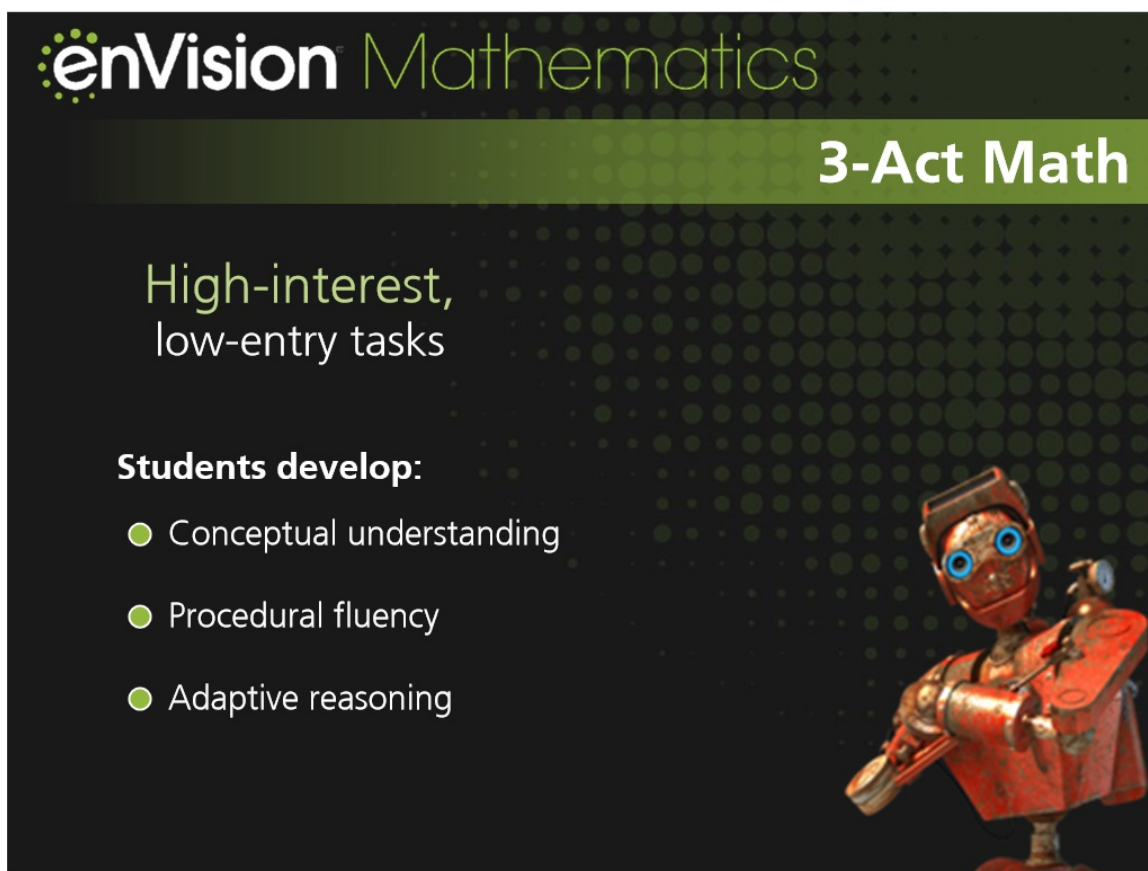


enVision Mathematics © 2021 Grades 6–8

3-Act Math

Introduction



The graphic features the enVision Mathematics logo at the top left, with 'enVision' in white and 'Mathematics' in green. To the right, '3-Act Math' is written in white on a green background. Below this, the text 'High-interest, low-entry tasks' is displayed in white. Underneath, 'Students develop:' is followed by a bulleted list of three items: 'Conceptual understanding', 'Procedural fluency', and 'Adaptive reasoning', each preceded by a green circle. On the right side of the graphic is a small, rusty, orange robot with blue eyes and a red tool.

Hi, **enVision** teachers! I'm glad you want to learn about 3-Act Math lessons.

These high-interest, low-entry tasks help all students develop conceptual understanding, procedural fluency, and adaptive reasoning as they test out different models and conjectures.

Let's dig in so you can see how these lessons help students learn to use mathematical models to solve real-world problems.

Quick Tip



QUICK
TIP

Students gain experience with mathematical modeling in each 3-Act Math lesson as they complete these steps:

- Pose a mathematical question about a situation
- Identify information needed to solve a problem
- Develop a model that represents the situation
- Use the model to propose a solution
- Test the appropriateness of the model

Planning and Pacing

The screenshot shows the Savvas Realize interface for enVision Mathematics 2021 Grade 7. The top navigation bar includes Home, Browse, Classes, and My Library. The main content area is titled 'enVision Mathematics 2021 Grade 7'. On the left, there is a sidebar for 'Topic 1: Rational Number Operations' with a 'Show Distance Learning Resources' toggle set to 'Off'. The sidebar lists various resources like 'Teacher's Edition: Grade 7 Topic 1', 'Topic 1: Professional Development Video', and 'Topic 1 Readiness Assessment'. The main content area displays 'Topic 1: 3-Act Mathematical Modeling: Win Some, Lose Some' with a description '3-Act Mathematical Modeling Lesson'. Below the description, there are two resource cards: 'Teacher's Edition: Grade 7, Topic 1: 3-Act Math Modeling' and 'Interactive Student Edition: Grade 7, Topic 1: 3-Act Math Modeling'. The second card is highlighted with a red box and has an 'Assign' button. Below these cards is a section titled 'Mathematical Modeling' with three lessons listed, each with an 'Assign' button: 'Topic 1: Math Modeling: Win Some, Lose Some, Act 1', 'Topic 1: Math Modeling: Win Some, Lose Some, Act 2', and 'Topic 1: Math Modeling: Win Some, Lose Some, Act 3'. A book cover for 'enVision Mathematics' is visible in the top right corner of the main content area.

A 3-Act Math lesson is an important part of each topic. Teach the 3-Act Math task as the lesson for the day.

The 3-Act Math lesson can be at the beginning, in the middle, or at the end of a topic, depending on when students will have learned the relevant content. Find pacing details in the Topic Planners in your Teacher's Edition.

Use the Topic Opener to preview and plan for the lesson. Use the 3-Act Math Preview page in the Student's Edition to generate student interest at the beginning of the topic.

When teaching the lesson, ask students to record their ideas at each step. Students can write in their Student Editions or record their ideas digitally in the Interactive Student Edition Realize Reader on Savvas Realize.

Act 1: The Hook

Act 1: The Hook

- Play the Act 1 video on Savvas Realize
- Give students time to brainstorm questions
- Discuss students' questions
- Reveal the Main Question
- Give students time to make predictions
- Record student predictions

The screenshot shows a digital interface for a 3-Act Math lesson. At the top, it says "3-Act Mathematical Modeling" and "ACT 1 The Hook". On the left, there is a video player with the title "Win Some, Lose Some". To the right of the video, there are instructions for the teacher and a list of questions for students. The "Main Question" asks, "Who will win the game? What is the final score?". Below that, the "Ask about Predictions" section lists several questions for students to discuss, such as "Why do you think your prediction is the answer to the Main Question?" and "How many of you agree with that prediction?".

In Act 1: The Hook, play the Act 1 video. The video presents a problem situation and provides just enough information to get students thinking and talking.

Give students time to brainstorm possible questions they have about the Act 1 video.

Have students share some of their questions, and then reveal the Main Question. Give students time to predict answers to the Main Question. Finally, ask them to share their ideas and record their predictions for the whole class to see.

Act 2: The Model

Act 2: The Model

- Ask students to identify the information they need
- Reveal the information using the Act 2 images or video
- Have students discuss the information
- Give students time to individually develop a model and answer to the Main Question
- Have students share and discuss a variety of strategies, models, and solutions

3-Act Mathematical Modeling *continued*

ACT 2 The Model

Identify Important Info
Have students complete Question 5.
Q: What information would be helpful to solve the problem?
[Sample answer: How the game is scored, whether this is the last round.]
Q: How could you get that information?
Q: Why do you need that information?

Reveal the Information
Reveal the information provided below using the online interactivity. Have students record information in Question 5.
Points awarded for correct answer
Points deducted for incorrect answer
Other contestant has opportunity to answer
Dominic starts with 70 points
Aubrey starts with -40 points

Develop a Model
For Question 6, students might select pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, digital software, or other grade-appropriate tools to solve the problem.
As students answer Questions 7 and 8, look for ways students describe the possible final scores.
Q: What would happen if both contestants get the final question wrong? [Sample answer: Dominic would win by a score of 20 to -40.]

Use the Model to Propose a Solution
After students answer Questions 7 and 8, facilitate a discussion about solution methods. If revealed, project the possible student solutions (shown below).

Possible Student Solutions

Calvin's Work

Aubrey Dominic

$-40 + 50 = 10$

Aubrey can't beat Dominic even if she gets the last question right.

Calvin uses a number line to represent the situation. He considers how one player can use strategy to win.

Lena's Work

	Aubrey	Dominic
Correct answer	40	20
Incorrect answer	-10	20
Incorrect answer	-20	20

I think Dominic will win. If he doesn't answer, he automatically wins.

Lena makes a table to represent possible final scores for each contestant. She analyzes the table to decide who is more likely to win.

HOME 1 | 72 | 3-Act Mathematical Modeling

In Act 2: The Model, ask students to identify information they need to answer the Main Question.

After you collect students' ideas, reveal the information in Act 2 on Savvas Realize. Ask students to discuss whether this information matches their expectations and predictions.

Then ask students to work individually to develop a model and solution to the Main Question. Encourage them to use any model to arrive at a solution that makes sense to them.

Have students share and discuss their strategies. Make sure to discuss a variety of different models and solutions. You can project sample student work shown in the Teacher's Edition.

Act 3: The Solution

Act 3: The Solution

- Reveal an answer to the Main Question
- Give students time to reflect, analyze, explain, and/or revise their models
- Assign the Sequel as classwork or homework

The screenshot shows a video player interface for 'ACT 3: The Solution and Sequel'. The video content is split into two panels. The left panel shows a person celebrating, and the right panel shows a person thinking. Below the video player, there are three sections of text: 'Use the Video to Reveal the Answer', 'Reflect on Thinking', and 'Pose the Sequel'. The 'Use the Video to Reveal the Answer' section includes a 'Main Question Answer' and 'Validate Conclusions' with two questions. The 'Reflect on Thinking' section includes 'Reason Quantitatively' and 'Pose the Sequel' with a 'Context Arguments' section and a question. The 'Pose the Sequel' section includes a question about a final round. At the bottom, there is a footer: 'TEORC | 73-74 | 3-Act Mathematical Modeling'.

In Act 3: The Solution, play the video to reveal an answer to the Main Question.

Give students time to reflect, analyze, and explain differences between their answers and the actual solution. Lead a discussion to help students develop the math practices, and give students time to revise their models or work on the Sequel.

Quick Tip



QUICK
TIP

For more information, read the article, *3-ACT MATH Tasks: Authentic Engagement with Mathematical Ideas* by **enVision** author Zachary Champagne. The article is available for download on the Getting Started tab of Savvas Realize.

Closing



Thanks for learning more about 3-Act Math lessons. These lessons help students learn mathematical modeling skills that they'll use throughout their lives!

Keep digging in to My Savvas Training to learn more about **enVision** Mathematics and Savvas Realize.