

enVision Integrated Mathematics Teaching a Lesson

Introduction



Hi, enVision teachers!

Let's talk about the **enVision** Integrated Mathematics instructional design and 4-step lesson structure.



Instructional Design

TOPIC PLAN	NER			
Lesson	New Vocabulary	Objective	Essential Understanding	
1-1 2DAYS Solving Linear Equations	none	Explain that each step in solving a linear equation follows from the equality in the previous step. Create and solve linear equations with one variable using the properties of equality.	Linear equations can be used to solve mathematical and real-world problems. You can solve linear equations by using the properties of equality.	Develop co connection
1-2 EDATS Solving Equations with a Variable on Both Sides	• identity	 Use the properties of equality to solve linear equations with a variable on both sides. Identify whether linear equations have one solution, infinitely many solutions, or no solution. 	The properties of equality are used to solve equations that have variables on each side. If an equation is true for all values of x , then it has infinitely many solutions; if it is not true for any value of x , then it has no solutions.	
1-3 ZDAYS Literal Equations and Formulas	• formula, literal equation	 Rearrange formulas and equations to highlight a quantity of interest by isolating the variable using the same reasoning used to solve equations. Use formulas and equations to solve problems. 	Literal equations are equations with two or more variables. They are solved by rewriting the equation to highlight the variable of interest.	
1-4 20A/S Solving Inequalities in One Variable	none	 Create and solve inequalities in one variable. Interpret solutions to inequalities within the context. Identify inequalities as true or false based on the number of solutions. 	The solution to an inequality in one variable is solved by using the properties of inequalities.	

Each course is organized into broad conceptual topics to help students develop content connections.

Each topic includes an **enVision** STEM Project, a set of lessons, and a Mathematical Modeling in 3 Acts lesson.

These projects and lessons build students' conceptual understanding, procedural fluency, and application and modeling skills.

The Teacher's Edition provides instructional support to help you integrate both the Mathematical Modeling in 3 Acts tasks and the **enVision** STEM Projects into each topic.



Planning a Lesson

	Lesson Overview	🥺 Vocabulary Builder
FOCUS	Objective Students will be able to: ✓ Explain that each step in solving a linear equation follows from the equality in the previous step. ✓ Create and solve linear equations with one variable using the properties of equality. Essential Understanding Linear equations can be used to solve mathematical and real-world problems. You can solve linear equations by using the properties of equality. Previously in earlier courses, students: • Applied the properties of operations to find sums and	REVIEW VOCABULARY English Spanish • equivalent equations ecuaciones equivalentes • inverse operations operaciones inversas • isolate aislar • solution of an equation solución de una ecuación • variable variable VOCABULARY ACTIVITY Review vocabulary from previous courses by showing students a simple equation such as x + 2 = 8. Ask students to explain the process for solving the equation using all five of the review vocabulary terms. As needed provide students with the following sentence stems. To solve the equation x + 2 = 8
COHERENCE	products of rational numbers. In this lesson, students: • Create and solve simple linear equations with one variable and solve by writing equivalent equations using the properties of equality.	[wariable] x by using the [inverse operation] of addition [Subtract 2] from each side of the equation. The original equation $x + 2 = 8$ and the equation $x + 2 = 2 = 8 - 2$ are [equivalent equations]. The [solution of the equation] is $x = 6$.
	Later in this topic students will: • Create and use properties of equality to solve linear equations with a variable on each side of the equation. This lesson emphasizes a blend of conceptual understanding and application.	Students can do their in-class work for the lesson in Pearson Realize
RIGOR	 Students understand that—when solving an equation— all the subsequent steps are equations that have the same solution. Constant rate problems can be modeled as linear equations in one variable. 	* Second and an Andreas Market Market Second

In your Teacher's Edition, check out the Lesson Overview. This page contains objectives; essential understandings; and an overview of the focus, coherence, and rigor of the lesson.

There's also a Vocabulary Builder activity and a Mathematics Overview with information about the content standards and math practices.



Quick Tip

		Thumbnail view Listview
Solving	Equations and Inequalities	
	Carl Teacher's Edition eText: Topic 1	Create Content
	Add to Playlist 🗅 Info	• My Content
	Interactive Student Edition: Realize Reader: Topic 1	
	Add to Playlist 🗅 Info	
	Topic 1: Readiness Assessment	
9	Assign Add to Playlist 🗅 Info T Teacher resources of More -	
STFM	Topic 1: enVision STEM Project	
LESSON	Solving Linear Equations	
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4-Step Lessons



enVision Integrated Mathematics combines problem-based learning and explicit visual instruction to help students develop deep conceptual understanding. Each lesson has four steps: Explore, Understand & Apply, Practice & Problem Solving, and Assess & Differentiate. Let's learn more about each step.



Step 1: Explore

1-1	MODEL & DISCUSS	i
Solving Linear Equations	Joshua is going kayaking with a group during one of his vacation days. In his vacation planning, he budgeted \$50 for a kayak rental.	
PersonRealize.com	KAYAK RENTALS Rental Rates ingle kayak ingle sea kayak double kayak S25	Step 1: Explore
2	A. How can Joshua determine the number of hours he can rent a kayak for himself? Describe two different options.	Problem-based
<	B. Joshua found out that there is a \$25 nonrefundable equipment fee in addition to the hourly rates. How does this requirement change the mathematics of the situation?	learning task
	C. Look for Relationships How do the processes you used for parts A and B differ? How are they the same?	
2 ESSENTIAL QUESTION CONCEPTUAL UNDERSTANDING	How do you create equations and use them to solve problems?	Connect prior knowledge to new concepts
VOCABULARY Remember, a variable is an unknown quantity, or a quantity that can var. An equation is a mathematical statement with two expressions set equal to each other. A solution of an equation is a value for the variable that makes the equation a true statement.	What is the value of x in the equation What is the value of x in the equation Method 1 Method 1 Method 2 2(x + 4) - 24 = 96 Multiply each side 2(x + 4) - 24 = 96 2(x + 4) - 24 = 96 2(x + 4) = 40 ach side 2(x + 4) = 120 2(x + 4) = 40 ach side 2(x + 4) = 120 2(x + 4) = 120 x + 4 = 60 x = 56	
	Each solving method yields the same solution. Is one method better than the other? Look at how the expression on the left side of the original equation is built up from x. $x \rightarrow x + 4 \rightarrow 2(x + 4) \rightarrow \frac{2(x + 4)}{3} \rightarrow \frac{2(x + 4)}{3} - 8$ Notice how Method 2 applies these steps in reverse to isolate x. This is often a good strategy and can lead to simpler solution methods.	
	Try It! 1. Solve the equation $4 + \frac{3x-1}{2} = 9$. Explain the reasons why you chose your solution method.	

In Step 1: Explore, launch your lesson with a problem-based learning task to connect students' prior knowledge to new concepts.

Students can solve the problem in math journals, in the optional *Student Companion*, or online via Savvas Realize™.

Facilitate mathematical discourse before, during, and after students work on the problem. Encourage your students to discuss their methods and determine which student work you want to share with the whole class. As students discuss different strategies, they'll make connections and practice explaining their reasoning.

Finally, pose the Habits of Mind question to encourage students to reflect on their learning.





Quick Tip

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	It is item to be a field of the trie of the item to be a field of the item to be a field of the trie of the item to be a field of the trie of the item to be a field of t	 Explore & Reason: Students explore a mathematical concept and use reasoning to draw conclusions. Model & Discuss: Students review a scenario that requires them to apply and analyze the mathematical modeling process. Critique & Explain: Students evaluate examples of mathematical reasoning and critique the reasoning. 	



Step 2: Understand & Apply



In Step 2, make the mathematics explicit with enhanced direct instruction that connects to Step 1.

Introduce the Essential Question, and then use a variety of examples to engage students in classroom conversations about multiple representations.

Display the Examples and Additional Examples on Savvas Realize to use the embedded interactivities powered by Desmos.

Check for understanding by posing the Try It! and Habits of Mind questions to your students.

Use the Concept Summary to reinforce the main math concepts in the lesson. Use the Do You Understand? and Do You Know How? as formative assessments to check for conceptual understanding and procedural fluency.



Quick Tip





Step 3: Practice & Problem Solving

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In Step 3, have students work through a variety of practice exercises. The problems include conceptual understanding exercises and skills practice as well as application exercises and assessment practice.

You can use the Assignment Guide and Item Analysis in the Teacher's Edition to help you decide the type and number of problems to assign.

Alternatively, you can assign Practice and Problem Solving online, powered by MathXL for School[®]. These exercises are auto-scored and have built-in learning aids that students can use for support.

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Step 4: Assess & Differentiate

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C LESSO	N QUIZ				
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printable	copy from P	PearsonRe	alize.com. The Lesson Quiz is also	 What is the value of x i x = 1 	n the equation $4x - 2(x + 3) = 8$?
available	In the Assess	sment Kes	ources book.	(B) x = 2.5 (C) x = 3.5	
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Finally, in Step 4, check for understanding with the Lesson Quiz. Use the Item Analysis and Rtl information to help you prescribe differentiated assignments for your students based on the results.

The online Lesson Quiz is auto-scored, and you can choose to have Savvas Realize automatically assign intervention or enrichment based on students' results.

Differentiated resources are available for students who need reteaching, additional practice, or enrichment.

On Savvas Realize, you'll also find differentiated assignments, digital assignments as PDFs, options powered by MathXL for School, and video tutorials powered by Virtual Nerd.



Closing



Thanks for learning more about teaching lessons with enVision Integrated Mathematics!

Keep digging in to MySavvasTraining.com to learn more about **enVision** and Savvas Realize.