

## enVisionMATH 2015 California - Program Overview

### *Introduction*

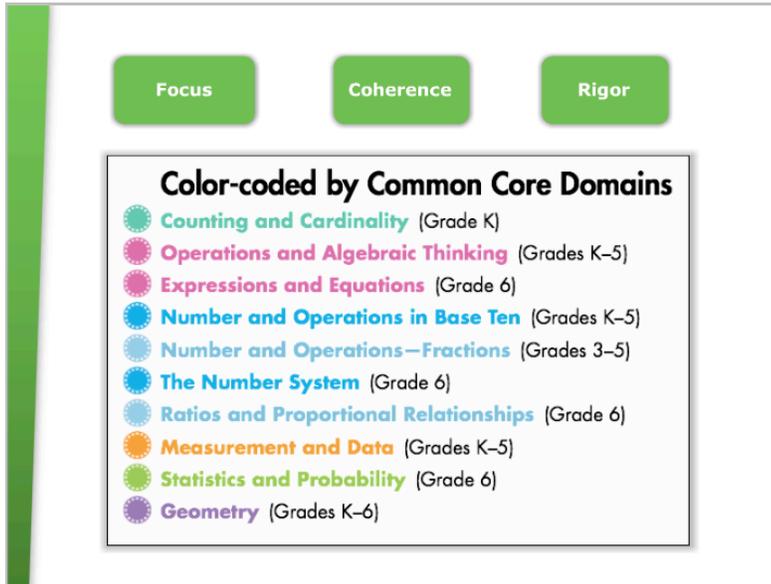


Today we'll explore the enVisionMATH<sup>®</sup> California Common Core program.

We'll investigate the foundations and organization of the program and how they support the California Common Core State Standards for Mathematics.

We'll also explore the print and digital resources for teachers and students, and learn about program assessment tools and opportunities for differentiated instruction.

## Foundations



enVisionMATH<sup>®</sup> California Common Core is a comprehensive mathematics curriculum that is organized to promote Focus on Common Core topics. Topics develop Coherence across grade levels, and lay the foundation for Rigor with a balance of conceptual understanding and procedural fluency. These foundations lead to the ability to solve real-world math problems.

The program extends focus and coherence by making explicit the Big Ideas in mathematics that students need to know and by showing how those ideas are related.

A Big Idea in mathematics is a statement of an idea that is central to learning mathematics; it links numerous smaller ideas-called Essential Understandings-into a coherent whole.

To convey the power of Big Ideas to students, they are translated into student-friendly Essential Questions presented at the beginning of each topic. Essential Questions focus students' attention on what they will be learning throughout a topic and what they will be able to do and understand at the end of a topic.

## Focus

**Standards for Mathematical Content**

**Critical Area** Extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations.

**Domain** Number and Operations in Base Ten

**Cluster** Understand the place value system.

**Standards** 5.NF.A.1, 5.NF.A.3a, 5.NF.A.3b

**Topic 1 Place Value**

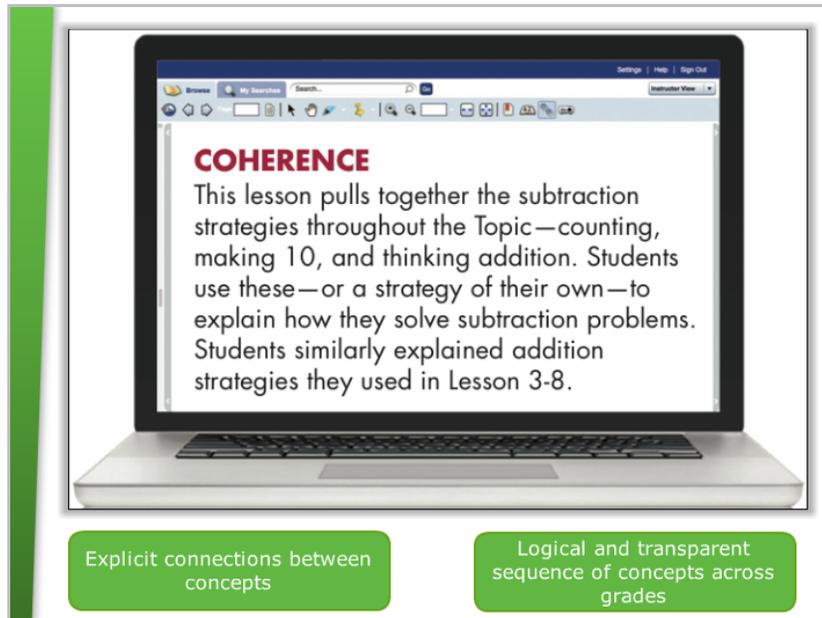
Planning	
Mathematical Practices Handbook	2A
Math Background	2B
Universal Access	2C
The Language of Math	2D
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Topic Opener	2F
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Lessons	
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**Focused set of standards**

**Greater depth of understanding and proficiency**

A focused set of standards narrows the scope of concepts taught. With greater focus in the curriculum, students study fewer topics helping them to achieve greater depth of understanding and proficiency.

## Coherence



A coherent set of standards connects the learning within and across the grades so that students are more easily able to build on and expand their knowledge.

A coherent curriculum presents each new topic as an extension of previous learning, not as a new learning event.

The curriculum makes explicit connections between seemingly unrelated concepts within a grade and presents a logical and transparent sequence of concepts across grades.

## Rigor

The laptop screen shows a math lesson interface. On the left, a word problem states: "Hunter has some pencils. He gives 6 of them to Mongo. Now Hunter has 5 pencils. How many pencils did Hunter start with?" Below this is a "Do You Understand?" section with a "Show Me!" prompt: "Sue has 8 crayons. She gets 8 more crayons. How many crayons..." On the right, a "Write an equation to show the problem." section shows the equation  $5 + 6 = 11$  and a visual of 11 pencils. Below that, a "You can think addition to subtract." section shows the equation  $11 - 6 = 5$  and a visual of 11 pencils. A "Guided Practice" section asks to "Write an equation to match the story and solve. Draw a picture to help." with a problem: "1. Cal rides his bike on Monday. He rides 8 miles on Tuesday..."

Below the laptop, two green callout boxes contain the following text:

- Curriculum fosters understanding of important concepts
- Students apply concepts and skills in real-world situations

A rigorous set of standards emphasizes conceptual understanding, procedural skills and fluency, and application of concepts in problem-solving situations. A rigorous curriculum goes beyond procedural knowledge and fosters student understanding of important concepts from different perspectives. Students in all grade levels will have ample opportunities to apply these important concepts and skills in real-world situations.

## Support for Mathematical Practices

**Math Practices and Problem Solving Handbook**  
**Problem Solving Guide**

Math practices can help you solve problems.

**Make Sense of the Problem Reason**

- What do I need to find?
- What given information can I use?
- How are the quantities related?

**Think About Similar Problems**

- Have I solved problems like this before?

**Persevere in Solving the Problem Model with Math**

- How can I use the math I know?
- How can I show the problem?
- Is there a pattern I can use?

**Use Appropriate Tools**

- What math tools could I use?
- How can I use those tools?

**Check the Answer Make Sense of the Answer**

- Is my answer reasonable?

**Check for Precision**

- Did I check my work?
- Is my answer clear?
- Is my explanation clear?

**Some Ways to Show Problems**

- Draw a Picture
- Draw a Number Line
- Write an Equation

**Some Math Tools**

- Objects
- Technology
- Paper and Pencil

Math Practices and Problem Solving Handbook F29

Learn Apply Connect

enVisionMATH<sup>®</sup> California Common Core provides numerous instructional opportunities for you to help students develop proficiency in the math practices.

To get students off to a good start, use the Math Practices and Problem Solving Handbook pages in the student edition along with the supporting animations early in the year. The handbook and animations will help students learn, apply, and connect the math practices.

## Scaffolded Instruction

The screenshot shows a lesson page for 'Draw a Picture and Write an Equation'. The page is divided into sections: 'Problem Solving', 'Guided Practice', and 'Independent Practice'. A green box on the right side of the page highlights the 'Foundation of problem solving' section, which includes a diagram of kite string and garden string. Another green box highlights the 'Quantitative and abstract reasoning' section, which includes a list of 'Applying Math Practices' questions.

**Problem Solving**

**Draw a Picture and Write an Equation**

The string on Josie's kite is  $12\frac{1}{2}$  feet long. She wants to use the string to tie up plants in the garden. How long is each garden string if the kite string is cut into 5 pieces?

Kite string  $12\frac{1}{2}$  feet

Garden string

**Guided Practice\***

**Do you know HOW?**

Solve. Draw a picture and write an equation.

1. If a 6 pack of yogurt contains  $3\frac{1}{2}$  ounces, how much yogurt is in each container of yogurt?  
See margin.

**Do you UNDERSTAND?**

2. **Reasonableness** How do you know your answer for Exercise 1 is reasonable? See margin.

3. **Be Precise** Write a real-world problem that you can solve by using division of a unit fraction by a whole number. Answers will vary.

**Independent Practice**

4. Danielle has a board that is  $41\frac{1}{2}$  inches long. It is 5 times as long as the board Gina has. How long is Gina's board? Write an equation, then solve.  
See margin.

Danielle  $41\frac{1}{2}$  inches

Gina  $\times$  5 times as much

For 5 through 7, draw a picture, write an equation, then solve.

5. Phil has  $\frac{1}{2}$  pound of berries to put equally in to 4 tarts. How many pounds of berries will there be in each tart?

**Applying Math Practices**

- What am I asked to find?
- What else can I try?
- How are quantities related?
- How can I explain my work?
- How can I use math to model the problem?
- Can I use tools to help?
- Is my work precise?
- Why does this work?
- How can I generalize?

enVisionMATH<sup>®</sup> California Common Core was built on a foundation of problem solving. From the Problem-Based Interactive Learning to the Problem Solving exercises, each lesson offers students multiple opportunities to develop both quantitative and abstract reasoning.

In the Visual Learning portion of the lesson, students can see how to represent a given situation numerically or algebraically. They will have opportunities later in the lesson to reason abstractly as they work to represent situations symbolically.

In the *Do You Understand?* part of the Guided Practice, students gain experiences with quantitative reasoning as they consider the meaning of different parts of an expression or equation.

## Problem-Based Interactive Learning

The image shows a worksheet titled "Problem-Based Interactive Learning" with a "Quick Check 1-1" box. The worksheet contains four math problems:

- Which of the following names the value of the 5s in 5,507?
  - A. 50 and 5
  - B. 500 and 5
  - C. 5,000 and 50
  - D. 5,000 and 500
- In the number 3,345, the 3 in the thousands place is \_\_\_\_\_ times greater than the 3 in the hundreds place.
  - A. 3
  - B. 10
  - C. 100
  - D. 1000
- Which of the following shows a number with digits having the value of 60 and 67?
  - A. 9066
  - B. 9660
  - C. 6690
  - D. 9606
- Writing to Explain** What is the relationship between the values of the 5s in the number 9,904?
 

\_\_\_\_\_

\_\_\_\_\_

Two green callout boxes are overlaid on the right side of the worksheet:

- Justify or explain solutions**
- Construct explanations for processes**

In enVisionMATH<sup>®</sup> California Common Core, the Problem-Based Interactive Learning, or PBIL, affords students opportunities to share with classmates their thinking about problems, their solution methods, and their reasoning about the solutions.

*Reasoning* exercises found throughout the program specifically call for students to justify or explain their solutions.

*Writing to Explain* exercises help students develop foundational critical-reasoning skills by having them construct explanations for processes.

## Model with Mathematics

**Another Way**  
Draw Jenny's garden as part of a square yard. Each small rectangle represents  $\frac{1}{12}$  of a square yard.  
Jenny's garden is  $\frac{6}{12} = \frac{1}{2}$  square yard.

**Another Way**  
Multiply to find the area of the garden. The known side length and side width can be multiplied to find the area.  
 $A = l \times w$   
 $l$  is the length and  $w$  is the width.  
 $A = \frac{2}{3} \times \frac{3}{2} = \frac{6}{6} = 1$   
The area of Jenny's garden is  $\frac{1}{2}$  square yard.

Tables

Graphs

Equations

In 11–14, find the area of each rectangle. Give your answer in simplest form.

11.  $\frac{3}{4} \times \frac{2}{3} = \frac{6}{12} = \frac{1}{2}$  sq. in.

12.  $\frac{3}{4} \times \frac{2}{3} = \frac{6}{12} = \frac{1}{2}$  sq. in.

13. Find the area of a square with side length  $\frac{1}{6}$  foot.  $\frac{1}{36}$  sq. ft

14. Find the area of a rectangle with side lengths  $\frac{1}{3}$  foot and 2 feet.  $\frac{2}{3}$  sq. ft

**Problem Solving** MATHEMATICAL PRACTICES

15. **Use Tools** Yuka is placing blue and white tile in her bathroom. She made a diagram of the layout showing the area of both colors.  
Which describes the area of the blue tile?  
A  $\frac{3}{4} \times \frac{2}{3}$     B  $\frac{2}{3} \times \frac{3}{4}$     C Both A and B    D none of these

16. **Construct Arguments** Daniel and Paul are working on a multiplication problem. Daniel claims that  $\frac{2}{3}$  in.  $\times$   $\frac{3}{4}$  in. =  $\frac{3}{12}$  sq. in. Paul claims that the correct answer is  $\frac{3}{12}$  sq. in. Who is correct? Explain your answer.  
Daniel is correct.

17. **Reasonableness** Emilio needs to know how much area to clear to place his son's square sandbox. Each side of the sandbox is  $\frac{3}{4}$  yard. Find the area that the sandbox will cover.  $\frac{9}{16}$  sq. yd

18. **Persevere** Margaret purchased a door mat measuring  $\frac{1}{2}$  yard by  $\frac{2}{3}$  yard for her back door step. If the step measures  $\frac{1}{3}$  square yard, will the mat fit? Explain. Answers will vary. Sample answer: The mat is  $\frac{1}{2} \times \frac{2}{3} = \frac{1}{3}$  sq. yd. The mat is too large to cover the step.

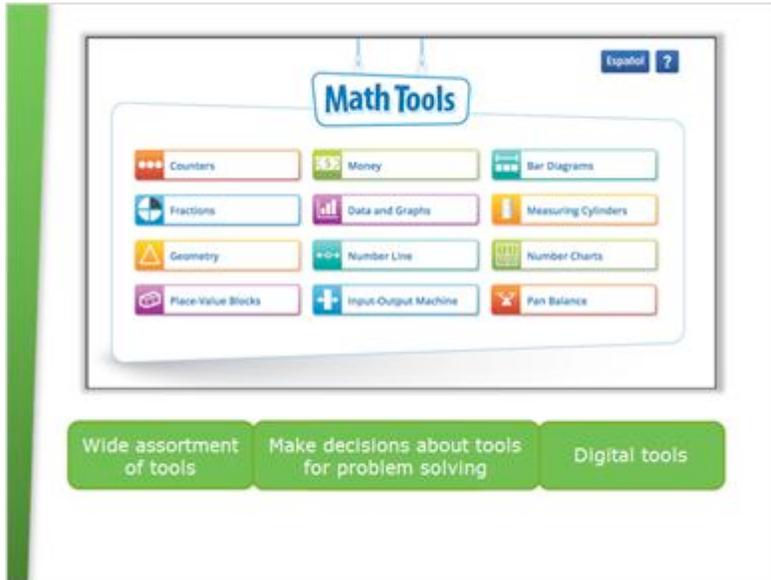
Lesson 11-5 265

Students in enVisionMATH<sup>®</sup> California Common Core are introduced to mathematical modeling in the early grades.

They first use manipulatives to model addition and subtraction situations.

In later grades, students expand their modeling skills to include representations such as tables and graphs, as well as equations.

## Mathematical Tools



Students become fluent in the use of a wide assortment of tools ranging from physical objects, including manipulatives, rulers, protractors, and pencil and paper, to digital tools, such as the online Math Tools shown here.

As students become more familiar with the tools available to them, they are able to begin making decisions about which tools are most helpful in solving a given problem.

## Terms, Concepts, and Practices

The screenshot shows a lesson page for 'Multiplying and Dividing Fractions and Mixed Numbers'. On the left, three green callout boxes highlight key practices: 'Provide explicit definitions or explanations', 'Provide clear explanations of terms, concepts, or processes', and 'Use appropriate units of measure'. The main content includes a 'Review What You Know' section with a 'Vocabulary' box, a 'Do you UNDERSTAND?' section with three numbered questions (Reasonableness, Be Precise, and Writing to Explain), and a 'Think About the Structure' section. A Chicago skyline image is also present.

Key terms and concepts are highlighted in each lesson. In the *Do You Understand?* feature, students revisit these key terms or concepts and provide explicit definitions or explanations.

For the *Writing to Explain* and *Think About the Structure* exercises, students are asked to use precise language to provide clear explanations of terms, concepts, or processes.

Students are reminded to use appropriate units of measure in their solutions as well as labels for diagrams, graphs, and other kinds of displays.

## Structure

The image consists of two main parts. On the left, there are three green rounded rectangular boxes stacked vertically, each containing text. On the right, there is a page from a math workbook titled 'Problem Solving' with several numbered problems. One problem, number 30, is highlighted with a white box.

**Left Side Text Boxes:**

- Develop a sense of patterning with visual and physical objects
- Look for structure in numerical operations
- Formalize their thinking about the structure of operations

**Right Side Math Page:**

**Problem Solving**

The first 1 is in the hundreds place. Its value is 100. The second 1 is in the tens place. Its value is 10. How is 100 related to 10?

100 10

100 is ten times as much as 10. The first 1 is worth ten times as much as the second 1.

10 tens 1 ten

When two digits next to each other in a number are the same, the digit on the left is always ten times as great as the digit on the right.

**Problem Solving**

**23. Reason** What can you say about the 1s in the number 43,321?

**24. Critique Reasoning** Ali says that in the number 5,555, all the digits have the same value. Is he correct? Explain why or why not.

**25. Writing to Explain** Sal says he is thinking of a 3-digit number in which all of the digits are the same. He says that the value of the digit in the tens place is 80. How can you find the value of the digit on the left and the right of the tens place?

**26.** Which of the following names the value of the 4s in the number 4,444?  
A 4,000, 400, 40 C 4,000, 40, 4  
B 4,000, 400, 4 D 400, 40, 4

**27.** The number 6,644 contains two sets of digits in which one digit is ten times as great as the other. What are the values of the digits in each set?

**28.** In the number 6,316, which places contain digits where one digit is ten times as great as the other?

**30. Look for Patterns** In the number 222, what is the relationship between the 2s? Think about the value of each 2 to help you find your answer.

**31. Critique Reasoning** Yin says that in the number 4,346, one 4 is 10 times as great as the other 4. Is he correct? Explain why or why not.

**32.** Describe the relationship between the values of the two 7s in the number 737.

Students are encouraged to look for structure as they develop their solutions. In the *Look for a Pattern* problem-solving lessons, students in the early grades develop a sense of patterning with visual and physical objects.

As students mature in their mathematical thinking, they look for structure in numerical operations by focusing on place value and properties of operations.

This focus on looking for and recognizing structure enables students to draw from patterns as they formalize their thinking about the structure of operations.

## Next-Generation Assessments

**Close/Assess and Differentiate**

**Close Essential Understanding** Products of Teachers can be represented as units of rectangles. In the lesson you learned how to multiply fractions on a number line.

**Performance Task** Use the Quick Check to assess students' understanding.

**Quick Check** Use the Quick Check to assess students' understanding.

**Essential answer:** The student adequately explains how to find the area of the red square area. There is an error in calculation, and the answer is incorrect.

**Next-generation assessments measure students' progress against the standards and college and career readiness.**

**Measures students' progress against the standards and college and career readiness.**

**Provides timely information to parents and teachers.**

Points	Prescription
0-2	Intervention
3	On-Level
4	Advanced

The adoption and implementation of the Common Core State Standards for Mathematics is an important step to improving students' math skills. enVisionMATH<sup>®</sup> California Common Core uses next-generation assessments to measure students' progress against these new standards.

These assessments consist of Performance Tasks and an End-of-Year Adaptive Assessment, which measures students' progress against the standards and provides a common measure of college and career readiness. The End-of-Year Adaptive Assessment uses new technologies so that parents and teachers have timely information about student performance.

## Performance Tasks

1 to 2 Performance Tasks

Step 1  
**Performance Task**

ASSESSMENT

Mr. and Mrs. Sverdlow are planning a vacation for themselves and their two children.

The Sverdlows don't want to spend more than \$2,000 on this vacation. Some of the information they are using to plan their trip is shown below. Use the information provided to solve 1 through 7 below.

Family Vacation Expenses

- A round-trip airline ticket costs \$229
- The hotel costs \$300 a night.
- Amusement Park Tickets:  
Adult: \$42      Child: \$29
- Water Park Tickets:  
Adult: \$25      Child: \$15

1. Estimate the cost of airline tickets for everyone in the family. Will the actual cost be more or less than your estimate? How can you tell?
2. How would you use breaking apart to find the actual cost of the tickets?
3. How much will it cost the family to stay in a hotel for 3 nights, assuming they can all stay together in one room?
4. How much would it cost for the two children to go to the water park?
5. The entire family wants to go to the amusement park. What would that cost? Use compensation to solve.
6. The Sverdlow children are each saving their allowance so they will have spending money on their vacation. If they each save \$4 per week for 20 weeks, how much will they save all together?

Students complete one to two Performance Tasks during the last 12 weeks of the school year. These tasks measure their ability to integrate knowledge and skills from the Common Core State Standards for Mathematics.

## End-of-Year Adaptive Assessment



The End-of-Year Adaptive Assessment is administered near the end of the school year. This assessment is delivered online and provides automatic scoring and reporting for an accurate reflection of student achievement.

## Differentiated Instruction

The image shows a screenshot of the enVisionMATH interface. On the left, there is a vertical green bar with three green buttons labeled "Adaptations", "Accommodations", and "Differentiated instruction". To the right, the main interface displays a "Leveled Assignment" page. The page is divided into sections: "Math Tools and Math Games", "Math Tools and Math Games" (with a link to a specific activity), and "Leveled Assignment" (with items 1-4, 7 and items 2-5, 7). The "Leveled Assignment" section includes a "Math Talk" box with a grid and a "Find each difference" section with multiple-choice questions. Below this, there is a "Higher Order Thinking" section with a "Check students' work" box and a "Sample strategies are given" section. The page also features a "Personalize" button and a "Help" button.

enVisionMATH<sup>®</sup> California Common Core provides adaptations, accommodations, and differentiated instruction for all learners.

Each lesson ends with a Quick Check Master. The Quick Check always includes a constructed-response item that asks students to explain concepts presented.

A scoring rubric is provided for the constructed-response item. The rubric includes three levels of performance and samples of student work for each performance level. Teachers can assign students the appropriate level of instruction based on their scores. Quick Checks are also available as interactive assessments online.

## Center Activities

The image shows two versions of a differentiated instruction activity for the lesson 'Representing Numbers'. The left version is titled 'Differentiated Instruction' and is divided into three sections: 'Practice', 'On-Level', and 'Center Activity'. The 'On-Level' section is titled 'Display Digits' and contains a grid for students to write the number 4,183 in expanded and word forms. A green callout box states 'Intervention activity provides remediation'. The right version is titled 'Intervention' and is titled 'Representing Numbers'. It includes a timer icon for 10-15 minutes and a list of materials: 'Place-value blocks for Teaching Tools 8 and 9'. It contains three bullet points: 1) Guide students through using place-value blocks to write 4,183 in expanded and word forms. 2) Have students start with the ones blocks and proceed to add blocks from right to left. Have students ask themselves, 'Which multiple of 10 comes next, and how many do I need?' 3) Remind students to keep track of the number in each place value when writing different forms. A green callout box at the bottom of the left page says 'Two versions same'.

The Center Activities also provide differentiated instruction for students. Each lesson has two versions of the same activity; one for on-level students and one for advanced students.

For students in need of remediation, the intervention activity revisits the lesson concepts.

## Conclusion

A focused and coherent mathematics curriculum makes possible in-depth student understanding, which in turn leads to higher student achievement. When students know that mathematics is grounded on Big Ideas, not just skills, and that those ideas are connected, they will better understand mathematics.

enVisionMATH<sup>®</sup> California Common Core embraces and enhances the focus and coherence vision of the Common Core State Standards, leading to higher achievement for all students.

Thank you for taking the time to learn about the enVisionMATH<sup>®</sup> California Common Core program.