



Integrated CME™ Program Overview

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Examine tools for:

- Planning
- Differentiation
- Assessment

In this tutorial, you'll explore the Savvas Integrated CME™ 2013 High School Math program: Mathematics One, Mathematics Two, and Mathematics Three; or simply, the Integrated CME Project.

You'll review the program components and see how their design supports The Habits of Mind Experience.

You'll also examine the tools available to support planning, differentiation, and assessment in your classroom.

Have your program materials handy so you can follow along.



Program Components



The Integrated CME Project offers an array of print and digital components that give you flexibility in your classroom.

Whether you choose a primarily print experience, all digital, or a blend of the two, you'll find a variety of resources that will help you create a powerful learning experience for your students.



For Students

DATA CENTERS

- Worked-Out Examples
- Definitions and Theorems
- In-Class Experiments
- For You to Do
- For Discussion
- Minds in Action
- Check Your Understanding
- On Your Own
- Maintaining Your Skills

Exercises Practicing Habits of Mind

On Your Own

1. Some states make license plates using combinations of three letters followed by three numbers. That is, you can have "ABC 123" as a license plate. But not "123 ABC." Using combinations of three letters followed by three numbers, how many license plates are possible?

Check Your Understanding

1. Without using a calculator, find which of the following expressions is equal to 2^{15} . Explain.

a. $2^6 + 2^9$	b. $2^6 \cdot 2^9$	c. $(2^6)^9$	d. $(2^6)^{15}$
e. $(2^6)^2(2^9)$	f. $2^6 + 2^9$	g. $2^{11} + 2^{11}$	h. 42^6

5.06 Squares, Cubes, and Beyond—Some Basic Rules of Exponents 403

The most important material for your students is the Student Edition of the Integrated CME program. This text will help them engage in instructional activities that will result in a deep understanding of mathematics.

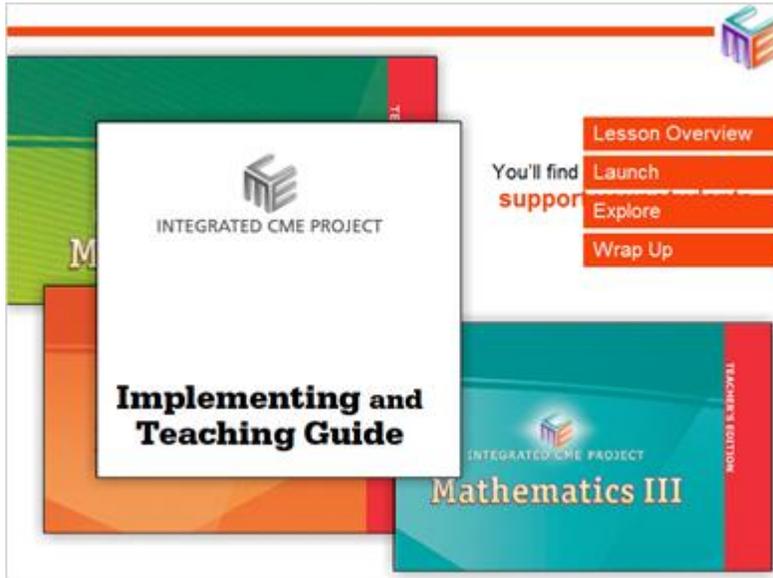
The Student Edition is available in print or online as an eText.

In either format, the text contains strategic learning elements that model mathematical discussion. These elements include worked-out examples, definitions and theorems, In-Class Experiments, For You to Do assignments, For Discussion questions, and Minds in Action.

In addition, the text provides students with daily opportunities to practice what they've learned through various exercise types such as Check Your Understanding, On Your Own, and Maintaining Your Skills.



For Teachers



The Teacher's Edition is available in print or online as an eText.

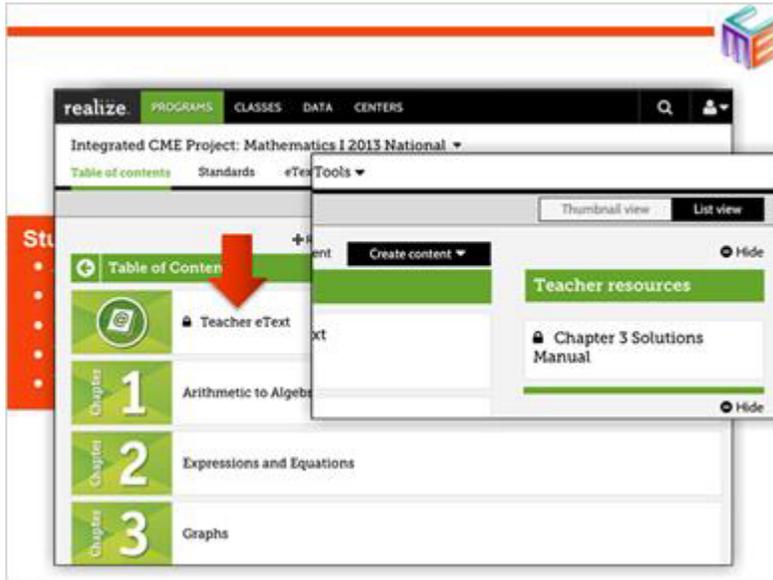
Inside, you'll find guidance on how to support your students as they explore new concepts throughout the program.

The Teacher's Edition provides support for each lesson with a Lesson Overview, Launch, Explore, and Wrap Up.

The Implementing and Teaching Guide is also a valuable one-stop resource.



SavvasRealize.com



SavvasRealize.com is the portal for both you and your students to access digital resources.

When students log in, they can access their digital texts, find online support, view assignments, take online assessments, and track progress.

When you log in, you'll find digital resources for every course, chapter, and lesson; the eText Teacher's Edition; and a library of downloadable and editable resources to use in your classroom.



Program Organization and Planning Instruction

The screenshot displays the 'realize!' platform interface for the 'Integrated CME Project: Mathematics I 2013 National'. The main content area is titled 'Table of Contents' and features five chapter cards (Chapter 1 to Chapter 5). Red callout boxes provide additional information: 'Chapters focus on large mathematical themes' points to the chapter cards; 'Consist of three or four investigations' points to a card for Chapter 1 that says 'Investigation consists of three to six lessons'; 'Chapter Review', 'Chapter Test', and 'Chapter Project' are listed as resources for each chapter. The right sidebar, 'Teacher resources', includes links to 'Additional Practice Answer Key', 'Data Analysis and Probability Workbook', 'High School Mathematical Skills Review and Practic...', 'Integrated CME Implementing and Teacher Guide', and 'Lesson Quiz and Chapter Test Answer Key'.

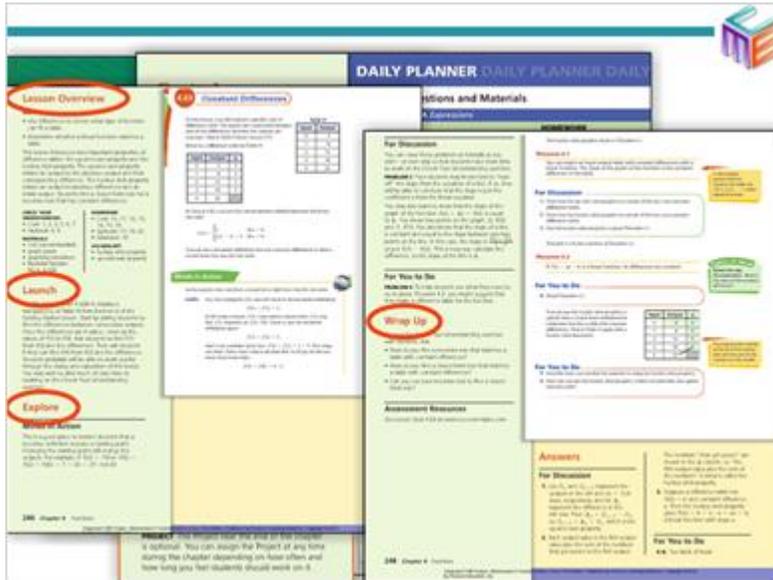
Each course in the Integrated CME Project is organized around chapters and investigations. Chapters focus on large mathematical themes and consist of three or four investigations.

Each investigation consists of three to six lessons, which further develop the chapter theme. Investigations conclude with a Mathematical Reflections exercise.

You'll also find a Chapter Review, Chapter Test, and Chapter Project that will help you assess your students' understanding of the content.



Chapters and Lessons



The Teacher's Edition has all the support you need for using the print and digital features of the program, in one convenient place.

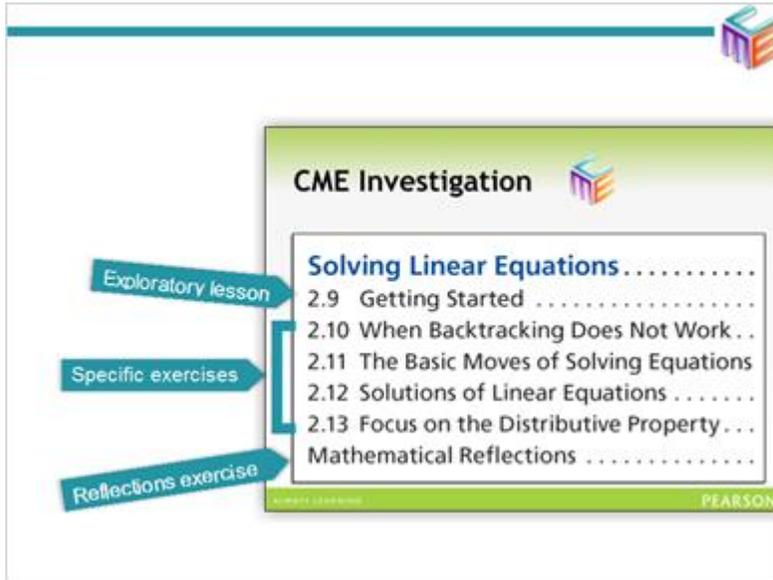
The Chapter Overview summarizes the mathematical concepts that will be covered in the investigations. The Mathematics Background provides a summary of the chapter content.

As your students work through each lesson, you'll have support at your fingertips.

The Teacher's Edition uses a two-column format. In the left column, you'll find teacher support, including Lesson Overview, Launch, Explore, and Wrap Up.



CME™ Investigations



Each CME investigation consists of three to six lessons and focuses on an important aspect of the mathematical concept for that chapter. The first lesson of each investigation is an exploratory lesson.

The remaining lessons in the investigation focus on specific exercises that further develop the investigation and chapter themes.

Investigations conclude with a Mathematical Reflections exercise.

Communicating Mathematics

A conversation among fictional students that relates their attempts to solve a problem

Dialogues model good habits of mind

For Discussion

1. In the second example, why can't the function have the same graph as the one in the first example?

2. Change the first example to have any of the following graphs.

The second example has the same graph as the first example. What is the same? What is different? What is the same? What is different?

For You to Do

1. The function has the same graph as the one in the first example. What is the same? What is different? What is the same? What is different?

Strengthening Habits of Mind

Students often do a good job of writing equations for a function. They often do a good job of writing equations for a function. They often do a good job of writing equations for a function. They often do a good job of writing equations for a function.

The Minds in Action piece of a lesson is a conversation among fictional students that relates their attempts—successful or not—to solve a problem. These dialogues model students practicing good habits of mind and become a real part of your classroom.

This section is usually followed by *For Discussion* questions or problems for the whole class to discuss.



Reflecting on the Mathematics

Mathematical Reflections
7D

In this investigation, you studied similar figures—figures with congruent corresponding angles and proportional corresponding sides. You used the AA, SAS, and SSS tests to determine whether two triangles are similar. You also used your findings to find the areas of two similar figures. These questions will help you remember what you have learned.

1. In the figure at the right, suppose $\angle D \cong \angle B$.
Do you think similar triangles are present?
Name that similar triangle you find and describe the missing similarity ratio.

2. In the figure at the right,
 $\angle ABC \cong \angle DEF$. Prove that
 $\frac{AB}{DE} = \frac{AC}{DF}$.

3. In a coordinate plane, $P(1, 2)$, $Q(3, 2)$, $R(3, 4)$,
 $S(1, 4)$, $T(1, 6)$, $U(3, 6)$, $V(3, 8)$, and $W(1, 8)$.
a. Find the area of $PQRS$.
b. Scale $PQRS$ by a k of all the vertices $STUV$,
where $STUV$ is right. Find the area of $STUV$.
c. What is the ratio of the areas of $PQRS$ and $STUV$?
d. What does it mean for two figures to be similar?
e. What are some other triangle similarity?
f. If the corresponding sides of two similar figures
is a what is the ratio of their areas?

Vocabulary and Notation
In this investigation, you learned the area and the perimeter. Make sure you understand what each one means and how to use it.

- similar figures
- the similar tag

The two different squares have similar triangles. Find their area and perimeter. Compare the area and perimeter.

Each investigation ends with a Mathematical Reflections exercise that gives students an opportunity to put ideas together and summarize the concepts they learned during the investigation.

You can use Mathematical Reflections as the basis for math notebook entries or a class wrap-up discussion.



What Makes Integrated CME™ Unique?

CME Project Student Handbook

What Makes CME Different

Welcome to the CME Project! The goal of this program is to help you develop a deep understanding of mathematics. Throughout this book, you will engage in many different activities to help you develop that deep understanding. Some of these instructional activities may be different from ones you are used to. Below is an overview of some of these elements and why they are an important part of the CME Project.

The Habits of Mind Experience

Mathematical Habits of Mind are the foundation for serious questioning, solid thinking, good problem solving, and critical analysis. These Habits of Mind are what will help you become a mathematical thinker. Throughout the CME Project, you will focus on developing and refining these Habits of Mind.

Developing Habits of Mind

Developing student skills. This feature provides you with various methods and approaches to solving problems. You will develop, test, and refine specific Habits of Mind throughout the course. These include:

- **Persistence** (how you work through problems)
- **Visualization** (how you "picture" problems)
- **Representation** (what you write down)
- **Patterning** (what you find or see)
- **Relationships** (what you find or see)

Developing good habits will help you as problems become more complicated.

HABITS OF MIND
Think: These special margin notes highlight key thinking skills and prompt you to apply your developing Habits of Mind.

Structured to develop a **deep understanding** of mathematics

Focuses on developing students' habits of mind

The Integrated CME Project is uniquely structured to develop a deep understanding of mathematics through its engaging lessons and investigations that focus on developing students' habits of mind.

Minds in Action

For You to Do
For each absolute value and argument, write z in the form $x + yi$.

- $|z| = 2$ and $\arg(z) = \frac{\pi}{6}$.
- $|z| = 4$ and $\arg(z) = 135^\circ$.

Just as you can express a point in the coordinate plane in two ways, you can express a complex number in two ways.

Rectangular Form: $x + yi$, where x and y are real numbers.

Polar Form: $r(\cos \theta + i \sin \theta)$, where r is a nonnegative real number and θ is a measurement in either degrees or radians.

Facts and Notation
To identify the complex number, the abbreviation $\text{cis } \theta$.

For Discussion
Let P_1 and P_2 be two points in the plane. If $P_1 = (x_1, y_1)$ and $P_2 = (x_2, y_2)$, it is a true statement that

$$P_1 = P_2 \Leftrightarrow x_1 = x_2 \text{ and } y_1 = y_2$$

Can you make the same statement about polar coordinates? Decide if the following statement is true: if $P_1 = (r_1, \theta_1)$ and $P_2 = (r_2, \theta_2)$

$$P_1 = P_2 \Leftrightarrow r_1 = r_2 \text{ and } \theta_1 = \theta_2$$

Consider these questions.

- Is the statement true for either direction \Leftrightarrow ?
- If either implication is not always true, modify the statement to make both implications always true.

456 Chapter 6 Complex Numbers and Polynomials

The CME approach defines Minds in Action as the discussion of mathematical ideas and how communicating about math is an effective method of learning.

Your students will explore mathematics throughout the CME Project using investigations, In-Class Experiments, Chapter Projects, and various other methods.

Your students will engage in, learn, and practice the mathematics in a variety of ways such as Worked-Out examples, For You to Do assignments, and For Discussion questions.

During each CME investigation students will formalize their understanding of the mathematics being taught.



The Habits of Mind Experience

Developing Habits of Mind

Simplify complicated problems. As equations get more complicated, you will need to do more work to find the solutions. Theorem 3.1 takes all the guesswork out of solving monic quadratic equations. You only need to replace r and s with the correct numbers and simplify.

For example, to solve $x^2 - 6x + 7 = 0$, compare it with the general example.

$$x^2 - r x + s = 0$$
$$x^2 - (-6) x + 7 = 0$$

Replace r with -6 and s with 7 in the general solutions. Then simplify.

156 Chapter 3 Quadratics and Complex Numbers

Serious questioning

Solid thinking

Good problem solving

Critical analysis

Core organizing principle of the CME Project

The Mathematical Habits of Mind are the core organizing principle of the CME Project. These Habits of Mind will help your students become mathematical thinkers by fostering serious questioning, solid thinking, good problem solving, and critical analysis skills.



Assessment

The screenshot displays the SavvasRealize interface. On the left, a 'Chapter Test Form A: Editable (Word)' is visible, containing several math problems. On the right, the 'realize' dashboard is shown, with a sidebar for 'Integrated CME Project: Mathematics I 2013 National'. The sidebar lists '8.03: Corresponding Parts' with sub-items for 'Teacher eText Lesson 8.03', 'Student eText Lesson 8.03', and three '8.02 and 8.03 Lesson Quiz' options, each with a green checkmark icon. A purple callout box is overlaid on the interface, containing the text: 'The Chapter Tests and Lesson Quizzes are editable, so you can customize them to meet your needs.'

The Integrated CME Project offers a range of formal and informal assessments. Like the rest of the program, they are available in print and online. Combine them to create an assessment plan that works for your classroom.

Look in the Teacher's Edition to find support for the following assessments:

- For You to Explore;
- Check Your Understanding;
- For You to Do;
- For Discussion;
- In-Class Experiments;
- Mathematical Reflections;
- Chapter Review; and
- Chapter Test.

Additional assessments can be found on SavvasRealize.com. They include online Chapter Test Forms A and B, online Lesson Quizzes, and Additional Practice.



Closing



In this tutorial, you learned about Pearson’s Integrated CME High School Math program: Mathematics One, Mathematics Two, and Mathematics Three.

You reviewed the program components and learned how their structure supports the development of Habits of Mind thinking skills, which are the foundational skills for solid mathematical thinking.

You saw how tools and resources embedded in the program help you plan, assess, and differentiate instruction.

Thanks for joining me for this brief introduction to the resources available to you with Pearson’s Integrated CME High School Math and SavvasRealize.com.