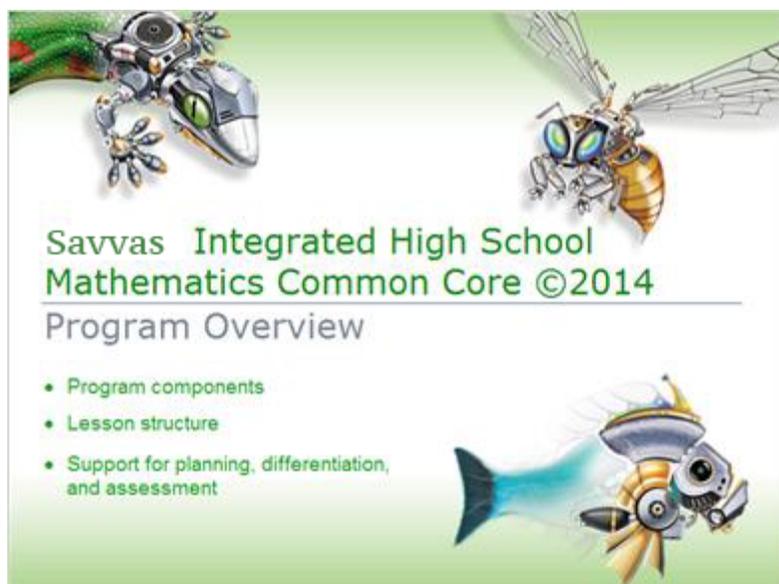


Integrated High School Math Common Core ©2014 on Realize

Introduction



In this tutorial, you'll explore the Savvas Integrated High School Mathematics program. This program follows the integrated pathway in the Common Core State Standards.

You'll review the program components and explore the five-part lesson structure in more depth.

You'll also learn how the print and digital tools available will support planning, differentiation, and assessment in your classroom.

Implementing the Common Core State Standards

The infographic features a light green background. On the left, a dark green rounded rectangle contains the text 'Eight practices of mathematically proficient students'. To the right, a vertical stack of eight dark green rounded rectangles lists the 'Mathematical Practices' from 1 to 8.

Implementing the Common Core State Standards

Eight practices of mathematically proficient students

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Savvas Integrated High School Math follows the Common Core’s integrated pathway of Mathematics I, Mathematics II, and Mathematics III. The program combines standards from all of the mathematical content strands. Every year, students work within all six conceptual categories, building stronger connections between them. Students work on more authentic problems that draw from multiple content strands at once.

Further, the Standards for Mathematical Practice are woven into each lesson. This set of standards describes eight practices, or habits of mind, of mathematically proficient students. They categorize mathematically rigorous ways of thinking and reasoning. You will see a Common Core logo whenever there is an opportunity for students to use the mathematical practices during instruction.

Refer to your *Common Core State Standards Implementation Guide* for explicit information on how the program teaches and assesses these standards. The implementation guide also provides tools and resources to support your instruction.

The Observation Protocol is one example. Use this formative assessment tool to document your students’ daily progress toward proficiency with the Standards for Mathematical Practice. You can reproduce or download the protocol from the Teacher Resources link on SavvasRealize.com.

Program Components



Savvas Integrated High School Math is a blended print and digital program. The combination of these resources supports teaching, learning, and student engagement.

Print Components

Print Components

Plan and teach your lessons

- Math background information
- Facilitating questions
- Teaching notes
- Problem solutions
- Formative assessment suggestions
- Strategies for differentiation

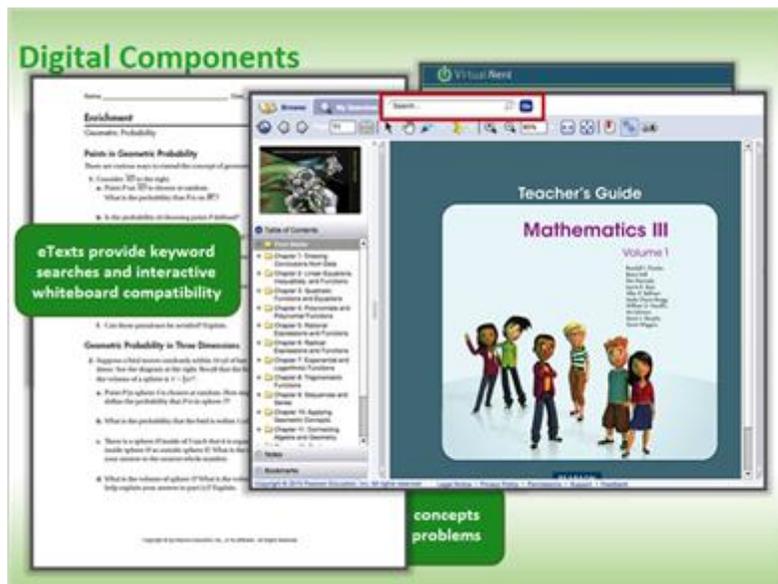
The print components consist of the write-in student worktext and the Teacher’s Guide.

The write-in student worktext is a personal learning journal with embedded resources. Students can record their work, take notes, and complete additional practice. QR codes are printed on the first page of each lesson. Students can use a QR code app to scan these codes and view Virtual Nerd math videos for online help.

The Teacher’s Guide is a comprehensive resource you can use to plan and teach your lessons. This guide includes images from the student worktext and the digital resources on Savvas Realize™. In addition, you will find math background information, facilitating questions, teaching notes, problem solutions, formative assessment suggestions, and strategies for differentiation.

The student worktext and Teacher’s Guide also contain Activity Labs, Technology Labs, and Lesson Labs. These hands-on activities are designed to strengthen student understanding and set the stage for more sophisticated math concepts.

Digital Components



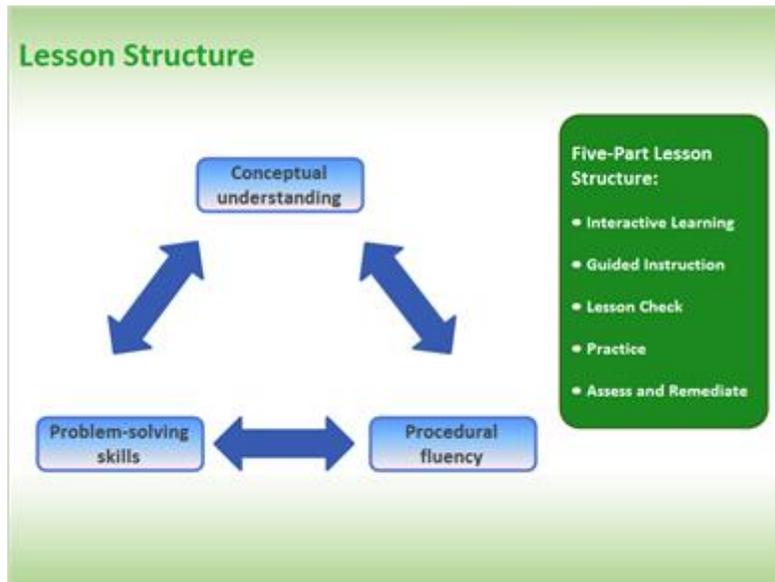
You can access the digital courseware through the Interactive Digital Path at SavvasRealize.com or through the Digital Lesson DVD. Several resources open as Microsoft Word documents and are completely editable. Don't worry if your Internet connection goes down! The Digital Lesson DVD includes offline access to all lessons and can be used with interactive whiteboards.

The Interactive Digital Path provides math tools like virtual manipulatives and animated diagrams to help students explore the math concepts required to solve problems.

You will also find a variety of teacher and student resources here, such as lesson enrichments, assessments, and Virtual Nerd tutorial videos. Many of these resources are available as PDF downloads so that you can print and distribute them to students.

The student worktext and Teacher's Guide are also available as online eTexts. The online versions provide some benefits over the print versions, like keyword searches and interactive whiteboard compatibility.

Lesson Structure



Savvas Integrated High School Math uses the five-part lesson structure shown here. The lesson structure offers rigor by combining conceptual understanding, procedural fluency, and problem-solving skills.

Interactive Learning

The image shows a screenshot of an interactive learning interface. At the top, the title "Interactive Learning" is displayed in green. Below the title, there are two main components. On the left, a "Solve It!" window is shown, which contains a problem statement about fish in a pond and a question: "What is the maximum number of fish in the pond? How do you know?". Below this is a write-in worktext area. On the right, a green box titled "Five-Part Lesson Structure:" lists the components of the lesson: "Interactive Learning", "Guided Instruction", "Classwork", "Practice", and "Assess and Reflect".

Each lesson begins with a problem-based interactive exercise called *Solve It!* Present this activity from the Interactive Digital Path as a warm-up to the lesson. Students can use the write-in worktext to record their solution paths for the *Solve It!* exercise.

The Teacher's Guide shows what the students see on the right side and the associated teacher tools and tips on the left side. For instance, you'll see questions to help probe student thinking during the activity.

Guided Instruction

The screenshot displays the 'Guided Instruction' interface. On the left, a student's view shows a 'Problem 4' titled 'Stretching and Compressing a Function'. Below the problem is a 'Got It?' question: 'The table at the right shows the function $f(x)$. What are the equations for the following functions? $f(x+3)$ and $f(x-3)$ '. A 'Take Note' box is visible, containing a 'Concept Summary: Transformations of $f(x)$ ' with the following content:

Vertical Transformations	Horizontal Transformations
Translation up k units, $k > 0$ $y = f(x) + k$	Translation right h units, $h > 0$ $y = f(x - h)$
Translation down k units, $k > 0$ $y = f(x) - k$	Translation left h units, $h > 0$ $y = f(x + h)$
Vertical stretch, $a > 1$ $y = a f(x)$	Reflections
Vertical compression, $0 < a < 1$ $y = a f(x)$	In the x -axis $y = -f(x)$
	In the y -axis $y = f(-x)$

Below the table is a 'Think' box with the question: 'How are the outputs for the two functions related?'. On the right, a teacher's view shows a 'Five-Part Lesson Structure' with the following items:

- Interactive Learning
- Guided Instruction
- Student Work
- Practice
- Student Self-Reflection

At the bottom of the interface, two green buttons are visible: 'Provide definitions or explanations of mathematical concepts' and 'Scaffold reasoning for mathematical discussions'.

Interactive Learning launches students into the next portion of the lesson, Guided Instruction. Once again, the Teacher's Guide shows the student's view on the right side and the associated teacher resources on the left side.

You'll notice that the Guided Instruction problems from the Interactive Digital Path are not provided in the student worktext. This helps students focus on the Guided Instruction instead of looking ahead.

Use the *Got It?* exercises as a quick formative assessment. Note that students work out the answers to the *Got It?* exercises in their write-in student worktexts.

The *Got It?* exercises help students apply what they've learned and generate their own examples and explanations that they can use during homework and studying.

Point out the Take Note boxes in the student worktext which provide definitions or explanations of mathematical concepts.

Finally, the Think, Plan, and Know-Need-Plan boxes scaffold reasoning for mathematical discussions.

Lesson Check

Lesson Check

Do you know HOW?
Describe the transformations of the parent function, $f(x)$.
18. $g(x) = f(x) + 4$

Do you UNDERSTAND?
17. **Compare and Contrast** The graph shows $g(x) = 4x + 3$. Graph $h(x)$ by measuring $f(x)$ up 2 units and then moving it vertically by the factor 2. Graph $h(x)$ by measuring $f(x)$ vertically by the factor 2 and then measuring it up 2 units. Compare the graphs of $g(x)$ and $h(x)$.

Five-Part Lesson Structure:

- Intentional Learning
- Guided Instruction
- Lesson Check
- Practice
- Review and Assessment

Assess procedural fluency and conceptual understanding separately

The Lesson Check includes *Do You Know HOW?* and *Do You UNDERSTAND?* exercises. These exercises assess your students' understanding of the lesson content. These problems assess procedural fluency and conceptual understanding separately so that you know where to focus if your students need more help.

Practice

Practice

Practice ← The function rule $g(x)$ after a translation up 5 units followed by a reflection in the y -axis of the graph of the function $f(x) = 4x$.

More Practice and Problem-Solving Exercises

Apply ←

20. **Think About a Real-World Situation** Suppose you are planning with a group of friends to build a roller coaster. The riding is 1.5 times as long as the time it takes to build it. The graph to the right shows the time of the ride versus the time it takes to build it. How long will you ride the roller coaster if you spend 10 hours building it? How long will you ride the roller coaster if you spend 20 hours building it? How long will you ride the roller coaster if you spend 30 hours building it? How long will you ride the roller coaster if you spend 40 hours building it? How long will you ride the roller coaster if you spend 50 hours building it?

21. A function $g(x)$ is the reflection of $f(x) = 2x^2 - 3x + 1$ across the y -axis. Write the equation for $g(x)$ and graph it. Then identify the reflection that transforms the graph of $f(x)$ to the graph of $g(x)$.

Challenge ←

Using the graphs of the functions $f(x)$ and $g(x)$ shown, sketch the graph of each transformation of $f(x)$.

22. $g(x) = f(x) + 2$ 23. $g(x) = f(x) - 3$
24. $g(x) = f(x) + 1$ 25. $g(x) = f(x) - 4$

26. Graph all of the following functions on the same viewing window. Then compare each with $f(x)$, with its graph.

a. $y = x^2 + 2$
b. $y = x^2 + 3$
c. $y = x^2 + 4$
d. $y = x^2 + 5$
e. $y = x^2 + 6$

27. Find the area under the curve of the graph of $f(x) = x^2 + 1$ on the interval $[0, 2]$. Check your answer by using a calculator.

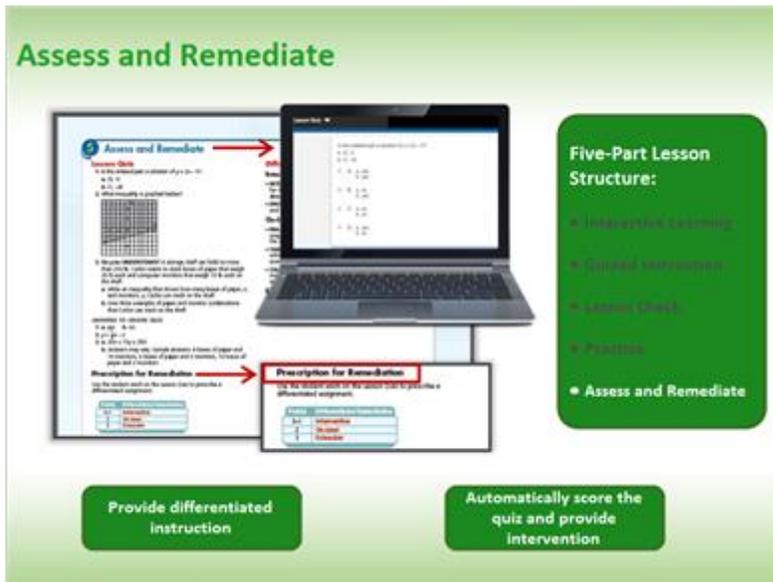
Five-Part Lesson Structure:

- Interactive Learning
- Guided Instruction
- Classwork
- Practice
- Assess and Reteach

Students can view problems in their worktexts or on Pearson Realize

In the next portion of the lesson, students practice what they have learned with the More Practice and Problem-Solving Exercises. Students can view these problems in either their worktexts or the Interactive Digital Path on Savvas Realize™. There are three categories of exercises -- practice, apply, and challenge.

Assess and Remediate



Each lesson ends with a Lesson Quiz. Use the quiz results to provide differentiated instruction as suggested in the Teacher's Guide.

Assign the Lesson Quiz through Savvas Realize™ to ease your workload. The program will automatically score the quiz and assign the appropriate intervention for each student.

Or, you have the option of printing the editable document to allow your students to use paper and pencil.

Closing

In this tutorial, you learned about the Savvas Integrated High School Mathematics program. You learned about the blended print and digital curriculum and the five-part lesson structure. You also learned how the program embeds the Common Core State Standards. Visit MySavvasTraining.com to learn more about Savvas Integrated High School Math. Thank you for joining me during this tutorial!