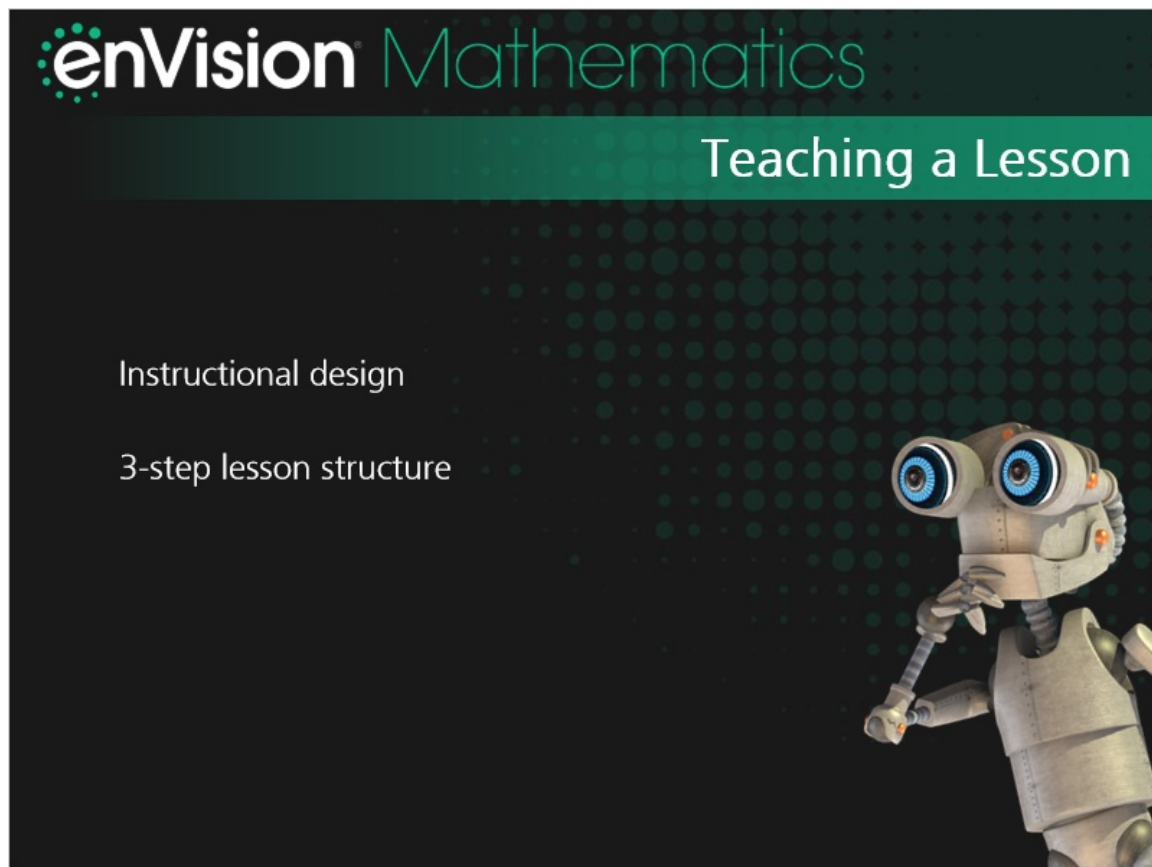


# enVision Mathematics © 2020

## Teaching a Lesson

### *Introduction*



Hi, **enVision** teachers!

I'm glad you want to learn more about teaching an **enVision** Mathematics lesson. Let's look at the instructional design of the program and explore the 3-step lesson structure.

## Instructional Design

**GRADE 3 CONTENTS** (continued)

In Topics 1–2, students are introduced to multiplication and division. They use patterns to solve multiplication facts.

**TOPIC 1 OVERVIEW**

Planner.....	1A
Math Background: Focus.....	1C
Math Background: Coherence.....	1D
Math Background: Rigor.....	1E
Math Practices.....	1F
Effective Teaching Practices.....	1F
Differentiated Instruction.....	1G
Build Mathematical Literacy.....	1H

**TOPIC 1**  
**Understand Multiplication and Division of Whole Numbers**

Topic Overview.....	1A
enVision® STEM Project.....	1
Review What You Know.....	2
Vocabulary Cards and Activity.....	2
Pick a Project.....	3
3-ACT MATH: What's the Point?.....	4

**1-1** Relate Multiplication and Addition.....5A

**1-2** Multiplication on the Number Line.....9A

**1-3** Arrays and Properties.....13A

**1-4** Division: How Many in Each Group?.....17A

**1-5** Division: How Many Equal Groups?.....21A

**3-ACT MATH: What's the Point?** (3-5)  
The 3-ACT MATH on page 4 can be used any time after Lesson 1-5.

**1-6** PROBLEM SOLVING Use Appropriate Tools.....25A

Fluency Review Activity.....	29
Vocabulary Review.....	30
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Topic Assessment.....	33–34
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**enVision Mathematics** topics are designed to help students develop content connections. Each topic contains lessons, projects, and activities that are connected by a common focus.

At the start of a topic, students choose a project that gives them an opportunity to apply math concepts they'll learn throughout the topic. Students can complete their Pick a Projects as part of Step 3 of selected lessons.

In odd-numbered topics, 3-Act Math tasks invite students to use mathematical models to solve real-world problems by applying concepts they're learning.

The 3-step lessons are listed here, but don't forget to check out the Topic Planner as well to help you plan each topic.

## Quick Tip



Each topic also includes Today's Challenge. Use these five problems, one per day, at any point during the topic. The problems activate students' prior knowledge and use the same data set each day while gradually becoming more challenging.

## 3-Step Lessons

- 3-step lesson structure
- Conceptual understanding
- Procedural fluency
- Application skills



**enVision Mathematics** uses a 3-step lesson structure to help your students build deep conceptual understanding, develop procedural fluency, and practice application skills.

Review the Lesson Overview for all of the important planning information to help you get ready for the day's lesson.

## Step 1: Problem-Based Learning

# Step 1: Problem-Based Learning

Solve & Share

Students discuss and share solution strategies

Classroom conversations help students build conceptual understanding

Use SCOUT for formative assessment

**BEFORE** WHOLE CLASS

- 1. Introduce the Solve & Share Problem**  
Give 20 two-color counters (or Teaching Tool 9) to each student pair if needed.
- 2. Check for Understanding of the Problem**  
What tools can you use to solve this problem?  
What does “how many more” mean?

**DURING** SMALL GROUP

- 3. Observe Students at Work**  
To support productive struggle, observe, and if needed, ask guiding questions that elicit thinking.
  - What tools do students use to represent the number of jars Ms. Witt bought? Students might arrange counters in different groups. If needed, ask How can you show 4 groups of 5 counters?
  - Do students make the connection between the groups of counters and repeated addition? Students should write the addition problem to show the number of counters. If needed, ask What equation can you write to show the total number of counters?

**AFTER** WHOLE CLASS

- 4. Discuss Solution Strategies and Key Ideas**  
Based on your observations, choose which solutions to have students share and in what order. Focus on the different strategies each student uses to find the total number of jars each person bought. If needed, show and discuss the work at the right. Then ask Who bought more jars of paint? How many more?
- 5. Consider Instructional Implications**  
The Visual Learning Bridge illustrates the relationship between repeated addition and multiplication. Using students’ work on the Solve & Share if possible, point out that equal groups are being joined to find the total number of jars for each person.

**EXTENSION**  
Ms. Witt bought 4 packages of paintbrushes. Three of the packages had 2 brushes. The other package had 3 brushes. How many paintbrushes did Ms. Witt buy? [9 paintbrushes]

**Realize Scout Observational Assessment** Record observations and pictures of student work in response to the bold questions in Step 3.

In Step 1: Problem-Based Learning, introduce concepts by having students work on the Solve & Share activity. Display the problem via Savvas Realize™ so you and your students can use the Draw Pad tools to share solution strategies.

Using the Before, During, and After guidance in the Teacher's Edition, give students opportunities to discuss and share solution strategies.

Use the blue guiding questions to facilitate rich classroom conversations that help students develop deeper conceptual understanding. While students work, collect formative assessment data using SCOUT.

Have students share their work and discuss each other's ideas. Another option is to display the sample student work from Savvas Realize to spark conversations about additional strategies and methods.



## Step 2: Visual Learning

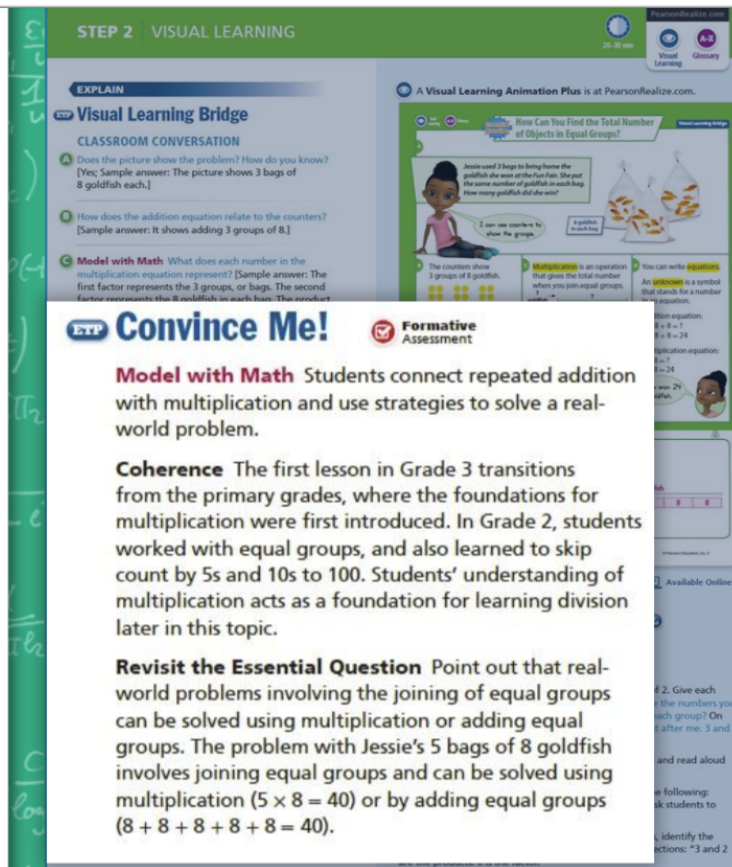
### Step 2: Visual Learning

Visual Learning Animation Plus

Lead a whole-class discussion

Convince Me!

Explain, justify, and use reasoning



**STEP 2 VISUAL LEARNING**

**EXPLAIN**

**Visual Learning Bridge**

**CLASSROOM CONVERSATION**

1. Does the picture show the problem? How do you know?  
[Yes; Sample answer: The picture shows 3 bags of 8 goldfish each.]

2. How does the addition equation relate to the counters?  
[Sample answer: It shows adding 3 groups of 8.]

3. **Model with Math** What does each number in the multiplication equation represent? [Sample answer: The first factor represents the 3 groups, or bags. The second factor represents the 8 goldfish in each bag. The product

**A Visual Learning Animation Plus is at PearsonRealize.com.**

How Can You Find the Total Number of Objects in Equal Groups?

Jessie used 3 bags to bring home the goldfish she saw at the pet store. She put the same number of goldfish in each bag. How many goldfish did she get?

I can use counters to show the groups.

The counters show 3 groups of 8 goldfish.

**Multiplication** is an operation that gives the total number when you use equal groups.

You can write an **equation**. An **equation** is a symbol that stands for a number using an equation.

Write an equation:  $3 \times 8 = ?$   
 $8 + 8 + 8 = 24$

Application equation:  $3 \times 8 = 24$

Answer: 24

**Available Online**

2. Give each student a number card. On the card, write a number and read aloud.

Read the following: Ask students to identify the factors: "3 and 2"

**Convince Me!** **Formative Assessment**

**Model with Math** Students connect repeated addition with multiplication and use strategies to solve a real-world problem.

**Coherence** The first lesson in Grade 3 transitions from the primary grades, where the foundations for multiplication were first introduced. In Grade 2, students worked with equal groups, and also learned to skip count by 5s and 10s to 100. Students' understanding of multiplication acts as a foundation for learning division later in this topic.

**Revisit the Essential Question** Point out that real-world problems involving the joining of equal groups can be solved using multiplication or adding equal groups. The problem with Jessie's 5 bags of 8 goldfish involves joining equal groups and can be solved using multiplication ( $5 \times 8 = 40$ ) or by adding equal groups ( $8 + 8 + 8 + 8 + 8 = 40$ ).

In Step 2: Visual Learning, the Visual Learning Bridge helps students see the math and connect their thinking from the Solve & Share to the new concepts in the lesson. Show the Visual Learning Animation Plus interactivity on Savvas Realize. Use the Classroom Conversation prompts in the Teacher's Edition to lead a whole-class discussion.

Then have students complete the Convince Me! so you can see if students can explain, justify, and use reasoning to show their understanding.

Next, lead students through the Guided Practice. Use the Error Intervention and Reteaching Sets as needed.

Finally, assign students some independent practice and problem-solving work via the print Student's Edition, the online Realize Reader, or Practice Buddy.

## Step 3: Assess and Differentiate

# Step 3: Assess and Differentiate

Quick Check

Create small groups

Differentiate instruction

**Available Online**

**Guided Practice**

1. Can you write  $5 + 5 + 5 + 5 + 5 = 25$  as a multiplication equation? Explain.  
**Yes: The groups are equal.**  
 $5 \times 5 = 25$

2. Can you write  $3 + 4 + 3 = 14$  as a multiplication equation? Explain.  
**No: The groups are not equal.**

3. Jessie buys 4 packages of stones. There are 5 stones in each package. How many stones does Jessie buy?  
Use counters to represent the problem. Then write an addition equation and a multiplication equation to solve.  
 $4 + 4 + 4 + 4 = 24$  stones  
 $4 \times 5 = 20$  stones

**Do You Know How?**

Complete 4 and 5. Use the pictures to help.

4.  $4 + 4 + 4 = 12$   
 $3 \times 4 = 12$

5.  $6 + 6 + 6 = 18$   
 $3 \times 6 = 18$

**Independent Practice**

6.  $5 + 5 = 10$   
 $2 \times 5 = 10$

7.  $6 + 6 + 6 = 18$   
 $3 \times 6 = 18$

8.  $8 + 8 + 8 + 8 = 4 \times 8$

9.  $9 + 9 + 9 + 9 = 4 \times 9$

10.  $9 + 9 + 9 = 3 \times 9$

11.  $6 + 6 + 6 + 6 + 6 = 5 \times 6$

12.  $7 + 7 + 7 = 3 \times 7$

13.  $6 + 6 + 6 + 6 + 6 = 5 \times 6$

**Problem Solving**

13. Debra drew this shape on the back of her notebook.

What is the name of the shape Debra drew? How do you know?  
Debra drew a hexagon. A hexagon has six sides and six vertices.

14. Higher Order Thinking Luke says you can always add and you can always multiply to join groups. Is he correct? Explain why or why not.  
**No: Sample answer: I can add to join groups whether the groups are equal or unequal, but I can multiply to join groups only when the groups are equal.**

15. Luke says any addition equation where the addends are all the same can be written as a multiplication equation. Is Luke correct? Explain why or why not.  
**Yes: Sample answer: All the addends represent equal groups; multiplication combines equal groups.**

16. Tom has 12 ears of field corn to make table decorations. He arranges them in equal groups. Which sentences could Tom use to describe his groups? Select all that are correct.

☐ Tom arranged 2 groups of 6 ears.  
☐ Tom arranged 4 groups of 3 ears.  
☐ Tom arranged 6 groups of 2 ears.  
☐ Tom arranged 3 groups of 4 ears.  
☐ Tom arranged 1 group of 12 ears.

17. Jenna has 24 flowers. She arranges them in rows with an equal number of flowers in each row. Which sentences could Jenna use to describe her flowers? Select all that are correct.

☐ Jenna arranged 4 flowers in each of 6 rows.  
☐ Jenna arranged 3 flowers in each of 8 rows.  
☐ Jenna arranged 5 flowers in each of 5 rows.  
☐ Jenna arranged 6 flowers in each of 4 rows.  
☐ Jenna arranged 8 flowers in each of 3 rows.

**ELABORATE**

**Guided Practice**

**ERROR INTERVENTION** Item 3  
If students use the number of packages for the addition equation rather than the number of stones, then ask: How many packages or groups of stones did Jessie buy?

**EVALUATE**

**QUICK CHECK**

A check mark indicates items for prescribing differentiation on the next page. Items 7 and 16: each 1 point. Item 14: up to 3 points.

Start Step 3: Assess and Differentiate by assigning the Quick Check. Use the results to help you create small groups so you can provide differentiated instruction.

While you work with small groups using differentiated resources listed in the Teacher's Edition, other students can work on a variety of activities.

Each lesson offers a rotation of center activities such as Pick a Project, Problem-Solving Leveled Reading Mats, enVisionSTEM Activities, Math Tools, Math Games, and more.

Use the *Additional Practice Workbook* to assign practice or homework.

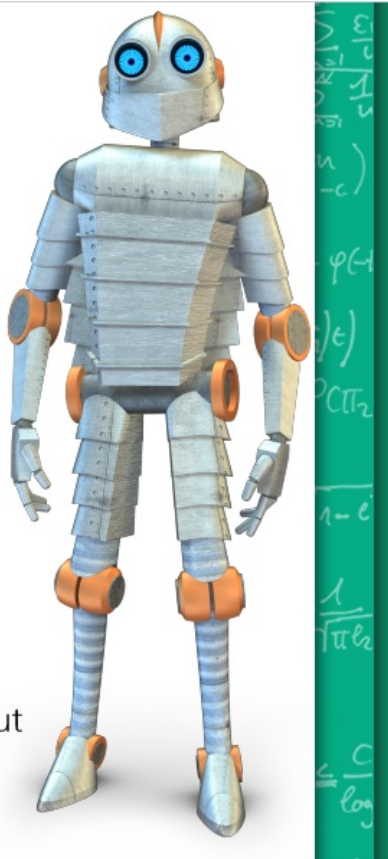
## Student and Teacher Actions

Step 1: Problem-Based Learning

Step 2: Visual Learning

Step 3: Assess and Differentiate

Click the steps above to learn more about  
student and teacher actions.  
When you're done, click **Next**.



Now, let's learn about student and teacher actions during each step.



## Student and Teacher Actions in Step 1

### Step 1: Problem-Based Learning

#### Step 1 Student Actions

- Solve the Solve & Share problem any way they choose
- Share and compare solution strategies with partner or small group
- Explain their thinking and solution
- Discuss the thinking and solutions of others



#### Step 1 Teacher Actions

- Facilitate whole-class discussion before and after the Solve & Share
- Observe students at work during the Solve & Share and collect formative assessment data with SCOUT
- Support productive struggle
- Display and discuss student thinking and strategies



## Student and Teacher Actions in Step 2

### Step 2: Visual Learning

#### Step 2 Student Actions

- Follow the Visual Learning Bridge in Student's Edition to reinforce the animation
- Discuss the Visual Learning Animation Plus
- Explain their understanding in the Convince Me!
- Work through the Guided Practice
- Complete the assigned Independent Practice and Problem Solving
- In Grades 3-5, complete the Lesson Self Assessment to reflect on their understanding of the language and math goals



#### Step 2 Teacher Actions

- Project Visual Learning Animation Plus for whole-class discussion
- Use blue Guiding Questions to encourage discussion and make important math ideas explicit
- Use Convince Me! and Error Intervention to check for understanding and provide Reteaching Set as needed
- Lead students through the Guided Practice
- Assign selected Independent Practice and Problem Solving exercises via the print Student's Edition, the online Realize Reader, or Practice Buddy (Grades K-2)



## Student and Teacher Actions in Step 3

### Step 3: Assess and Differentiate

#### Step 3 Student Actions

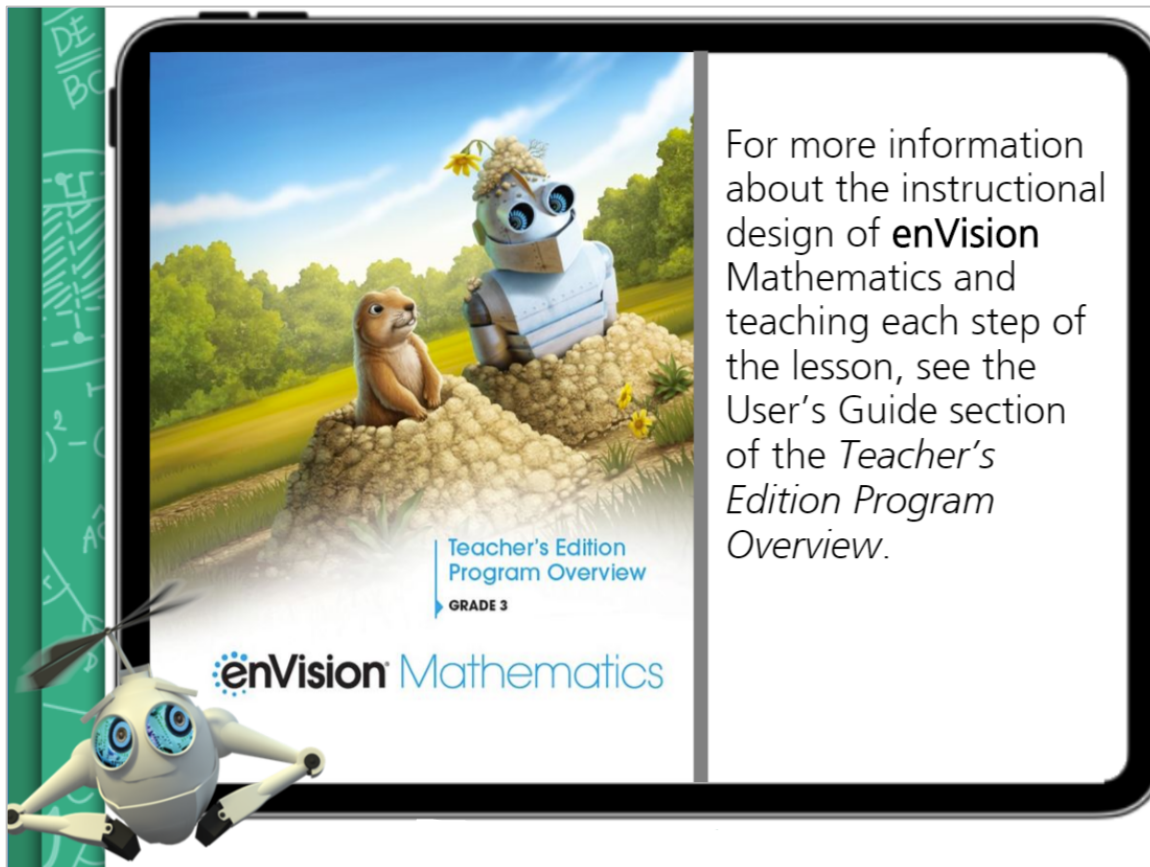
- Complete the Quick Check
- Work with the teacher during small group time
- While other students work with the teacher, work on centers or assignments: Pick a Project, Problem-Solving Leveled Reading Mats, enVisionSTEM Activities, Math Tools, or Math Games
- Complete assigned additional practice in class or as homework
- View the Another Look Video for support with homework as needed
- Discuss the thinking and solutions of others



#### Step 3 Teacher Actions

- Administer the Quick Check online or in the Student's Edition using the problems with check marks in the Teacher's Edition
- Use student Quick Check scores to create small groups
- Use the Step 3 pages in the Teacher's Edition to choose intervention, on-level, or advanced resources to use when working with small groups
- Use the Step 3 pages in the Teacher's Edition to create centers or assign students other activities to work on while you pull small groups (such as Pick a Project, Problem-Solving Leveled Reading Mats, enVisionSTEM Activities, Math Tools, and Math Games)
- Assign in-class practice or homework using the *Additional Practice Workbook*, online *Interactive Additional Practice Workbook*, Practice Buddy (Grades K-2), or Adaptive Practice (Grades 3-5)

## Quick Tip



For more information about the instructional design of **enVision** Mathematics and teaching each step of the lesson, see the User's Guide section of the *Teacher's Edition Program Overview*.

## Closing



Thanks for joining me and learning about teaching a lesson with **enVision Mathematics**. There are plenty of program resources to engage your students throughout each topic and lesson!

And be sure to check out My Savvas Training when you're ready to learn more about **enVision Mathematics**!