



Teaching a Lesson

Introduction

This guide explores the teaching resources that can help you plan for instruction and effectively implement the Savvas Integrated High School Mathematics program. It discovers how to teach a lesson and observe how the program reinforces the Common Core State Standards for Mathematics (CCSSM).

In this guide, the examples shown are from Mathematics I, but you can apply what you learn to any lesson in the course that you teach. Use your Teacher’s Guide to follow along.

Preparing to Teach

Teaching an effective lesson begins with lesson preparation. Refer to the Get Ready, Chapter Overview, and Math Background for information about the concepts in the upcoming chapter. Clarify the Big Ideas and Essential Understandings by setting learning targets with the Preparing to Teach feature.

Review the Essential Understandings to identify the Standards for Mathematical Content that the lesson explores.

Use the built-in professional development to support your students’ growth with the Standards for Mathematical Practice.

Interactive Learning

Launch the Interactive Learning phase of the lesson by introducing a Solve It! problem from the Interactive Digital Path.

The Solve It! problem connects the math concepts of the lesson to a real-world situation. Ask students to work individually or collaboratively to make sense of and solve the problem. Your students can work out their solution plans in the ample space provided in their write-in student worktexts.

Objective To identify and represent patterns that describe nonlinear functions

 **Solve It!** Write your solution to the Solve It in the space below.

Use the questions in blue and the Connect the Math suggestions in the Teacher’s Guide to probe your students’ thinking. Activate their prior knowledge and make connections between prior knowledge and new concepts.

Guided Instruction

Next, focus students' learning on the Essential Understanding in the Guided Instruction phase of the lesson.

Use the Interactive Digital Path to show and work through the Guided Instruction problems. Navigate to the various problems by clicking the problem links at the top.

Encourage your students to communicate precisely about mathematics by directing their attention to the Take Note feature. This feature presents clear explanations of key terms and concepts in many of the lessons.

Utilize the guiding questions to help students reason quantitatively and persevere in finding a workable entry point for the problem. The Think and Plan feature models thinking to represent problem situations symbolically.

Have students look for similar problem situations and recognize the structure of a mathematical solution.

The Know-Need-Plan boxes guide students to make a solution plan. Direct your students to this feature to encourage their autonomous learning. By receiving support during the problem-solving process, your students will make sense of problems and persevere in solving them.

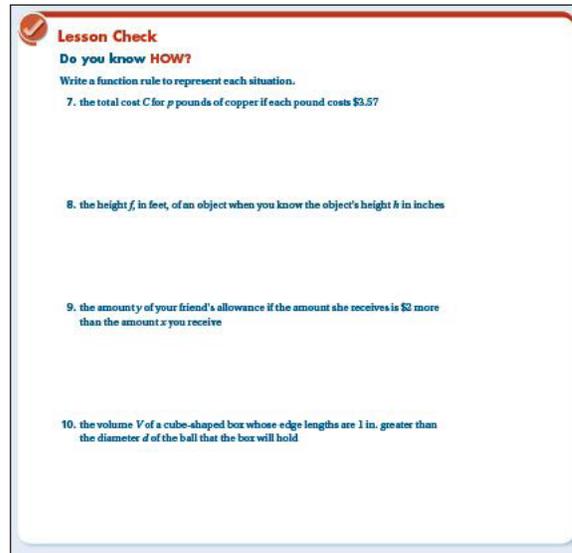
Got It?

After you have worked through an example problem, direct students to the Got It? question in their write-in student worktexts. The Got It? question offers formative assessment for each concept. Have students explain their thinking and justify their conclusions as they solve each problem. Use the Error Prevention tips to help you gauge their understanding, adjust your pacing, and catch their possible misconceptions. When your students have "got it," you are ready to move to the next phase of the lesson—the Lesson Check.

Lesson Check

Assess your students' understanding with the Lesson Check. Measure their procedural fluency with the Do You Know How? feature. Focus on their conceptual understanding and ability to apply the Standards for Mathematical Practice with the Do You Understand? feature.

Point your students to the write-in student worktext to complete these problems.



The image shows a screenshot of a 'Lesson Check' section from a student worktext. It features a red header with a pencil icon and the text 'Lesson Check'. Below this is a sub-header 'Do you know HOW?' and a prompt 'Write a function rule to represent each situation.' There are four numbered problems:

7. the total cost C for p pounds of copper if each pound costs \$3.57
8. the height f , in feet, of an object when you know the object's height h in inches
9. the amount y of your friend's allowance if the amount she receives is \$2 more than the amount x you receive
10. the volume V of a cube-shaped box whose edge lengths are 1 in. greater than the diameter d of the ball that the box will hold

Observation Protocol

Use the Observation Protocol from the *Implementing the Common Core State Standards* guide to evaluate students' progress in applying the mathematical practices.

In the Vocabulary exercises, do your students use precise language in communicating mathematical concepts?

In the Compare and Contrast exercises, can your students generalize methods or find efficient shortcuts as they focus on mathematical structures?

In the Reasoning and Writing exercises, do your students construct viable arguments and justify their conclusions?

Finally, in the Close question in the side margin, can your students connect the mathematical content back to the Essential Understandings of the lesson?

When your students demonstrate sufficient understanding through the Lesson Check, you are ready to move to the Practice phase of the lesson.

Practice

Solidify students' procedural fluency and conceptual understanding during the Practice phase. Have them complete the Practice exercises using notebook paper and organize their work with their worktexts using three-ring binders.

The exercises with red headings and the Common Core logo indicate opportunities for students to build on the Standards for Mathematical Practice. The side notes specify the problems that support the practices.

Error Analysis exercises require students to look for flaws in an argument as they critique the reasoning of others.

Exercises with blue headings are multidisciplinary problem situations. These include many science, technology, engineering, and mathematics (STEM) related situations. Identify these by the green STEM icon next to the problem.

Refine students' strategic understanding of the appropriate uses of tools with Graphing Calculator exercises.

Reinforce repeated reasoning of mathematical processes or methods with Reasoning exercises.

Help students analyze elements of a problem as they develop a solution plan with the Think About a Plan exercises. Use the related worksheet to support students' development in problem-solving strategies.

Support your students as they develop the practices with the built-in guidance in the side margin of the Teacher's Guide. This includes suggested assignments, information about the math practices, and Homework Quick Checks.

Note the specific problems in the Homework Quick Checks that you can use to check students' understanding of key skills and concepts.

The image shows a page from a math textbook with several sections:

- Answers:** A grid-in answer section with a grid and a list of answers: 6. C, 7. $y = 3x - 2$, 8. C, 9. a. Linear function, b. Nonlinear function, 10. Only the first two pairs fit this rule. The rule that fits all the pairs is $y = x^2 - 1$.
- 4 Practice:** A section with a red heading and a Common Core logo. It includes:
 - More Practice and Problem-Solving Exercises:** A section with a blue heading and a STEM icon. It contains:
 - Assignment Guide:** Lists assignments for More Practice and Problem-Solving Exercises.
 - Mathematical Practices:** Lists practices 1 through 6.
 - Exercise 16:** A problem about a sphere's volume.
 - Homework Quick Check:** A section to check understanding of key skills and concepts.
 - Answers:** A list of answers for the exercises.
 - More Practice and Problem-Solving Exercises:** A section with a blue heading and a STEM icon. It contains:
 - Apply:** A section with a blue heading and a STEM icon. It contains:
 - 11. Writing:** A problem about a sphere's volume.
 - 12. Open-Ended:** A problem about a sphere's volume.
 - 13. Think About a Plan:** A problem about a sphere's volume.
 - 14. Reasoning:** A problem about a sphere's volume.
 - 15. Reasoning:** A problem about a sphere's volume.
 - 16. Nonlinear:** A problem about a sphere's volume.

Assess and Remediate

Each lesson ends with a Lesson Quiz and options for differentiated instruction. Access the print version of the quiz in the Teacher's Guide or the digital version via SuccessNet®.

Find the print version on the Lesson Resources pages. Note the personalized prescriptions based on your students' Lesson Quiz results. These prescriptions enable you to make data-driven decisions about differentiated assignments for your students.

Assign the quiz digitally through your online course. The results are automatically scored and the appropriate intervention is assigned.

Other options for assessment and remediation include the enrichment forms, the reteaching resources, and the English language learners vocabulary support.

Learn more about assessment options by watching the Assessment Support tutorial.

5 Assess and Remediate

Lesson Quiz

1. Do you UNDERSTAND? The surface area of a cube is a function of the side length of the cube as shown in the table. Is the function linear or nonlinear?

Side length (in.) x	Surface Area (in. ²) y
1	6
2	24
3	54
4	96

2. The ordered pairs (1, 2), (2, 3), (3, 10), (4, 17), and (5, 26) represent a function. What is a rule that could represent this function?

3. Tell whether the function shown by the table below is linear or nonlinear.

x	y
0	-3
1	2
2	7
3	12
4	17

ADDRESSES TO LESSON QUIZ

1. nonlinear
2. $y = x^2 + 1$
3. linear

Prescription for Remediation

Use the student work on the Lesson Quiz to prescribe a differentiated assignment.

Points	Differentiated Remediation
0-1	Intervention
2	On-Level
3	Extension

Online Assessment

Assign the Lesson Quiz in Success Tracker on SuccessNet.com. Success Tracker will automatically score the quiz and assign appropriate intervention or enrichment to each student based on the results. The compiled data appear in three different reports for instant analysis of whole class and individual student performance.

Differentiated Remediation

Intervention

- **RETEACHING** (2 pages) Provides reteaching and practice exercises for the key lesson concepts. Use with struggling students or absent students.
- **ENGLISH LANGUAGE LEARNER SUPPORT** Helps students develop and reinforce mathematical vocabulary and key concepts.

On-Level

- **PRACTICE** (2 pages) Provides extra practice for each lesson. For simpler practice exercises, use the Form K Practice pages found in the Online Teacher Resources.
- **THINK ABOUT A PLAN** Helps students develop specific problem-solving skills and strategies by providing scaffolded guiding questions.
- **STANDARDIZED TEST PREP** Focuses on all major exercises, all major question types, and helps students prepare for the high-stakes assessment.

Extension

- **ENRICHMENT** Provides students with interesting problems and activities that extend the concepts of the lesson.
- **ACTIVITIES, GAMES, AND PUZZLES** Worksheets that can be used for concept development, enrichment, and for fun!

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Review

This guide explained the teaching resources that can help you plan for instruction and effectively implement the Savvas Integrated High School Mathematics program. It also explored how to teach a lesson and observe how the program reinforces the CCSSM.