = (x + 4)(x - 8)$
4. $x^2 + 4x + 3 = (x + 1)(x + 3)$
5. $x^2 + x - 6 = (x - 2)(x + 3)$
6. $x^2 + 8x + 12 = (x + 2)(x + 6)$
7. $x^2 + 6x + 5 = (x + 1)(x + 5)$
8. $x^2 + x - 2 = (x - 1)(x + 2)$
9. $x^2 - 6x + 8 = (x - 2)(x - 4)$
10. $x^2 - 3x - 18 = (x + 3)(x - 6)$
11. $x^2 - 4x + 3 = (x - 1)(x - 3)$
12. $x^2 + 10x + 21 = (x + 3)(x + 7)$
13. $x^2 + x - 12 = (x - 3)(x + 4)$
14. $x^2 - 7x + 12 = (x - 3)(x - 4)$
15. $x^2 + 9x - 10 = (x + 10)(x - 1)$
16. $x^2 - 12x + 32 = (x - 4)(x - 8)$
17. $x^2 - x - 30 = (x + 5)(x - 6)$
18. $x^2 - 8x - 9 = (x + 1)(x - 9)$
19. $2x^2 + 11x + 12 = (2x + 3)(x + 4)$
20. $3x^2 + 16x + 5 = (3x + 1)(x + 5)$

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Modified wraparound Teacher Guide includes **answer keys.**

Page 814: Progress-Monitoring Example

Instructional Design:
PROBLEM-SOLVING ACTIVITIES

What are Problem-Solving Activities?

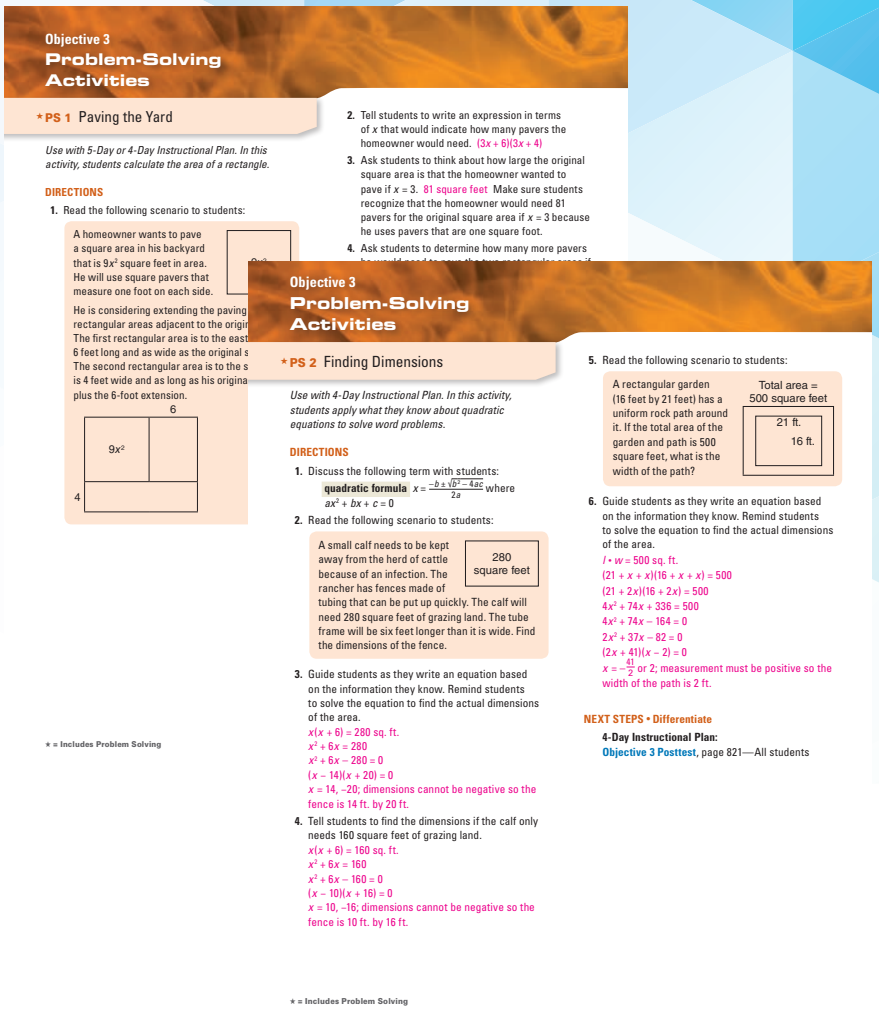
In *Inside Algebra*, Problem-Solving Activities are multistep math problems related to the objective and taught in a teacher-led, independent, or cooperative setting. These multistep activities provide the structure and time students need to think through and fully understand the concepts and skills being taught.

Why are Problem-Solving Activities important?

Instructionally, these activities accomplish two distinct goals related to student mastery. In the teacher-led setting, students are introduced to new skills with explicit, step-by-step guidance about how to solve problems. As instruction increases in complexity, students are expected to apply and justify their reasoning skills to problems to demonstrate and explain their understanding and proficiency.

Note for Teacher:

In many activities, teachers use open-ended and short-response prompts that require students to write about their work and demonstrate their fluency in mathematical language.



Objective 3
Problem-Solving Activities

★PS 1 Paving the Yard

Use with 5-Day or 4-Day Instructional Plan. In this activity, students calculate the area of a rectangle.

DIRECTIONS

1. Read the following scenario to students:

A homeowner wants to pave a square area in his backyard that is $9x^2$ square feet in area. He will use square pavers that measure one foot on each side.

He is considering extending the paving rectangular areas adjacent to the origi The first rectangular area is to the east 6 feet long and as wide as the original s The second rectangular area is to the s is 4 feet wide and as long as his origina plus the 6-foot extension.

6
$9x^2$
4

2. Tell students to write an expression in terms of x that would indicate how many pavers the homeowner would need. $(3x + 6)(3x + 4)$
3. Ask students to think about how large the original square area is that the homeowner wanted to pave if $x = 3$. 81 square feet Make sure students recognize that the homeowner would need 81 pavers for the original square area if $x = 3$ because he uses pavers that are one square foot.
4. Ask students to determine how many more pavers

★ = Includes Problem Solving

Objective 3
Problem-Solving Activities

★PS 2 Finding Dimensions

Use with 4-Day Instructional Plan. In this activity, students apply what they know about quadratic equations to solve word problems.

DIRECTIONS

1. Discuss the following term with students:
   quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ where $ax^2 + bx + c = 0$
2. Read the following scenario to students:

A small calf needs to be kept away from the herd of cattle because of an infection. The rancher has fences made of tubing that can be put up quickly. The calf will need 280 square feet of grazing land. The tube frame will be six feet longer than it is wide. Find the dimensions of the fence.

280 square feet

3. Guide students as they write an equation based on the information they know. Remind students to solve the equation to find the actual dimensions of the area.
   $x(x + 6) = 280$ sq. ft.
   $x^2 + 6x = 280$
   $x^2 + 6x - 280 = 0$
   $(x - 14)(x + 20) = 0$
   $x = 14, -20$; dimensions cannot be negative so the fence is 14 ft. by 20 ft.
4. Tell students to find the dimensions if the calf only needs 160 square feet of grazing land.
   $x(x + 6) = 160$ sq. ft.
   $x^2 + 6x = 160$
   $x^2 + 6x - 160 = 0$
   $(x - 10)(x + 16) = 0$
   $x = 10, -16$; dimensions cannot be negative so the fence is 10 ft. by 16 ft.
5. Read the following scenario to students:

A rectangular garden (16 feet by 21 feet) has a uniform rock path around it. If the total area of the garden and path is 500 square feet, what is the width of the path?

Total area = 500 square feet
21 ft.
16 ft.

6. Guide students as they write an equation based on the information they know. Remind students to solve the equation to find the actual dimensions of the area.
   $l \cdot w = 500$ sq. ft.
   $(21 + x + x)(16 + x + x) = 500$
   $(21 + 2x)(16 + 2x) = 500$
   $4x^2 + 74x + 336 = 500$
   $4x^2 + 74x - 164 = 0$
   $2x^2 + 37x - 82 = 0$
   $(2x + 41)(x - 2) = 0$
   $x = -\frac{41}{2}$ or 2; measurement must be positive so the width of the path is 2 ft.

NEXT STEPS • Differentiate

4-Day Instructional Plan:
Objective 3 Posttest, page 821—All students

★ = Includes Problem Solving

Pages 819 and 820: Objective 3 Problem-Solving Activities

Instructional Design:
PROBLEM-SOLVING ACTIVITIES EXAMPLE

Problem-Solving Activities reinforce problem-solving strategies and reflective thinking as students synthesize cumulative skills.

Objective 3
Problem-Solving Activities

★**PS 2** Finding Dimensions

Use with 4-Day Instructional Plan. In this activity, students apply what they know about quadratic equations to solve word problems.

DIRECTIONS

1. Discuss the following term with students:
   quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ where $ax^2 + bx + c = 0$
2. Read the following scenario to students:

   A small calf needs to be kept away from the herd of cattle because of an infection. The rancher has fences made of tubing that can be put up quickly. The calf will need 280 square feet of grazing land. The tube frame will be six feet longer than it is wide. Find the dimensions of the fence.

   280 square feet
3. Guide students as they write an equation based on the information they know. Remind students to solve the equation to find the actual dimensions of the area.
   $x(x + 6) = 280$ sq. ft.
   $x^2 + 6x = 280$
   $x^2 + 6x - 280 = 0$
   $(x - 14)(x + 20) = 0$
   $x = 14, -20$; dimensions cannot be negative so the fence is 14 ft. by 20 ft.
4. Tell students to find the dimensions if the calf only needs 160 square feet of grazing land.
   $x(x + 6) = 160$ sq. ft.
   $x^2 + 6x = 160$
   $x^2 + 6x - 160 = 0$
   $(x - 10)(x + 16) = 0$
   $x = 10, -16$; dimensions cannot be negative so the fence is 10 ft. by 16 ft.
5. Read the following scenario to students:

   A rectangular garden (16 feet by 21 feet) has a uniform rock path around it. If the total area of the garden and path is 500 square feet, what is the width of the path?

   Total area = 500 square feet
   21 ft.
   16 ft.
6. Guide students as they write an equation based on the information they know. Remind students to solve the equation to find the actual dimensions of the area.
   $l \cdot w = 500$ sq. ft.
   $(21 + x + x)(16 + x + x) = 500$
   $(21 + 2x)(16 + 2x) = 500$
   $4x^2 + 74x + 336 = 500$
   $4x^2 + 74x - 164 = 0$
   $2x^2 + 37x - 82 = 0$
   $(2x + 41)(x - 2) = 0$
   $x = -\frac{41}{2}$ or 2; measurement must be positive so the width of the path is 2 ft.

NEXT STEPS • Differentiate

4-Day Instructional Plan:
Objective 3 Posttest, page 821—All students

★ = Includes Problem Solving

Examples of student solutions showcase one possible strategy students may use to solve the problem.

Page 820: Problem-Solving Example

Instructional Design:
OBJECTIVE POSTTEST

The Objective Posttest quickly assesses a student's mastery of the objective and provides data for teachers to make decisions on the need for differentiation.

Each **Objective Posttest** measures student growth in mastering the objective and identifies concepts that may need reinforcement.

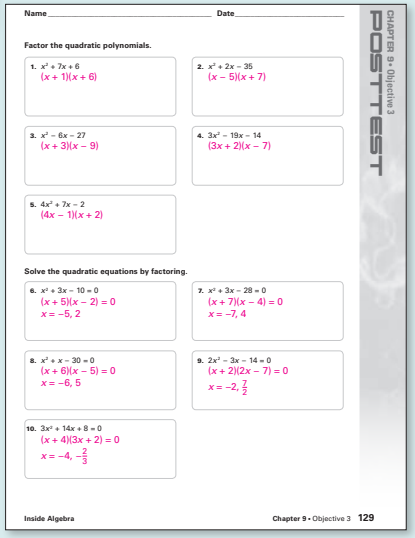
CHAPTER 9 Objective 3
Ongoing Assessment

Objective 3 Posttest

Discuss with students the key concepts in Objective 3. Following the discussion, administer the Objective 3 Posttest to all students.

Using the Results

- Score the posttest and update the class record card.
- Provide reinforcement for students who do not demonstrate mastery of the concepts through individual or small-group reteaching of key concepts.



Name _____ Date _____

CHAPTER 9 • Objective 3 POSTTEST

Factor the quadratic polynomials.

1. $x^2 + 7x + 6$
   $(x + 1)(x + 6)$
2. $x^2 + 2x - 35$
   $(x - 5)(x + 7)$
3. $x^2 - 6x - 27$
   $(x + 3)(x - 9)$
4. $3x^2 - 19x - 14$
   $(3x + 2)(x - 7)$
5. $4x^2 + 7x - 2$
   $(4x - 1)(x + 2)$

Solve the quadratic equations by factoring.

6. $x^2 + 3x - 10 = 0$
   $(x + 5)(x - 2) = 0$
   $x = -5, 2$
7. $x^2 + 3x - 28 = 0$
   $(x + 7)(x - 4) = 0$
   $x = -7, 4$
8. $x^2 + x - 30 = 0$
   $(x + 6)(x - 5) = 0$
   $x = -6, 5$
9. $2x^2 - 3x - 14 = 0$
   $(x + 2)(2x - 7) = 0$
   $x = -2, \frac{7}{2}$
10. $3x^2 + 14x + 8 = 0$
    $(x + 4)(3x + 2) = 0$
    $x = -4, -\frac{2}{3}$

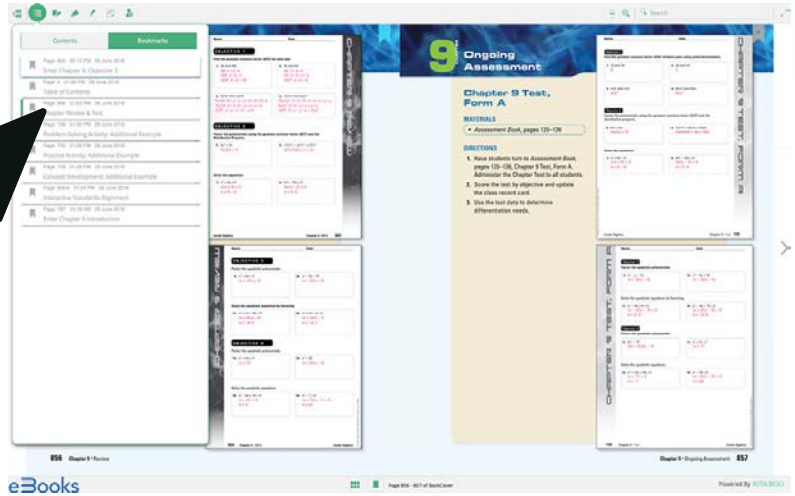
Inside Algebra Chapter 9 • Objective 3 129

Page 821: Objective 3 Posttest

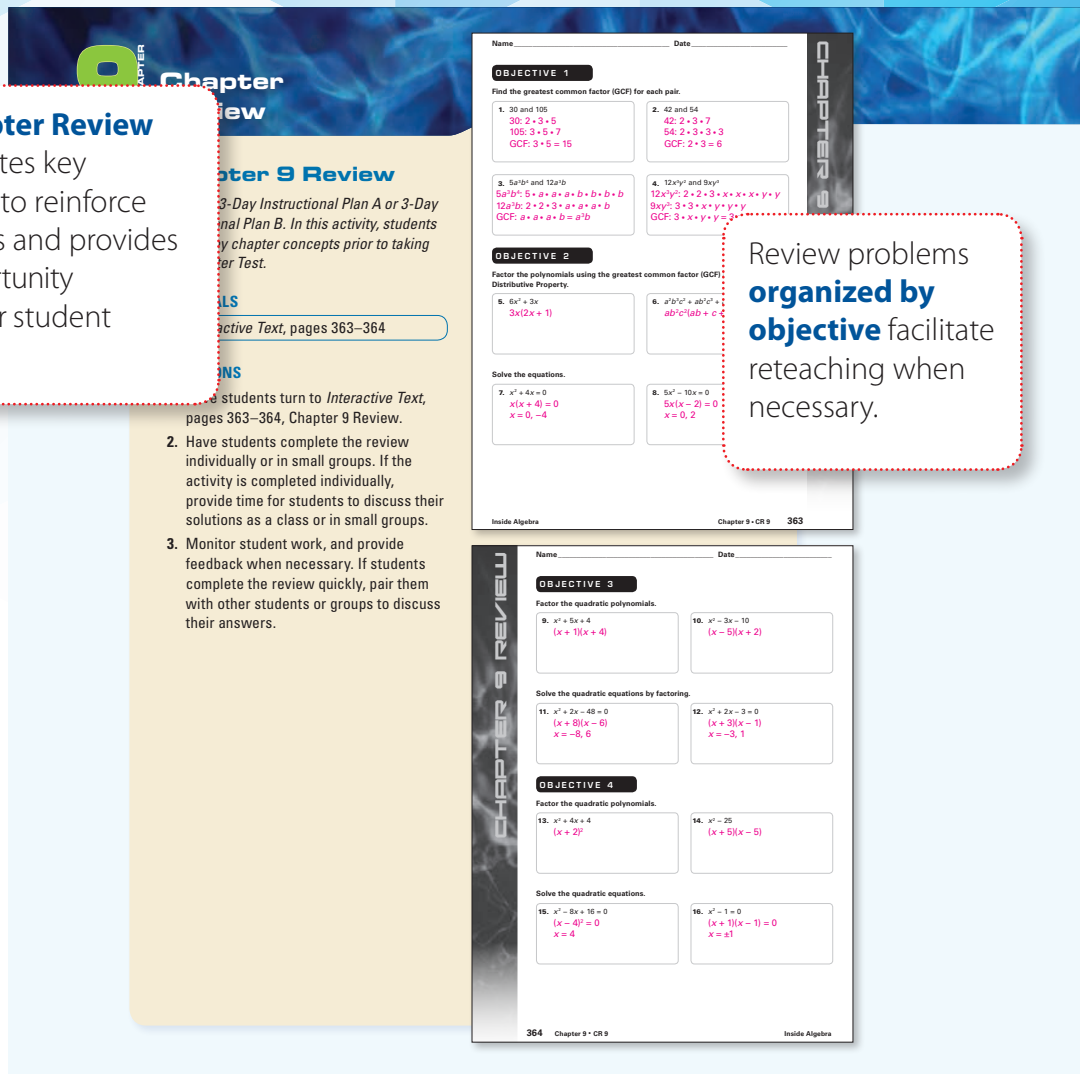
Instructional Design:
CHAPTER REVIEW

At the end of each chapter, teachers can revisit the instruction, reinforce what was learned, and re-evaluate the need for additional differentiation.

1. ***Click*** the Contents icon in the toolbar on top.
   Click Bookmarks.
   Click Enter Chapter Review & Test.



The **Chapter Review** consolidates key concepts to reinforce objectives and provides the opportunity to monitor student learning.

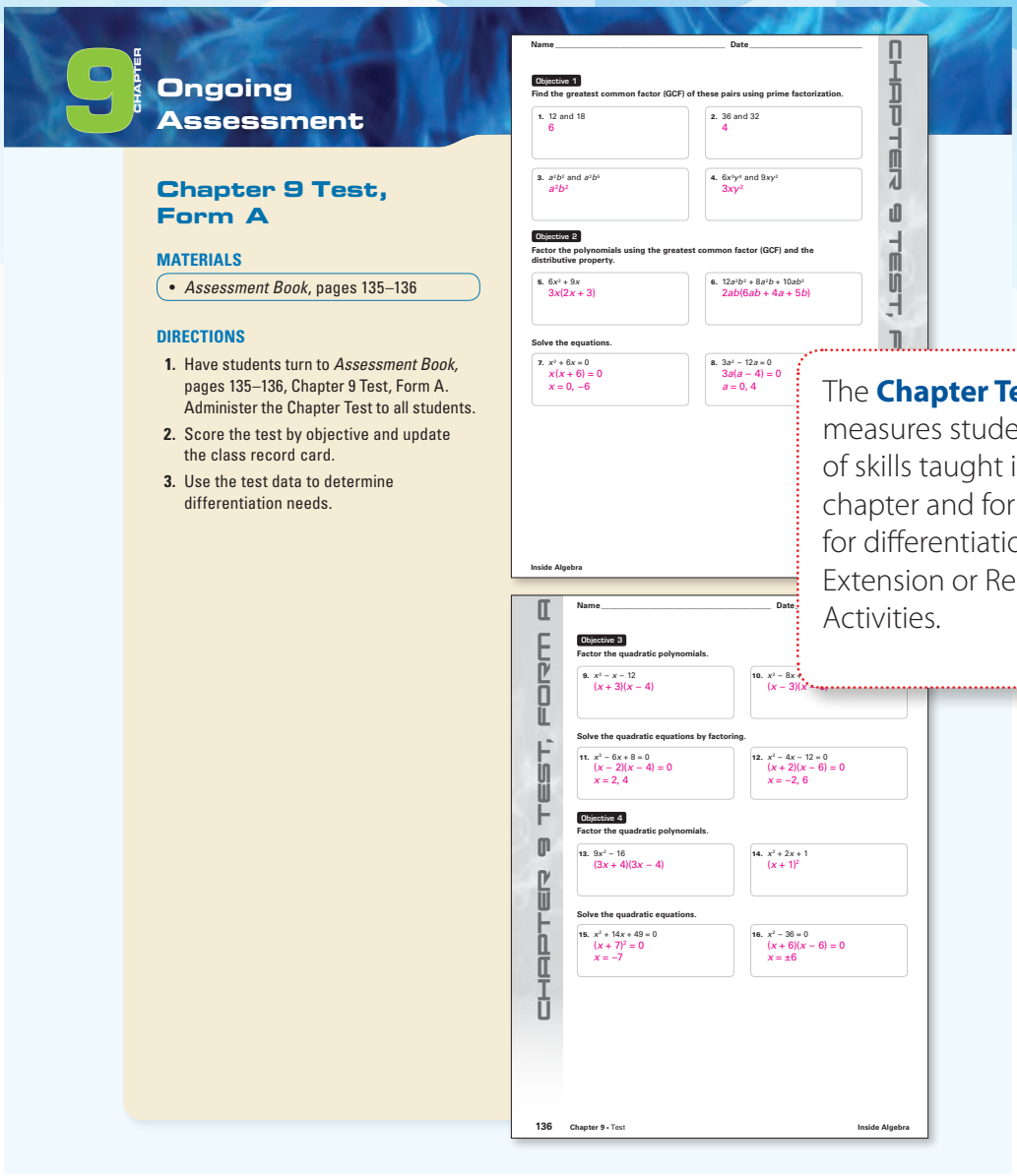


Review problems **organized by objective** facilitate reteaching when necessary.

Page 856: Chapter Review

Instructional Design:
CHAPTER TEST

This Chapter Test provides student-mastery data that determines what type of differentiation students need to continue: extension activity, student-centered reinforcement, or teacher-led reinforcement.

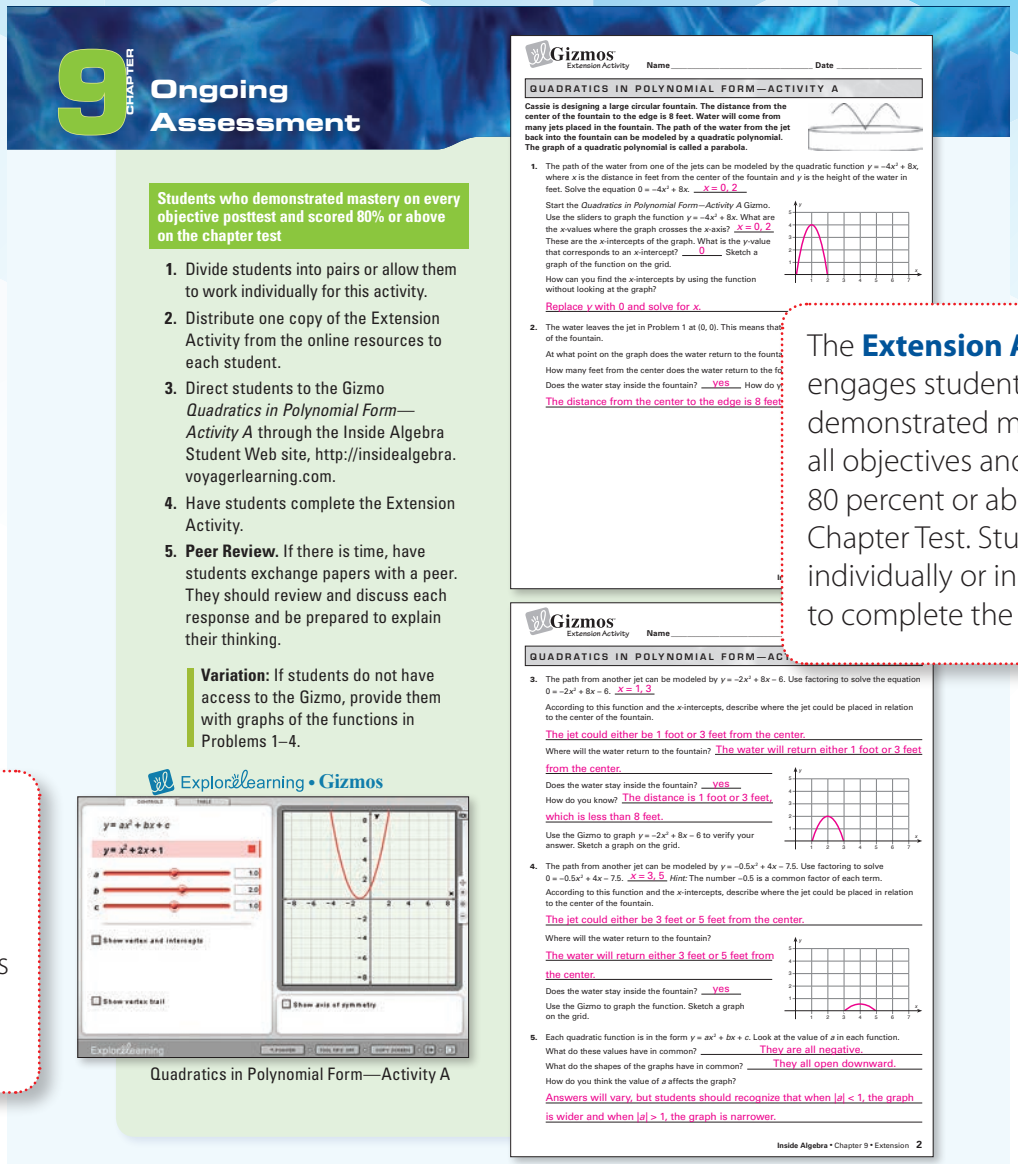


The **Chapter Test** measures student mastery of skills taught in the chapter and forms the basis for differentiation using the Extension or Reinforcement Activities.

Page 857: Chapter Test

Instructional Design:
EXTENSION ACTIVITY

For students showing mastery, Extension Activity uses ExploreLearning *Gizmos* to represent real-life applications that engage and extend student knowledge of chapter objectives.



The **Extension Activity** engages students who demonstrated mastery of all objectives and scored 80 percent or above on the Chapter Test. Students work individually or in pairs to complete the activity.

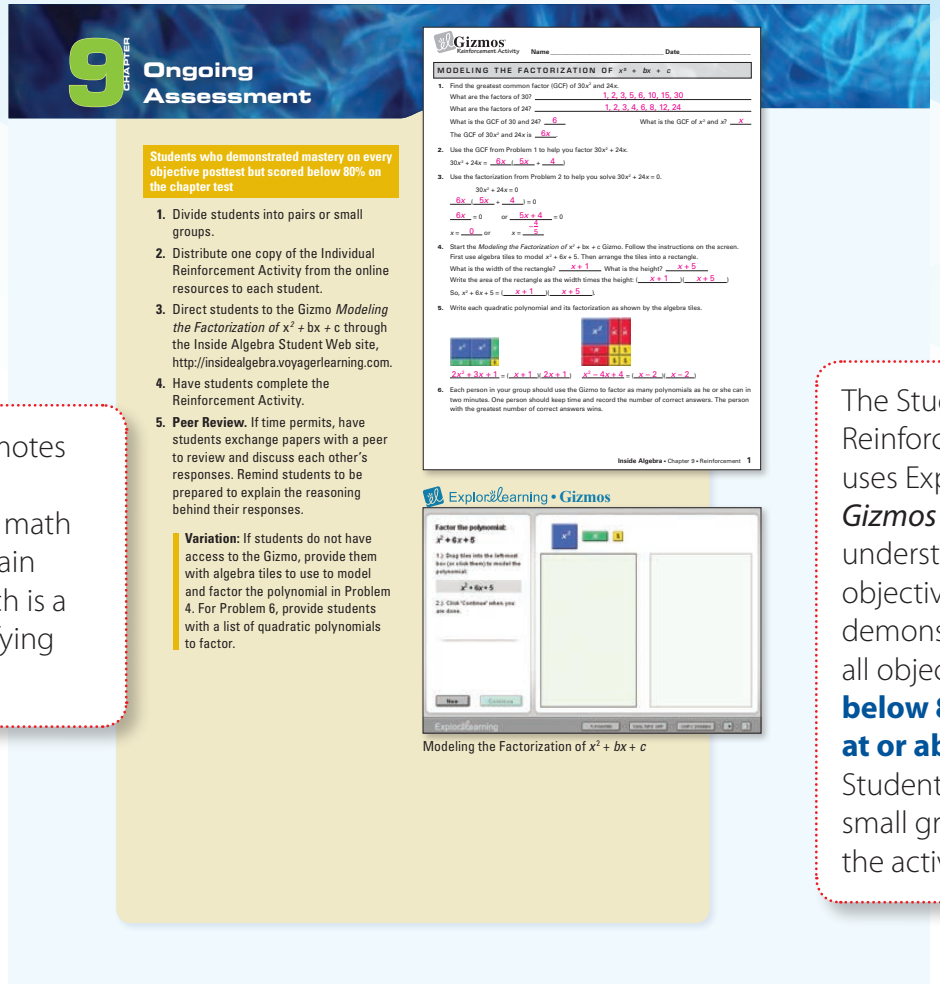
The Extension Activity uses an ExploreLearning *Gizmo*, a fun and easy-to-use **interactive simulation** that supports many different learning styles.

Page 859: Extension Activity

Instructional Design:
STUDENT-CENTERED REINFORCEMENT ACTIVITY

For students close to mastery, the Student-Centered Reinforcement Activity scaffolds instruction and promotes small-group collaboration and discussion.

Peer Review promotes discussion among students. They use math vocabulary to explain their thinking which is a key factor in solidifying concepts.



Modeling the Factorization of $x^2 + bx + c$

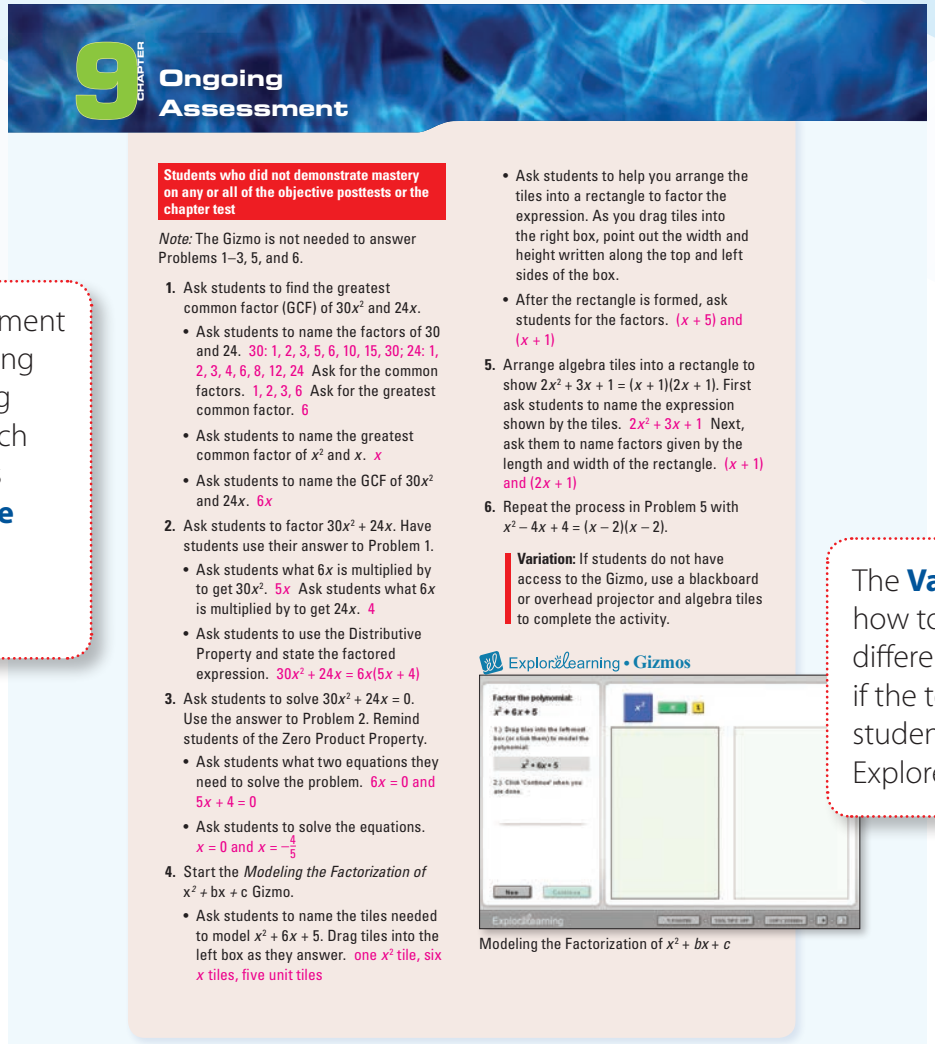
The Student-Centered Reinforcement Activity uses ExploreLearning *Gizmos* to strengthen understanding of chapter objectives for students who demonstrated mastery of all objectives and scored **below 80 percent but at or above 60 percent**. Students work in pairs or in small groups to complete the activity.

Page 860: Student-Centered Reinforcement Activity

Instructional Design:
TEACHER-LED REINFORCEMENT ACTIVITY

For students who struggle to master all objectives, the Teacher-Led Reinforcement Activity provides a more intensive differentiation lesson in a small group or one on one.

The Teacher-Led Reinforcement Activity uses ExploreLearning *Gizmos* and accompanying teacher directions to reteach key objectives for students who did **not demonstrate mastery of any or all objectives.**



9 CHAPTER Ongoing Assessment

Students who did not demonstrate mastery on any or all of the objective posttests or the chapter test

Note: The Gizmo is not needed to answer Problems 1–3, 5, and 6.

1. Ask students to find the greatest common factor (GCF) of $30x^2$ and $24x$.
   - Ask students to name the factors of 30 and 24. 30: 1, 2, 3, 5, 6, 10, 15, 30; 24: 1, 2, 3, 4, 6, 8, 12, 24 Ask for the common factors. 1, 2, 3, 6 Ask for the greatest common factor. 6
   - Ask students to name the greatest common factor of x^2 and x. x
   - Ask students to name the GCF of $30x^2$ and $24x$. $6x$
2. Ask students to factor $30x^2 + 24x$. Have students use their answer to Problem 1.
   - Ask students what $6x$ is multiplied by to get $30x^2$. $5x$ Ask students what $6x$ is multiplied by to get $24x$. 4
   - Ask students to use the Distributive Property and state the factored expression. $30x^2 + 24x = 6x(5x + 4)$
3. Ask students to solve $30x^2 + 24x = 0$. Use the answer to Problem 2. Remind students of the Zero Product Property.
   - Ask students what two equations they need to solve the problem. $6x = 0$ and $5x + 4 = 0$
   - Ask students to solve the equations. $x = 0$ and $x = -\frac{4}{5}$
4. Start the *Modeling the Factorization of* $x^2 + bx + c$ Gizmo.
   - Ask students to name the tiles needed to model $x^2 + 6x + 5$. Drag tiles into the left box as they answer. one x^2 tile, six x tiles, five unit tiles
   - Ask students to help you arrange the tiles into a rectangle to factor the expression. As you drag tiles into the right box, point out the width and height written along the top and left sides of the box.
   - After the rectangle is formed, ask students for the factors. $(x + 5)$ and $(x + 1)$
5. Arrange algebra tiles into a rectangle to show $2x^2 + 3x + 1 = (x + 1)(2x + 1)$. First ask students to name the expression shown by the tiles. $2x^2 + 3x + 1$ Next, ask them to name factors given by the length and width of the rectangle. $(x + 1)$ and $(2x + 1)$
6. Repeat the process in Problem 5 with $x^2 - 4x + 4 = (x - 2)(x - 2)$.

Variation: If students do not have access to the Gizmo, use a blackboard or overhead projector and algebra tiles to complete the activity.

ExploreLearning • Gizmos

Modeling the Factorization of $x^2 + bx + c$

The **Variation** describes how to complete the differentiation activities if the teacher or the students cannot access ExploreLearning *Gizmos*.

Page 861: Teacher-Led Reinforcement Activity

Assessments & Reports

The comprehensive *Inside Algebra* assessment system allows teachers to accurately measure student progress and proficiency at every stage of instruction. With a variety of reports available, teachers and administrators have actionable data that can be used to drive instructional decisions, communicate progress to parents, and ensure students meet their goals.

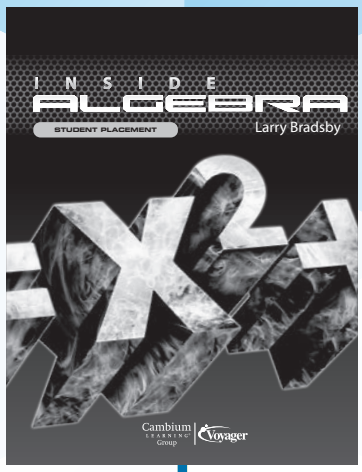
Take a look at each assessment that students, reports teachers can generate, and the overall purpose of monitoring.

Placement Test

Before instruction begins, the Placement Test is administered to all *Inside Algebra* students. Based on results, a recommendation is made for student placement into one of two entry points:

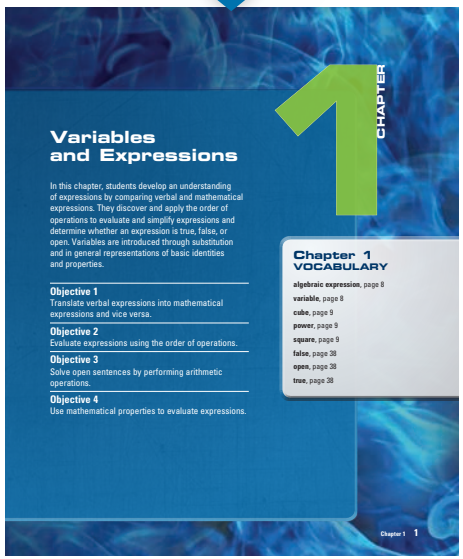
Chapter 1 is appropriate for students with significant gaps in pre-algebraic skills and standards.

Chapter 3 is appropriate for students with the basic knowledge needed to begin mastering algebra skills and standards.



ENTRY POINT 1

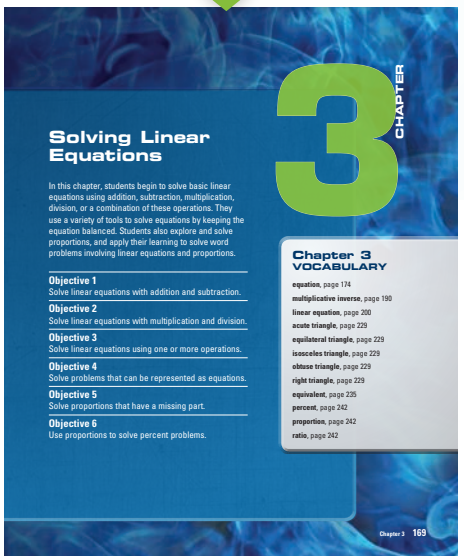
Chapter 1: Variables and Expressions



Teacher Guide, Chapter 1 Opener

ENTRY POINT 2

Chapter 3: Solving Linear Equations



Teacher Guide, Chapter 3 Opener

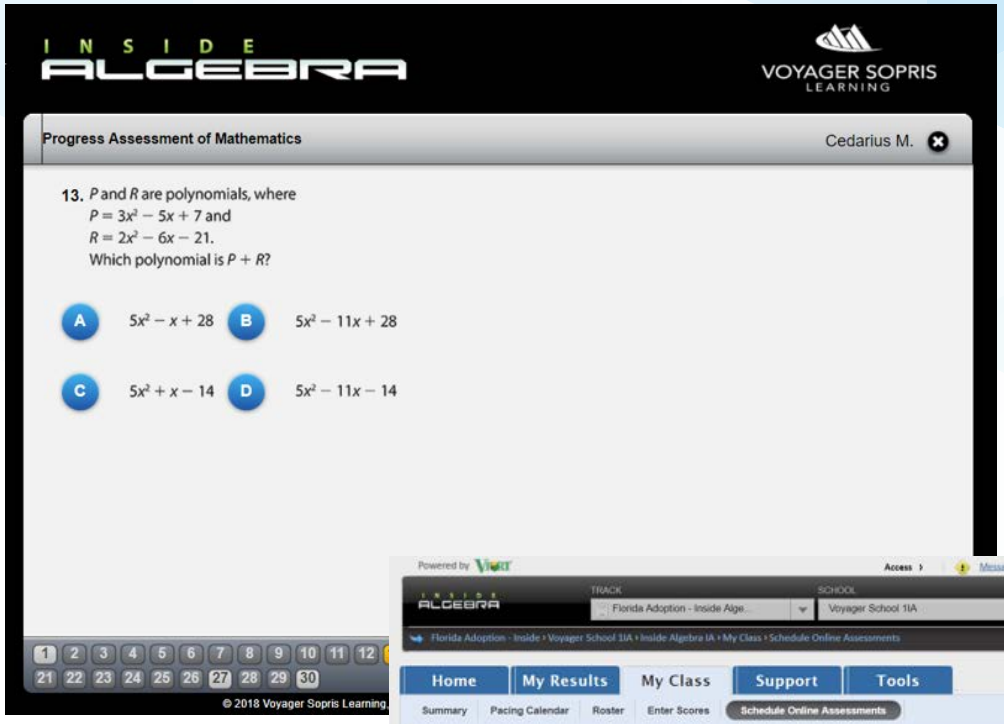
Progress Assessment of Mathematics (PAM)

What is the Progress Assessment of Mathematics (PAM)?

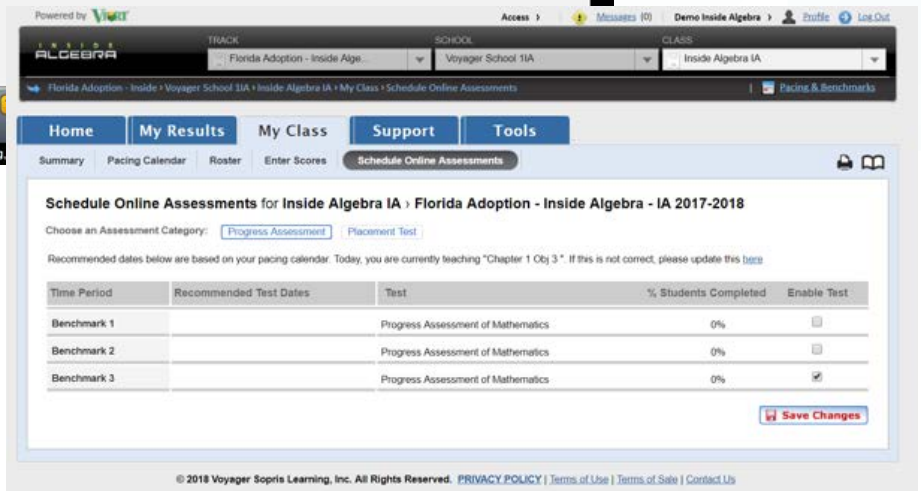
Inside Algebra utilizes the PAM powered by The Quantile Framework© for Mathematics as a benchmark assessment that can be administered online or by paper/pencil three times a year. Reports are automatically available when assigned/administered online.

Why is the PAM important?

Like Lexiles in reading, the PAM assessment assigns students a Quantile score that represents a student's range of skills and readiness for learning new skills. As a benchmark assessment, the PAM is used to determine student mastery and document their trajectory toward grade-level standards proficiency.



PAM Assessment Online

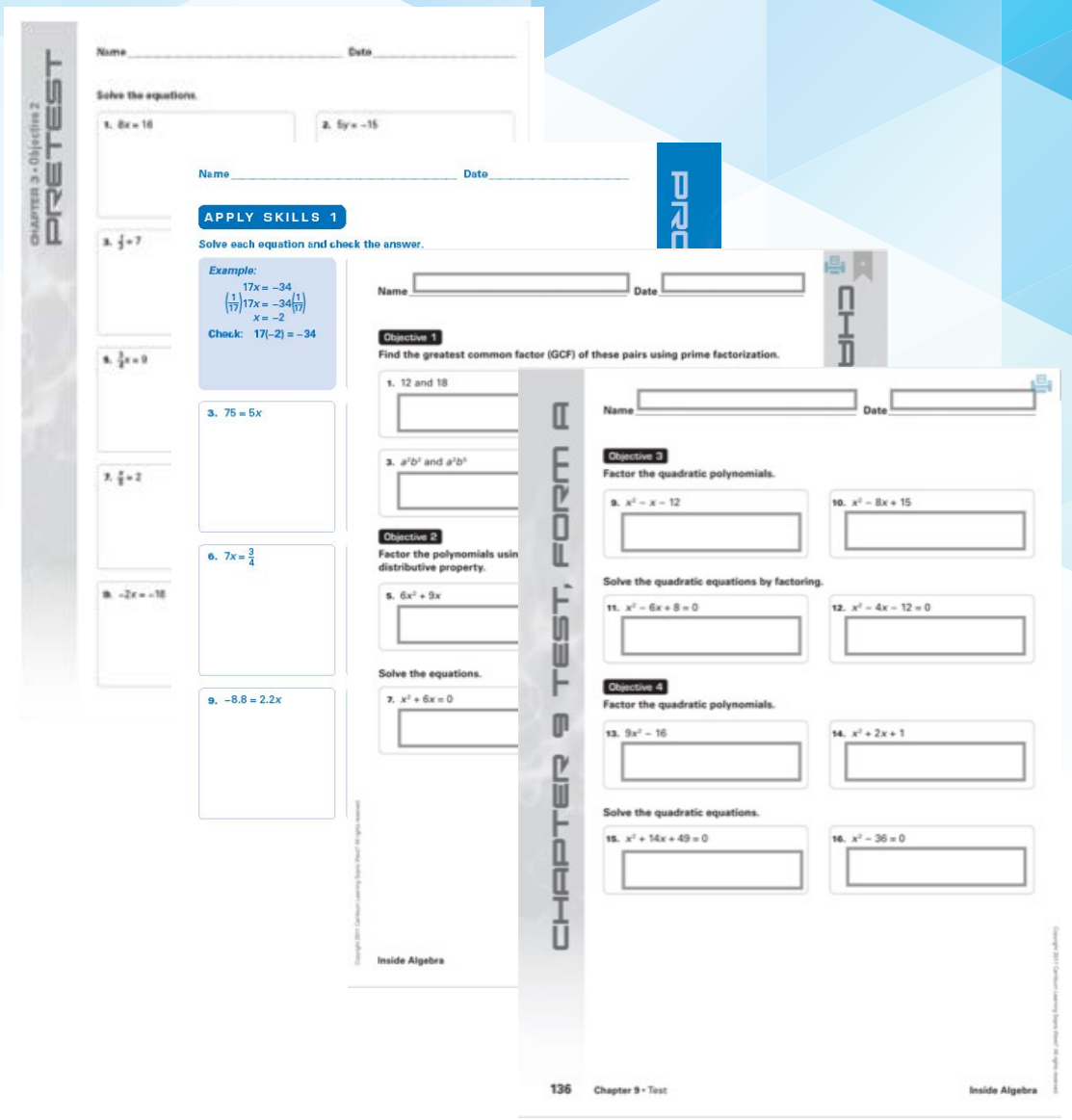


Assessment Assignments in the Teacher Center

Ongoing Assessments

As discussed in the Instructional Design section, several ongoing assessments are embedded in daily instruction and used to drive instructional decisions and differentiate with effectiveness. These ongoing assessments include:

- Pretest/Posttests
- Progress-Monitoring Activities
- End-of-Chapter Tests
- Informal Assessments



Viewing Reports

All reports are conveniently stored in our data management system and easily accessed from the Teacher Center. Depending on the need and user, reports can be viewed from the district average level down to the individual student level.

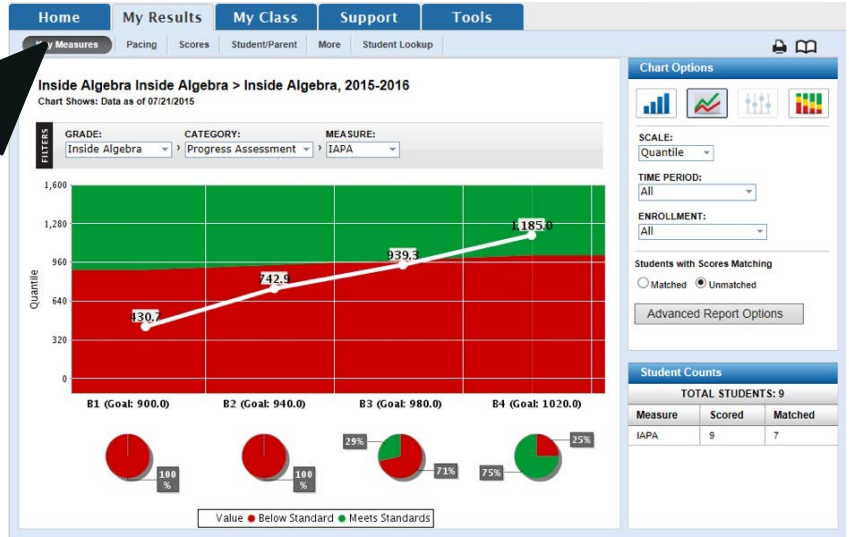
1. To view reports from the Teacher Center:

Click on the My Results tab.

Click on the Key Measures subtab (default starting location).

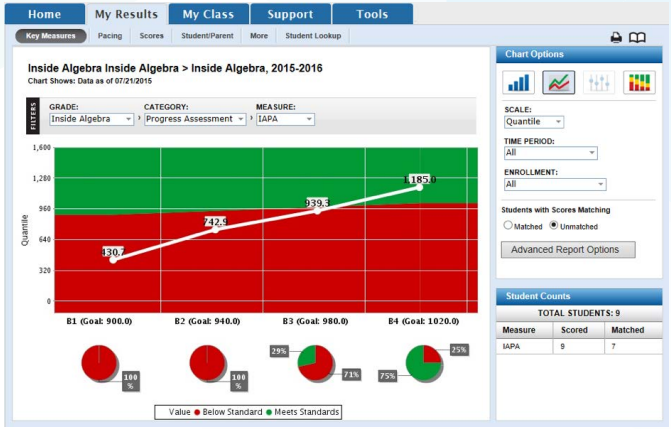
Click on the Category"scroll-down menu.

Choose an assessment to view.



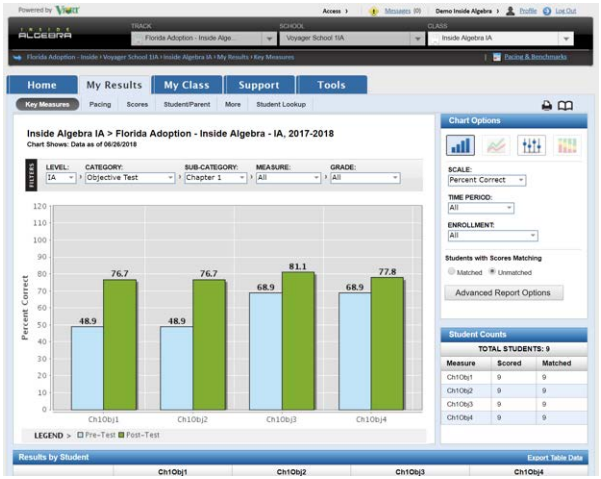
Often, the PAM is the default report when entering the key measures.

Report Examples

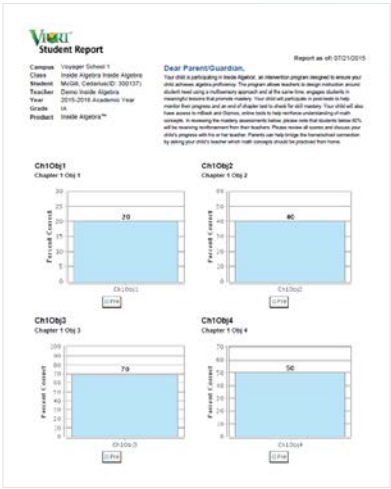


PAM Report

Chapter Test Report



Objectives Test Report



Parent Report

Student Technology & Engagement

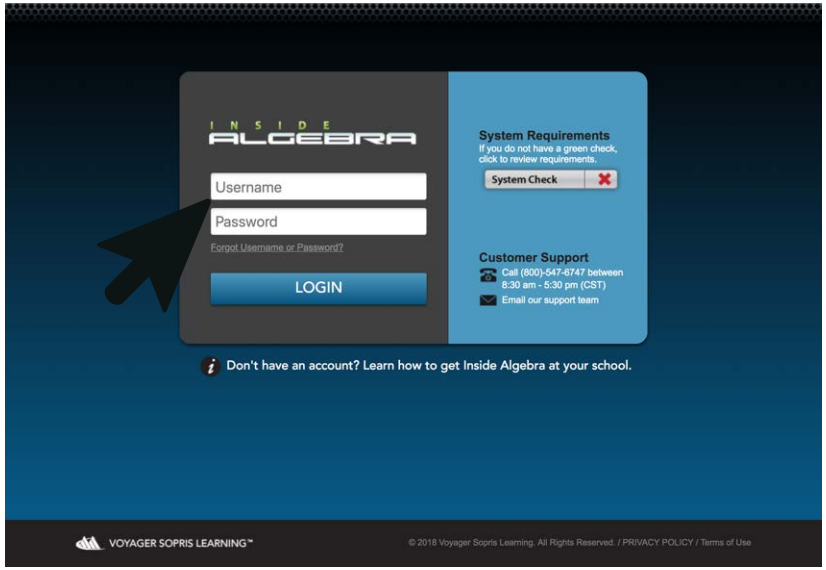
Technology plays an integral role in teaching, but it must be used with purpose to be effective. Students in *Inside Algebra* have access to robust digital resources designed to enrich instruction, extend learning, and engage students in and out of the classroom.

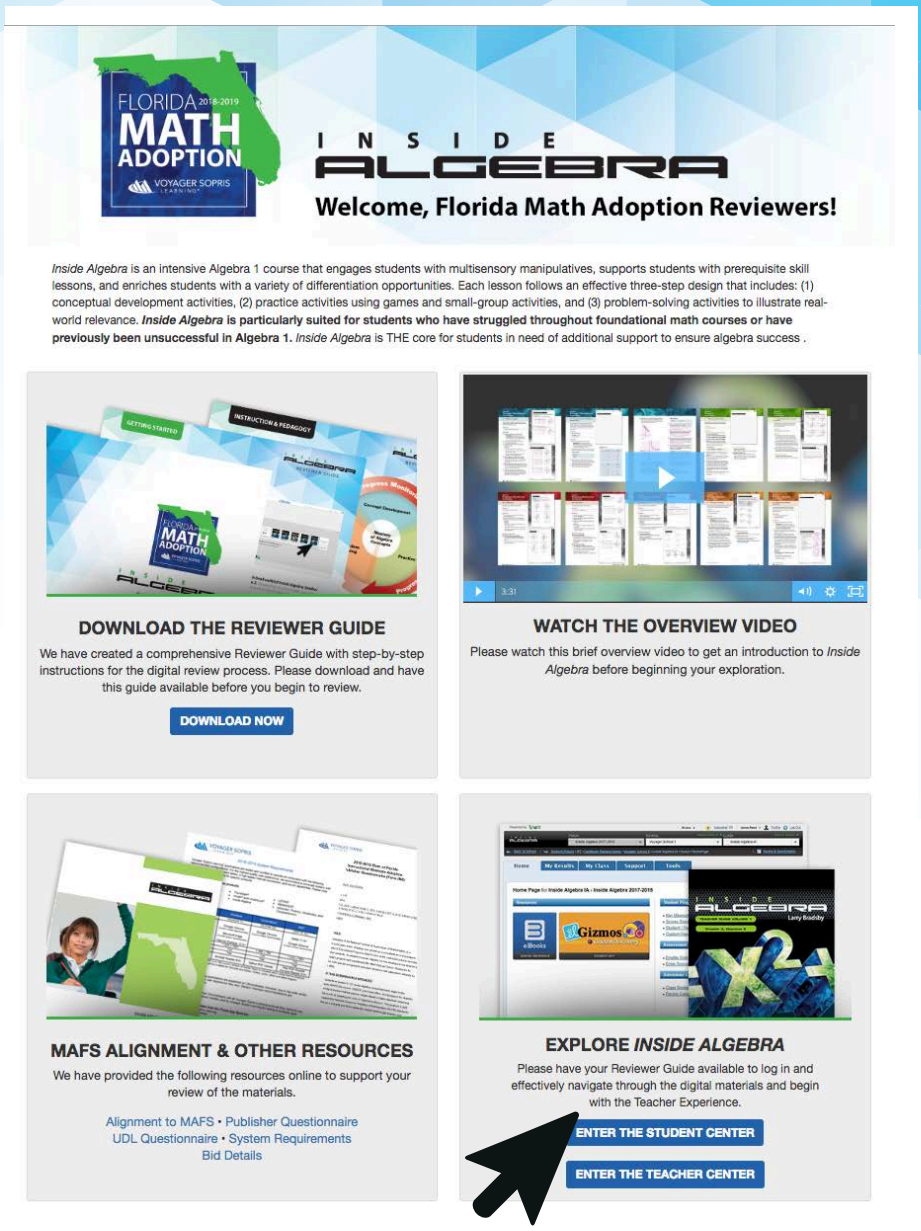
Take a look at how technology enhances the *Inside Algebra* experience wherever and whenever students need it.

Log in to the *Inside Algebra* Student Center

1. ***Click on*** "Enter the Student Center" from the Adoption Review site to begin.

2. ***Enter the username and password*** below to enter the *Inside Algebra* Student Center.
   Username: **OharaD12**
   Password: **BentTrip4**





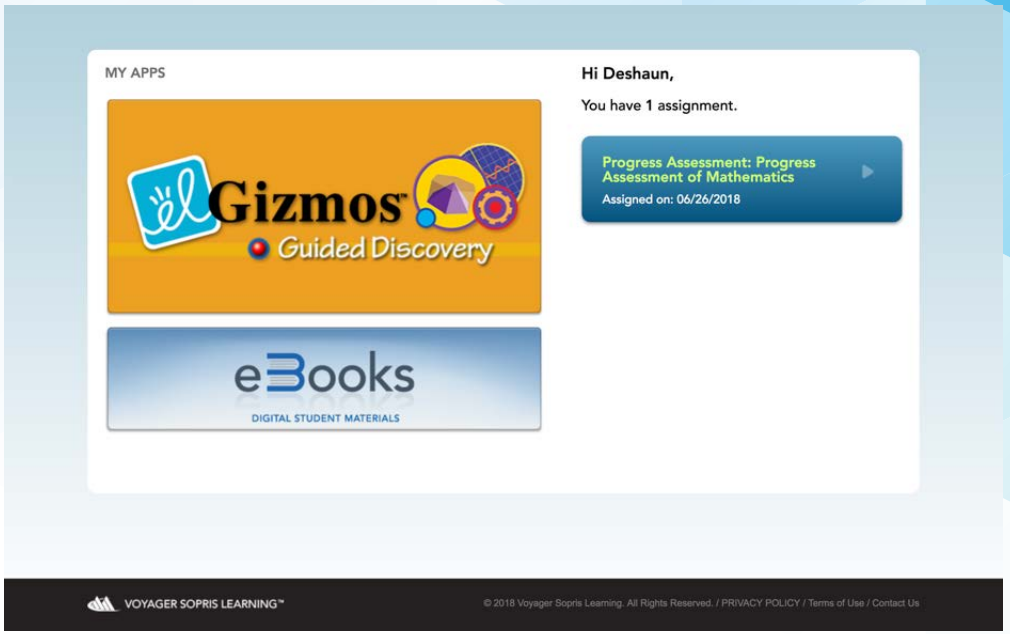
Student Center Overview

The Student Center is the landing page from which students can access all digital materials and resources used in *Inside Algebra* including:

1. Student Assignments: Any assignments or assessments a teacher has scheduled for the student will appear here.

2. *Gizmos*: Provides entry into the ExploreLearning *Gizmos* digital manipulatives technology.

3. eBooks: Includes digital versions of the print and digital-only books.



Accessing ExploreLearning *Gizmos*

Students enter the ExploreLearning *Gizmos* application through the Student Center. Inside the application, activities are listed alongside the related *Inside Algebra* chapter.

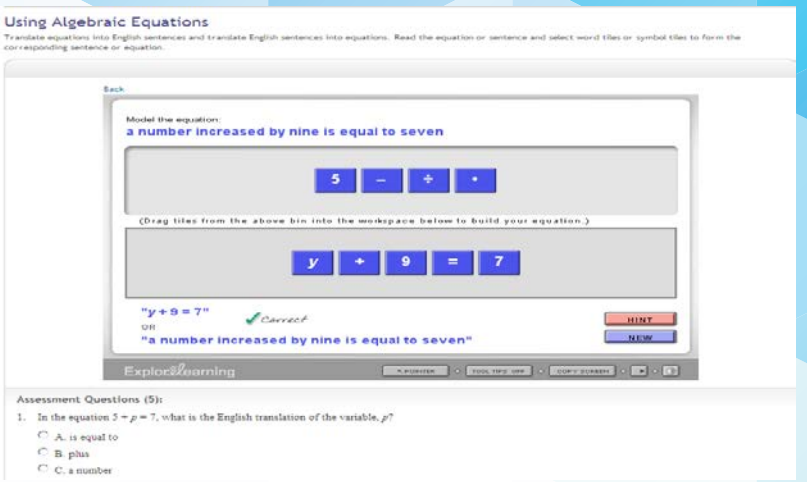
ExploreLearning *Gizmos* Digital Manipulatives

What are ExploreLearning *Gizmos*?

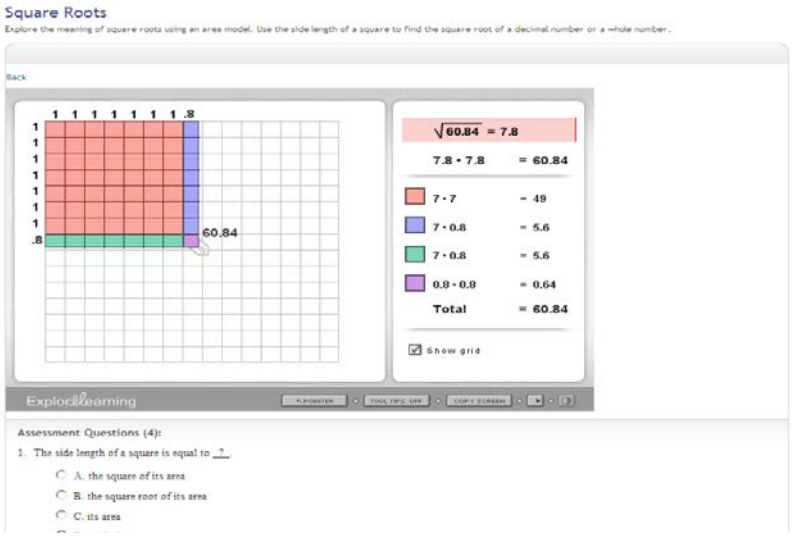
Gizmos are interactive simulations that students can manipulate to visualize and learn important concepts.

Why are ExploreLearning *Gizmos* important?

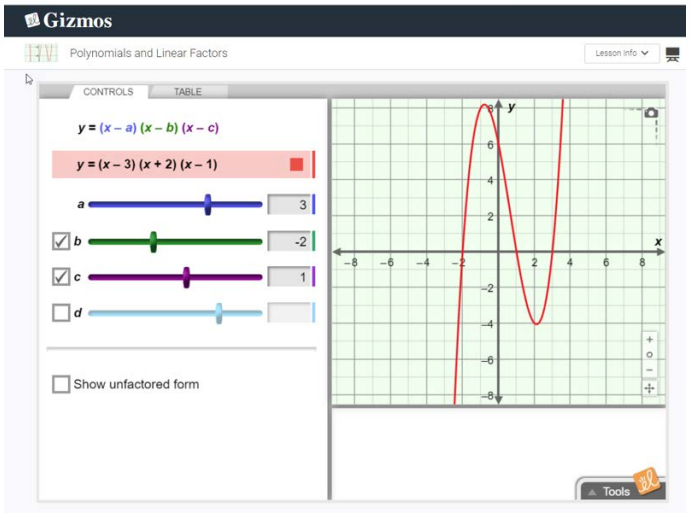
Gizmos engage and empower students to test and extend their conceptual understanding of complex algebra skills. As students work independently on fun activities, they self-discover connections between algebra and the real world.



Using Algebraic Expressions Activity



Using Algebraic Expressions Activity



Polynomials and Linear Factors Activity

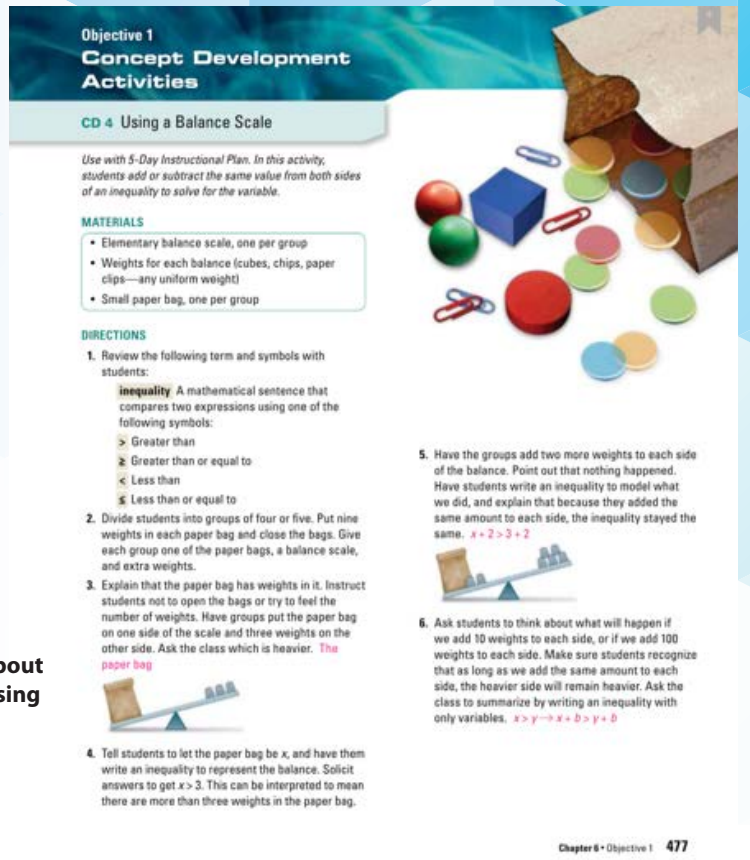
Hands-on Student Manipulatives

What are the Hands-on Manipulatives?

Each *Inside Algebra* teacher set comes with manipulatives such as algebra tiles, counters, and a variety of dice that are utilized throughout instruction. Teachers are given explicit instructions about how to incorporate hands-on manipulatives into the daily lesson.

Why are the Hands-on Manipulatives important?

The manipulatives-based activities promote student participation and action with instructional purpose. The manipulatives incorporate multisensory and tactile learning of algebra skills and concepts which provides students with an experience that can't be accomplished on paper.



Objective 1
Concept Development Activities

CD 4 Using a Balance Scale

Use with 5-Day Instructional Plan. In this activity, students add or subtract the same value from both sides of an inequality to solve for the variable.

MATERIALS

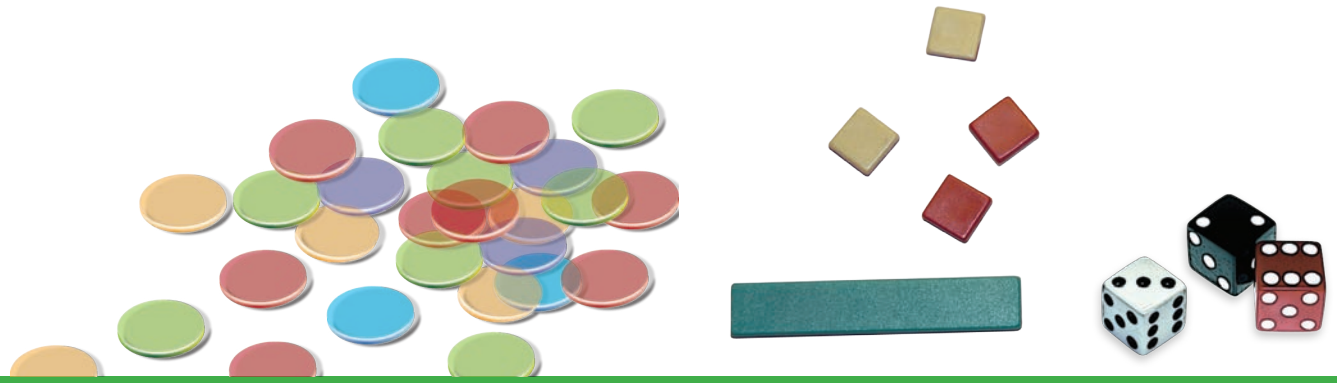
- Elementary balance scale, one per group
- Weights for each balance (cubes, chips, paper clips—any uniform weight)
- Small paper bag, one per group

DIRECTIONS

1. Review the following term and symbols with students:
   inequality A mathematical sentence that compares two expressions using one of the following symbols:
   - $>$ Greater than
   - $\geq$ Greater than or equal to
   - $<$ Less than
   - $\leq$ Less than or equal to
2. Divide students into groups of four or five. Put nine weights in each paper bag and close the bags. Give each group one of the paper bags, a balance scale, and extra weights.
3. Explain that the paper bag has weights in it. Instruct students not to open the bags or try to feel the number of weights. Have groups put the paper bag on one side of the scale and three weights on the other side. Ask the class which is heavier. The paper bag
4. Tell students to let the paper bag be x, and have them write an inequality to represent the balance. Solicit answers to get $x > 3$. This can be interpreted to mean there are more than three weights in the paper bag.
5. Have the groups add two more weights to each side of the balance. Point out that nothing happened. Have students write an inequality to model what we did, and explain that because they added the same amount to each side, the inequality stayed the same. $x + 2 > 3 + 2$
6. Ask students to think about what will happen if we add 10 weights to each side, or if we add 100 weights to each side. Make sure students recognize that as long as we add the same amount to each side, the heavier side will remain heavier. Ask the class to summarize by writing an inequality with only variables. $x > y \rightarrow x + b > y + b$

Chapter 6 • Objective 1 477

Students learn about inequalities by using a balance scale.



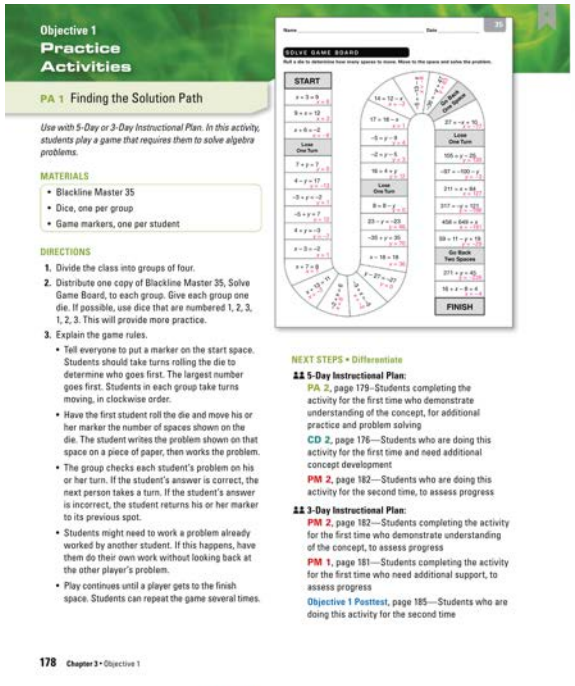
Interactive Games

What are Interactive Games?

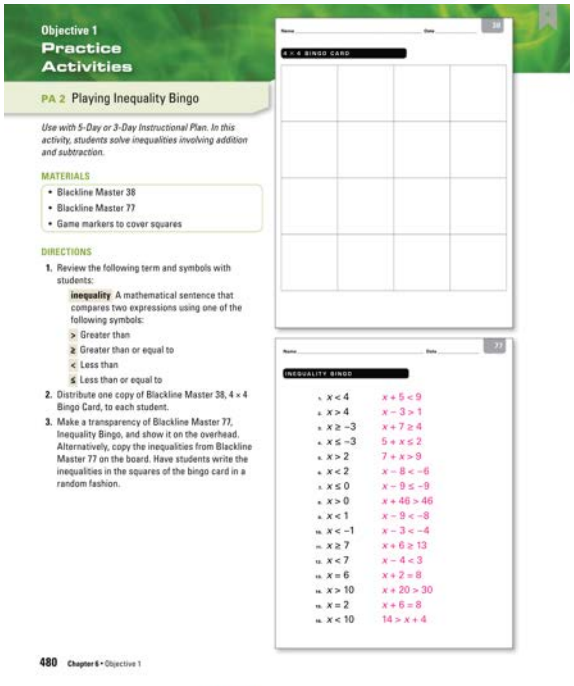
Many activities employ small-group games to practice and reinforce skills and standards.

Why are Interactive Games important?

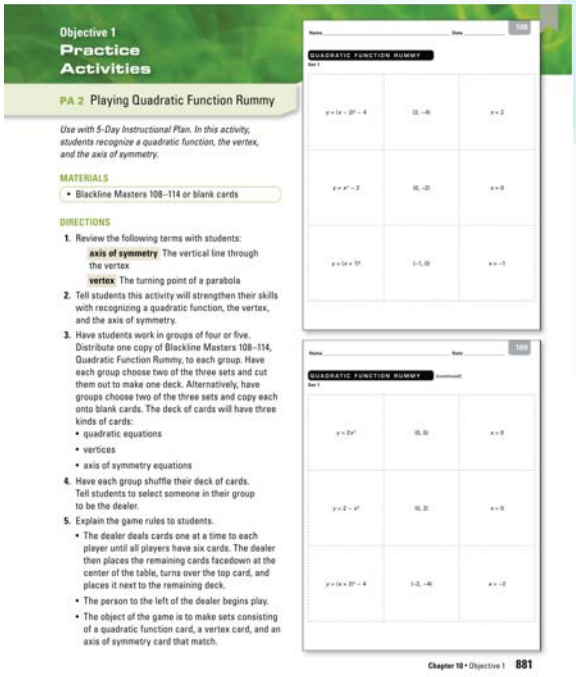
Games and competition help fuel a student's engagement and willingness to participate and collaborate with other students. Within the game activities, students support and learn from each other while gaining confidence in their algebra skills.



Find the Solution Board Game



Inequality Bingo



Quadratic Function Rummy