

Florida's
B.E.S.T.
Standards for
MATH
Grade 3

Volume 2

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Laurie Boswell



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Cover Design:

Betsi Santos and Mary Rose

Front Matter:

bgblue/DigitalVision Vectors/Getty Images

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Printed in the U.S.A.

ISBN 13: 978-1-64727-755-0

1 2 3 4 5 6 7 8 9—25 24 23 22 21

A Single Authorship Team



Written by renowned authors, Dr. Ron Larson and Dr. Laurie Boswell, *Florida's B.E.S.T. Standards for MATH* offers a seamless math pedagogy from Kindergarten through Algebra 2. Together, Ron and Laurie provide a consistent voice that encourages students to make connections through cohesive progressions and clear instruction. Since 1992, Ron and Laurie have authored over 50 mathematics programs.



“
Each time Laurie and I start working on a new program, we spend time putting ourselves in the position of the reader. How old is the reader? What is the reader's experience with mathematics? The answers to these questions become our writing guides. Our goal is to make the learning targets understandable and to develop these targets in a clear path that leads to student success.
”

Ron Larson

Ron Larson, Ph.D., is well known as lead author of a comprehensive and widely used mathematics program that ranges from elementary school through college. He holds the distinction of Professor Emeritus from Penn State Erie, The Behrend College, where he taught for nearly 40 years. He received his Ph.D. in mathematics from the University of Colorado. Dr. Larson engages in the latest research and advancements in mathematics education and consistently incorporates key pedagogical elements to ensure focus, coherence, rigor, and student self-reflection.

“
My passion and goal in writing is to provide an essential resource for exploring and making sense of mathematics. Our program is guided by research around the learning and teaching of mathematics in the hopes of improving the achievement of all students. May this be a successful year for you!
”

Laurie Boswell



Laurie Boswell, Ed.D., is the former Head of School at Riverside School in Lyndonville, Vermont. In addition to authoring textbooks, she provides mathematics consulting and embedded coaching sessions. Dr. Boswell received her Ed.D. from the University of Vermont in 2010. She is a recipient of the Presidential Award for Excellence in Mathematics Teaching and later served as president of CPAM. Laurie has taught math to students at all levels, elementary through college. In addition, Laurie has served on the NCTM Board of Directors and as a Regional Director for NCSM. Along with Ron, Laurie has co-authored numerous math programs and has become a popular national speaker.

Making the Florida Covers

K-5: Florida's Diverse Wildlife



Kindergarten
Amphibian: Frog



Grade 1
Mammal: Armadillo



Grade 2
Mammal: Manatee



Grade 3
Bird: Crane



Grade 4
Fish: Sailfish

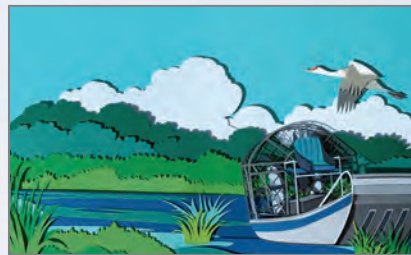


Grade 5
Reptile: Alligator

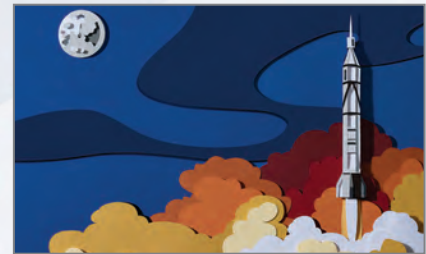
6-8: Florida Firsts



Grade 6
First Scheduled Commercial
Flight in U.S. (1914)



Grade 7
First Airboat in U.S. (1920)



Grade 8
First Launch of a U.S. Satellite,
Explorer I (1958)



Grade 6 Accelerated
First Masonry Fort
in U.S. (1565)



Grade 7 Accelerated
First Light Bulb
Patent in U.S. (1880)



Step 1:

Graphic artists **Betsi Santos** and **Mary Rose** design each cover. They then cut out the art pieces and assemble them using tweezers, glue, and round foam stickers.



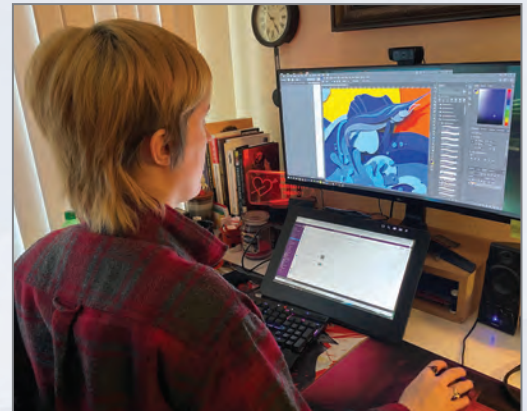
Step 2:

Adam Leene and **Betsi** photograph the paper design. *(left)*



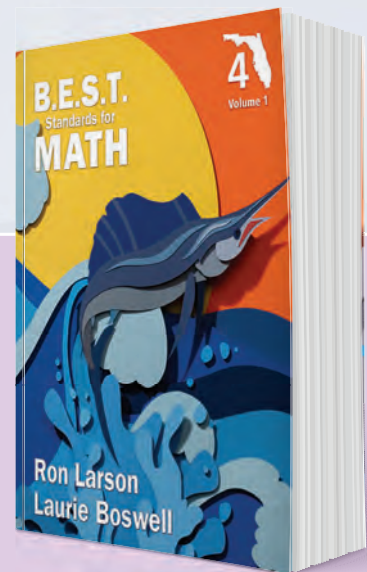
Step 3:

Mary prepares the design for the cover. *(right)*



Step 4:

The books are printed and ready for use to implement *Florida's B.E.S.T. Standards for Mathematics*.



About the Artists

Betsi Santos has a passion for creating art. With a Fine Arts degree from Eastern New Mexico University, she seamlessly blends her graphic design and set building expertise with great precision and attention to detail.

Mary Rose is a "jack-of-all-trades" in the film industry. Her degree in Theatre Production Design and Technology from the University of Illinois has led to a career in set painting, building, prop fabrication, and graphic design.

Research, Contributors, and Reviewers

Research

Ron Larson and Laurie Boswell used the latest in educational research, along with the body of knowledge collected from expert mathematics educators, to develop the *Florida's B.E.S.T. Standards for MATH* series. The pedagogical approach used in this program follows the best practices outlined in the most prominent and widely accepted educational research, including:

- *B.E.S.T. Standards for Mathematics*, Florida Department of Education ©2020
- *Visible Learning*, John Hattie ©2009
- *Visible learning for Mathematics* John Hattie ©2017
- *Visible Learning Feedback* John Hattie ©2018
- *Teaching Mathematics in the Visible Learning Classroom, Grades 3–5* John Almarode, Douglas Fisher, Kateri Thunder, Sara Delano Moore, John Hattie, and Nancy Frey ©2019
- *The Teacher Clarity Playbook, Grades K–12* Douglas Fisher, Nancy Frey, Olivia Amador, and John Hattie ©2018
- *The Distance Learning Playbook, Grades K–12* Douglas Fisher, Nancy Frey, and John Hattie ©2020
- *Principles to Actions: Ensuring Mathematical Success for All* NCTM ©2014
- *Adding It Up: Helping Children Learn Mathematics* National Research Council ©2001
- *Mathematical Mindsets: Unleashing Students' Potential through Creative Math, Inspiring Messages and Innovative Teaching* Jo Boaler ©2015
- *What Works in Schools: Translating Research into Action* Robert Marzano ©2003
- *Classroom Instruction That Works: Research-Based Strategies for Increasing Student Achievement* Marzano, Pickering, and Pollock ©2001
- *Principles and Standards for School Mathematics* NCTM ©2000
- *Rigorous PBL by Design: Three Shifts for Developing Confident and Competent Learners* Michael McDowell ©2017
- *Universal Design for Learning Guidelines* CAST ©2011
- Rigor/Relevance Framework® International Center for Leadership in Education
- *Understanding by Design* Grant Wiggins and Jay McTighe ©2005
- Achieve, ACT, and The College Board
- *Elementary and Middle School Mathematics: Teaching Developmentally* John A. Van de Walle and Karen S. Karp ©2015
- *Evaluating the Quality of Learning: The SOLO Taxonomy* John B. Biggs & Kevin F. Collis ©1982
- *Unlocking Formative Assessment: Practical Strategies for Enhancing Students' Learning in the Primary and Intermediate Classroom* Shirley Clarke, Helen Timperley, and John Hattie ©2004
- *Formative Assessment in the Secondary Classroom* Shirley Clarke ©2005
- *Improving Student Achievement: A Practical Guide to Assessment for Learning* Toni Glasson ©2009



Contributing Specialists and Reviewers

Big Ideas Learning would like to express our gratitude to the mathematics education and instruction experts from Florida who served as our advisory panel, in addition to all the contributing specialists and reviewers who played a key role during the writing of *Florida's B.E.S.T. Standards for MATH*. Their input was an invaluable asset during the development of this program.

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Northern Pan Handle, FL
Content Reviewer and Assessment Specialist
- **India White**, Ph.D., National Education Consultant, Tampa, FL, Content Reviewer
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- **Nicole Dimich Vagle**, Educator, Author, and Consultant, Hopkins, MN
Assessment Reviewer

Focus, Coherence, and Rigor

Instructional Design

A single authorship team from Kindergarten through Algebra 2 results in a logical progression of focused topics with thoughtful coherence and rigor throughout the curriculum.

FOCUS

Focused on Florida's B.E.S.T. Standards for Mathematics, each lesson displays the precise language of Florida benchmarks, making the expectations clear. Learning Targets and Success Criteria are aligned to those expectations.

Florida benchmarks are shown at the beginning of each lesson with a related **Learning Target** and **Success Criteria** to guide your learning.

Name _____

4.10
True or False Equations

Learning Target: Identify whether an equation is true or false.

Success Criteria:

- I can describe what an equal sign means.
- I can tell the value of each side of an equation.
- I can tell whether the values are equal.

Explore

Write three expressions involving multiplication or division that have the same value as 6×2 . Compare your expressions to your partner's expressions.

Expression 1: Expression 2: Expression 3:

Model a Problem Use 6×2 and an expression you wrote to write an equation. Explain how you can use models to show that your equation is true.

Number Sense and Operations
MA.3.NSO.2.4: Multiply two whole numbers from 0 to 12 and divide using related facts with procedural reliability.
Algebraic Reasoning
MA.3.AR.2.2: Determine and explain whether an equation involving multiplication or division is true or false.

Chapter 4 Lesson 10 223

Progressions

COHERENCE Through the Grades

Grade 4	Grade 5	Grade 6
<ul style="list-style-type: none"> • MA.4.NSO.2.1 Recall division facts that have a divisor up to 12. • MA.4.AR.2.2 Write an equation involving division to determine an unknown whole number. • MA.4.AR.1.1 Interpret the quotient and the remainder in a real-world division problem. • MA.4.NSO.2.5 Use estimation, rounding, and place value to divide. • MA.4.NSO.2.4 Use models and strategies to divide a whole number up to four digits by a one-digit whole number. Represent remainders as fractional parts of the divisor. 	<ul style="list-style-type: none"> • MA.5.NSO.2.2 Use models, place value, and division facts to find quotients. • MA.5.AR.1.1 Solve real-world problems involving any of the four operations. • MA.5.NSO.2.2 Use division facts and compatible numbers to estimate quotients. • MA.5.NSO.2.2 Fluently divide whole numbers up to five digits by two digits. Represent remainders as fractional parts of the divisor. • MA.5.AR.2.4 Write an equation to determine an unknown number. • MA.5.AR.1.1 Interpret the quotient and the remainder in a real-world division problem. 	<ul style="list-style-type: none"> • MA.6.NSO.2.2 Extend previous understandings to fluently multiply and divide fractions. • MA.6.NSO.2.1 Fluently multiply and divide decimals. • MA.6.AR.3.5 Solve mathematical real-world problems involving unit rates. • MA.6.AR.3.2 Determine a rate quantities with different units interpret the corresponding unit rates. • MA.6.NSO.4.2 Apply and extend understandings to fluently multiply integers. • MA.6.AR.2.3 Write and solve within mathematical or real-world contexts equations and inequalities using multiplication and division.

Every chapter is written to follow the progressions built into the Florida benchmarks. The **Progressions** detailed in the Teaching Edition show how content progresses from grade to grade. This Grade 5 standard, on fluently finding quotients, builds on foundational work with division from Grade 4.

COHERENCE

The sequence of topics, from Kindergarten to Algebra 2, follows the benchmarks and clarifications for each grade and progresses meaningfully within each grade and between grade levels.

from a Single Authorship Team



Develop foundational concepts with discovery in **Explore**, and solidify learning with clear, stepped-out examples within the lesson.

RIGOR

In every chapter, you have opportunities to explore, discover, and solidify conceptual understanding, then to apply and transfer that learning. This program weaves together the three important building blocks of rigor:

- **Conceptual Understanding**
Discovering why
- **Procedural Fluency**
Learning how
- **Application**
Knowing when to apply

Build Understanding: Multiples of Unit Fractions

Any fraction can be written as a multiple of a unit fraction with a like denominator.

Example Write $\frac{5}{8}$ as a multiple of a unit fraction.

Think: $\frac{5}{8}$ is a multiple of $\frac{1}{8}$.

$$\frac{5}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$$

$$= \underline{\quad} \times \frac{1}{8}$$

Build procedural fluency with clear **Key Ideas** and **Build Understanding** examples, then practice your skills in **Try It**, **In-Class Practice**, **Practice**, and **Review & Refresh**.

Try It

Write the fraction as a multiple of a unit fraction.

1. $\frac{2}{3} = \frac{\square}{\square} + \frac{\square}{\square}$

$$= \underline{\quad} \times \frac{1}{3}$$

Apply your knowledge with **Model Real Life**, **Dig Deeper**, and other non-routine problems to achieve deeper levels of learning. Solve exercises in different contexts, see connections between ideas, and justify your thinking.

12. **Model Real Life** You are making $\frac{7}{8}$ cup of blueberry pancakes. You have $\frac{6}{8}$ cup of blueberries. You put $\frac{1}{8}$ cup of blueberries in each pancake. How many pancakes do you make?

13. **DIG DEEPER** You cut a loaf of plantain bread into 20 equal slices. You and your friends eat $\frac{3}{10}$ of the bread. You want to put each leftover slice into its own bag. How many bags do you need?

_____ pancakes

20. **Make a Connection** Shade each model to show 0.6 and 0.60. What do you notice?

A Program Geared Toward Fluency

What is Fluency?

Fluency is more than the memorization of facts or procedures. Fluency builds on a foundation of conceptual understanding, strategic reasoning, and problem-solving to achieve automaticity. You connect your conceptual understanding (Stage 1) with strategies and methods (Stage 2) and use them in a way that makes sense to you (Stage 3).

Begin every chapter thinking about the world around you. Apply what you learn in the chapter with a related **Performance Task**.

1

Place Value Concepts

Mathematical Thinking and Reasoning

Share and Discuss

- What kinds of numbers would you find on a map?
- Why is place value important when you read a map?

Name _____

7 Apply mathematics to real-world contexts.

Performance Task

1

You hike from Point A through Point F along the orange path shown on the map.

Surveys use tools on a tripod to gather data and make contour maps. You may see them working alongside a road!

- What is the change in elevation between each contour line?
- Make a Connection** As you walk from Point A to Point C, are you walking uphill or downhill? Explain.
- Which point represents the highest elevation? Estimate the height.

Analyze a Problem Is there another point that represents an elevation close to 2,763 feet? How did you determine which point represents the location of the water station?

- A water station has an elevation of 2,763 feet. Which point represents the location of the water station?
- You take a break when you are at two thousand eighty feet. At which point do you take a break?
- Estimate** About how much higher is Point C than Point D? Explain.

Chapter 1 39

Why Fluency Matters

By building fluency in arithmetic, you can efficiently use foundational skills to solve deeper, more meaningful problems about the world around you. Fluency will contribute to your success not only in school, but also in your daily life.

Model Real Life, Dig Deeper, and other non-routine problems help you apply and deepen your learning.

5. Model Real Life You download 2 music videos, a TV series, and a movie for \$42.95 total. The TV series costs 2 times as much as the movie. How much does each music video cost?

\$ _____

6. DIG DEEPER Which item costs more per ounce? How much more?

Glue
1 gal

Paste
2 cups



Stage 1: Exploration

In this stage, you investigate arithmetic operations to increase understanding through the use of manipulatives, visual models, and discussion.

Explore

Model the number. Draw to show your model. Find the value of the digit 2 in each number. How are the values the same? How are they different?

329

1,275

2,416

Quick sketches:
 ● = 1 | = 10
 □ = 100
 T = 1,000

Persevere What is the value of the digit 2 in the number 25,340? How do you know?

In **Explore**, you can investigate concepts by using manipulatives and models, talking with peers, and asking questions.

Find $18 \div 3$.

Think: 3 times what number is 18?
 $3 \times 6 = 18$

3 rows

6 columns

1 2 3 4 5 6

$18 \div 3 = 6$ or $3 \overline{)18}$

Models are also used in lessons to help build on prior learning. Here you make the connection between a model and a multiplication fact that you already know.

Name _____

Building Fluency 14

Complete the model and the equation.

1. $30 \div 5 = \underline{\quad}$

5 rows

columns

2. jumps of 7

0 7

$\underline{\quad} \times \underline{\quad} = \underline{\quad}$

As you progress through this course, the **Building Fluency** feature includes exercises aimed at the three stages of fluency. Stage 1 exercises ask you to use a model to answer.

A Program Geared Toward Fluency

Stage 2: Procedural Reliability

At this stage, you can choose any method to solve a problem independently. Being able to describe your method ensures you have an accurate understanding of the method.

Laurie's Notes

Preparing to Teach

- Students should be familiar with the models shown in the examples. Review them, asking for ways to adapt or use differently. Sharing of students' thinking will help students begin to select models and strategies that are more efficient for a particular situation. Students should not be drawing a model for every product.
- Ultimately, the goal is fluency of recall once the concept of multiplication and multiplication models are understood. If a student has memorized a fact and they have already demonstrated an understanding of multiplication through modeling, allow them to simply state "memorized fact" or a shortened description of "5 jumps of 6 ends at 30," without drawing the model.

Teaching Notes

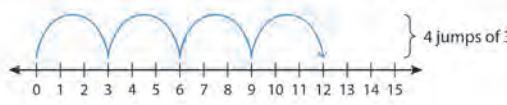
- Students preview two models of multiplication for finding the product of 4×3 .
- Model:** "One way to find 4×3 is to use jumps on a number line. 4 jumps of 3 end at 12, so the product is 12. Why could you also do 3 jumps of 4?" Listen for mention of the Commutative Property or the fact that both end at 12 on the number line.
- Model:** " 4×3 can also be modeled with an array. 4 can be split into $2 + 2$, so you can use the fact $2 \times 3 = 6$ to find the total counters." Complete the blanks with student help.
- Turn and Talk:** "What other ways could you partition the factors of 4 or 3? What are the benefits of using $2 + 2$ for 4?" *You may have to know one product and then double it.*

Here you are shown how to solve a multiplication problem using a number line and the Distributive Property. **Laurie's Notes** help your teacher approach these strategies and lead discussion on other strategies you already know to solve the same problem.

Build Understanding: Practice Multiplication Strategies

Example Use any strategy to find 4×3 .

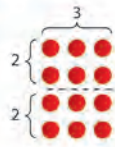
One Way: Use a number line. Skip count by 3 four times.



} 4 jumps of 3

$4 \times 3 = \underline{\quad}$

Another Way: Use the Distributive Property.



$4 \times 3 = (2 + 2) \times 3$

$4 \times 3 = (2 \times 3) + (2 \times 3)$

$4 \times 3 = \underline{\quad} + \underline{\quad}$

$4 \times 3 = \underline{\quad}$

Name _____

Building Fluency

4

Find the sum or difference. Describe your strategy.

1. $87 - 54 = \underline{\quad}$

3. $\begin{array}{r} 35 \\ + 49 \\ \hline \end{array}$

2. $68 + 21 = \underline{\quad}$

4. $\begin{array}{r} 91 \\ - 26 \\ \hline \end{array}$

In the **Building Fluency** feature, Stage 2 exercises allow you to choose your method to solve and then describe your method.



Stage 3: Procedural Fluency

In Stages 1 and 2, you develop a deep conceptual understanding by using models and manipulatives, and discussing concepts with your peers. This program strives for you to move beyond those two stages into Stage 3. At this stage, you are now able to use an efficient and accurate procedure to solve, including a standard algorithm.

Example Find 87×64 .

Estimate: $90 \times 60 = \underline{\hspace{2cm}}$

Multiply the 4 in the ones place.

$$\begin{array}{r} 87 \\ \times 64 \\ \hline 4 \times 87 \rightarrow 308 \end{array}$$

Multiply the 6 in the tens place.

$$\begin{array}{r} 87 \\ \times 64 \\ \hline 60 \times 87 \rightarrow 5,020 \end{array}$$

Add the partial products.

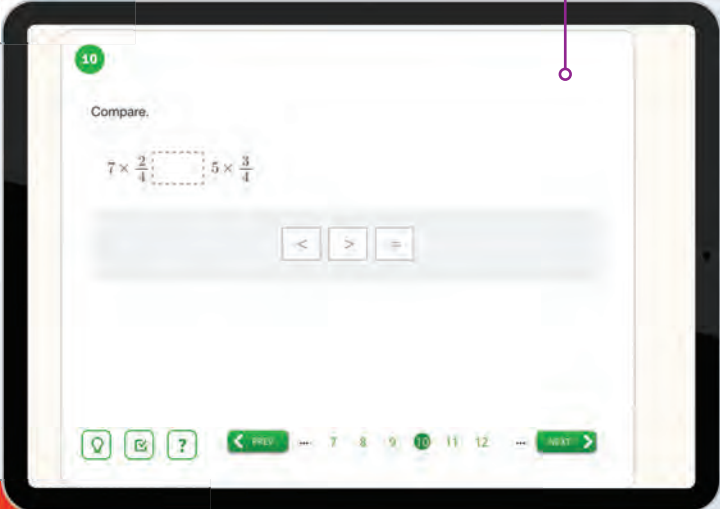
$$\begin{array}{r} 87 \\ \times 64 \\ \hline 348 \\ 5,020 \\ \hline \end{array}$$

So, $87 \times 64 = \underline{\hspace{2cm}}$.

Check: Because $\underline{\hspace{2cm}}$ is close to the estimate, $\underline{\hspace{2cm}}$, the answer is reasonable.

Build on your conceptual understanding by learning standard algorithms to solve efficiently.

Practice using standard algorithms to solve exercises in **Try It, In-Class Practice, Practice,** and **Review & Refresh.**



In the **Building Fluency** feature, Stage 3 exercises no longer ask you to describe your method. You have proven that you can solve accurately and without assistance.

Name _____

Building Fluency

6

Find the sum or difference.

1. $91.865 - 27.034 = \underline{\hspace{2cm}}$	2. $144.5 + 32.86 = \underline{\hspace{2cm}}$
3. $\begin{array}{r} 8.09 \\ - 4.18 \\ \hline \end{array}$	4. $\begin{array}{r} 61.9 \\ + 87.3 \\ \hline \end{array}$

Embedded Mathematical Thinking

Encouraging Mathematical Mindsets

Developing proficiency in the **Mathematical Thinking and Reasoning (MTR) Standards** is about becoming a mathematical thinker. Actively learn to ask why, and to reason and communicate with others as you learn. Use this guide to develop proficiency with each standard.

1

Actively Participate in Effortful Learning by staying engaged and maintaining a positive mindset when working to solve tasks. Ask questions and analyze the problem in a way that makes sense, persevering and modifying as needed, and support each other during challenging tasks or when attempting a new method or approach.

Look for labels such as:

- Analyze a Problem
- Ask a Question
- Keep Going
- Persevere
- Stay Positive
- Help Your Partner

4. **B.E.S.T. TEST PREP** You want to make a Florida state flag. The width of the flag must be $\frac{2}{3}$ the length. The area must be greater than 50 square feet and less than 200 square feet. Select all the dimensions you can use for your flag.



- (A) 4 ft, 6 ft (B) 6 ft, 9 ft
(C) 8 ft, 12 ft (D) 10 ft, 15 ft
(E) 15 ft, 18 ft (F) 20 ft, 30 ft

Persevere
How can you tell whether the width is $\frac{2}{3}$ the length?



Stay Positive
Although arrays can take time to draw, how are they helpful?



13. **Analyze a Problem** You use 90×30 to estimate 92×34 . Will your estimate be greater than or less than the actual product? Explain.

BUILDING TO FULL UNDERSTANDING

Throughout each course, you have opportunities to demonstrate specific aspects of the Mathematical Thinking and Reasoning Standards. Labels throughout the book indicate gateways to those aspects. Collectively, these opportunities will lead to a full understanding of each standard. Developing these mindsets and habits will give meaning to the mathematics you learn.

and Reasoning Standards



2

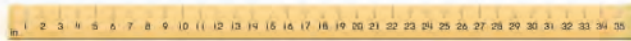
Demonstrate Understanding by Representing Problems in Multiple Ways through modeling and by using objects, drawings, tables, and graphs to represent solutions. Progress from choosing representations to using algorithms and equations to connect concepts with models.

Look for labels such as:

- Use Math Tools
- Model a Problem
- Another Way
- Make a Connection

Explore

Work with a partner. Use an appropriate tool to mark 3 lengths on the floor that are 1 yard, 2 yards, and 3 yards long. Then measure the lengths in feet and in inches.



Think: How do the lengths, in inches, compare to the lengths in feet? How does each length compare to 1 yard?

- 1 foot is _____ times as long as 1 inch.
- 1 yard is _____ times as long as 1 foot.
- 1 yard is _____ times as long as 1 inch.

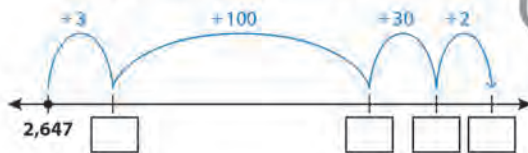
Use Math Tools

How did you draw the 2-yard and 3-yard lengths?



2 MTR **Make a Connection** Measure the length of an object to the nearest foot. Without measuring, how can you find its length in inches?

Use the *make a ten* strategy. Start at 2,647. Count on to the nearest ten. Then count on by hundreds, by tens, and by ones.



$$2,647 + 135 = \underline{\quad}$$

Maintain Accuracy

After you add 3, how do you keep track of how much more you need to add?



Look for labels such as:

- Choose a Method
- Maintain Accuracy
- Adapt a Procedure
- Reflect on Your Method

3 MTR **7. Reflect on Your Method** Solve $4,123 \div 78$ two different ways using partial quotients. Which way do you prefer?

When you **Complete Tasks with Mathematical Fluency**, you select efficient methods to complete tasks accurately and with confidence. You stay flexible, using feedback to improve efficiency and adapting procedures to new concepts.

3

Embedded Mathematical Thinking

4

When you **Engage in Discussions that Reflect on the Mathematical Thinking of Self and Others**, you analyze and compare your own mathematical ideas and thinking together with your peers. By recognizing errors and justifying results, you can construct possible arguments based on evidence.

Look for labels such as:

- Communicate Clearly
- You Be the Teacher
- Compare Methods
- Construct an Argument
- Justify a Result

Example Find 27×48 .

Estimate: $30 \times 50 = \underline{\quad}$

$$\begin{array}{r}
 27 \\
 \times 48 \\
 \hline
 8 \times 7 \\
 8 \times 20 \\
 40 \times 7 \\
 40 \times 20 \\
 \hline
 \end{array}$$

Partial products

So, $27 \times 48 = \underline{\quad}$.

Check: Because $\underline{\quad}$ is close to the estimate, $\underline{\quad}$, the answer is reasonable.

Construct an Argument 4

Can you find the partial products in any order? Why or why not?



16. You Be the Teacher Without solving, determine whether your friend or your cousin is correct. Explain.

Your friend: $44.82 \div 18 = 24.9$

Your cousin: $44.82 \div 18 = 2.49$

5

Use **Patterns and Structure to Help Understand and Connect Concepts** by focusing on details, finding logical order, or breaking down a problem into smaller parts. You often look for similarities between a new concept and something you learned before.

Look for labels such as:

- Make a Plan
- Use Another Concept
- Use a Similar Problem
- Patterns
- Structure

Example Complete the chart and the statements.

Thousands Period			Ones Period		
Hundreds	Tens	Ones	Hundreds	Tens	Ones
		5,	0	0	0

$\underline{\quad}$ is 10 times as great as 5,000.

$\underline{\quad}$ is $\frac{1}{10}$ of 5,000.

Patterns 5

What patterns do you notice as you move from one place value position to another place value position?



and Reasoning Standards (continued)



6

Example Find the number of inches in 7 feet.

$$7 \times \underline{\quad} = \underline{\quad} \quad \text{Multiply by 12.}$$

So, there are $\underline{\quad}$ inches in 7 feet.

Does It Make Sense?

Why is the number of inches greater than the number of feet?



When you **Assess the Reasonableness of Solutions**, you are developing a habit of checking your calculations when solving problems. Estimate to determine possible solutions and use benchmarks to determine if a solution makes sense.

Look for labels such as:

- Estimate
- Use a Benchmark
- Check Your Work
- Is It Reasonable?
- Does It Make Sense?

18. Use a Benchmark Without calculating, determine which product is greater. Explain.

$$\frac{1}{8} \times 24$$

$$\frac{7}{8} \times 24$$

7

When you **Apply Mathematics to Real-World Contexts**, you connect concepts to everyday experiences and use models and methods to understand, represent, and solve problems.

Look for labels such as:

- Connect to Everyday Life
- Model Real Life
- Investigate Real Life
- Gather Data

Investigate Real Life

What other characteristics of the penguin could help identify the penguin species?



12. Connect to Everyday Life A heart pumps about 2,000 gallons of blood each day. How many gallons of blood does the heart pump in 7 days?



$\underline{\quad}$ gallons

Visible Learning Through Learning Targets,

Making Learning Visible

Knowing the learning intention of a chapter or lesson helps you focus on the purpose of an activity, rather than simply completing it in isolation. This program supports visible learning through the consistent use of Learning Targets and Success Criteria to help you become successful.

Every chapter and lesson shows a **Learning Target** and related **Success Criteria**. These are purposefully integrated into each carefully written lesson.

Chapter Learning Target:
Understand time and measurement.

Chapter Success Criteria:

- ♦ I can explain how to tell time to the nearest minute.
- ♦ I can find the appropriate way to measure an object.
- I can solve time interval problems.
- I can compare one measurement to another.

♦ Surface ■ Deep

Name _____

11.2
Measure Elapsed Time Within the Hour

Learning Target: Measure elapsed time, in minutes, within the same hour.

Success Criteria:

- I can identify start and end times.
- I can find the amount of time that passes between two times.
- I can explain how to find elapsed time within the same hour.

The **In-Class Practice** and **Chapter Review** remind you to rate your understanding of the Learning Targets. In the Chapter Review, you can review each lesson with a reminder of that lesson's Learning Target.

Name _____

Chapter Learning Target:
Understand factors, multiples, and patterns.

Chapter Success Criteria:

- ♦ I can find the factors of a number.
- ♦ I can explain the differences between factors and multiples.
- I can use divisibility rules to tell if a number is prime or composite.
- I can use a rule to create a number pattern.

♦ Surface ■ Deep

Chapter Review

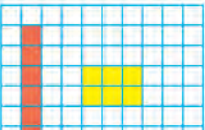
Rate your understanding after each section.

1 2 3 4

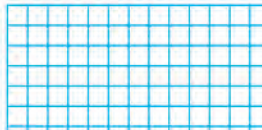
5.1 Understand Factors

Learning Target: Use models to find factor pairs.

1. Use the rectangles to find the factor pairs for 6.



2. Draw rectangles to find the factor pairs for 12.



QUESTIONS FOR LEARNING

As you progress through a lesson, you should be able to answer the following questions.

- What am I learning?
- Why am I learning this?
- Where am I in my learning?
- How will I know when I have learned it?
- Where am I going next?

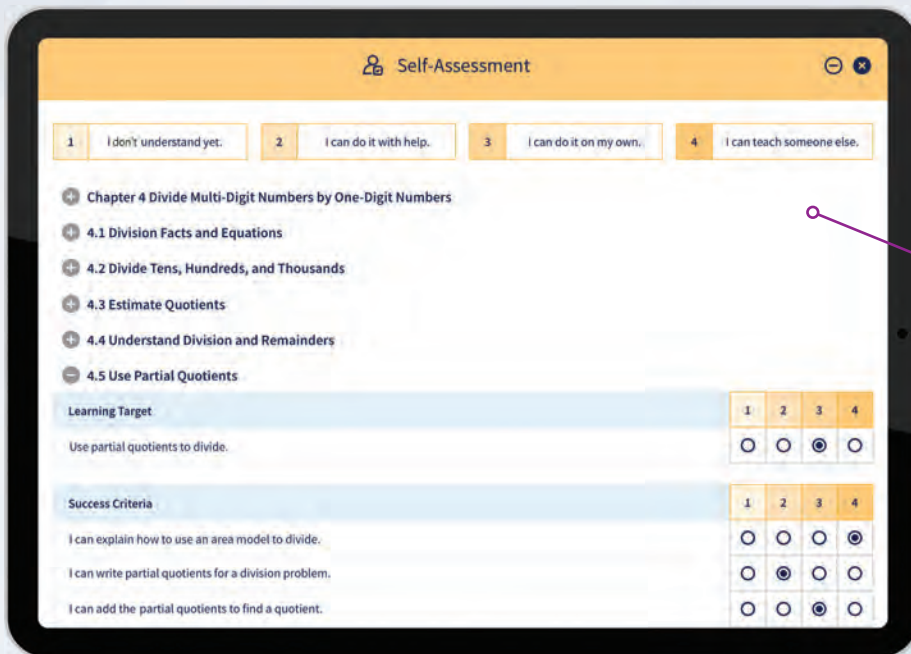
Success Criteria, and Self-Assessment



3.9 Multiply Three Factors				
Learning Target: Use the Associative Property of Multiplication.	1	2	3	4
I can explain the Associative Property of Multiplication.	1	2	3	4
I can change the grouping of factors.	1	2	3	4
I can multiply three factors.	1	2	3	4

Use a 4-point scale to rate your understanding of each success criterion. Keep track of your learning on paper or online.

1 I don't understand yet.
2 I can do it with help.
3 I can do it on my own.
4 I can teach someone else.



With **Self-Assessments**, you can:

- Access the **Learning Target** and **Success Criteria** on every page of the Dynamic Student Edition.
- Take ownership of your learning and think about where to go next.

Ensuring Positive Outcomes

John Hattie's *Visible Learning* research consistently shows that using Learning Targets and Success Criteria can result in two years' growth in one year, ensuring positive outcomes for your learning and achievement.

Sophie Murphy, M.Ed., wrote the chapter-level Learning Targets and Success Criteria for this program. Sophie is currently completing her Ph.D. at the University of Melbourne in Australia with Professor John Hattie as her leading supervisor. Sophie completed her Master's thesis with Professor John Hattie in 2015. Sophie has over 20 years of experience as a teacher and school leader in private and public school settings in Australia.



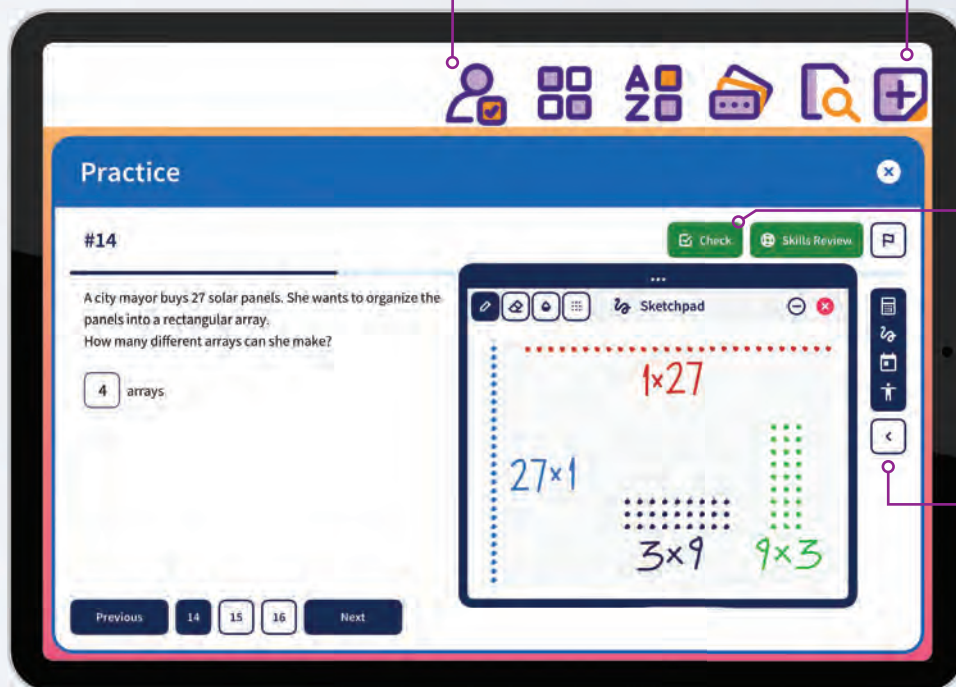
Strategic Support for Online Learning

Get the Support You Need, When You Need It

There will be times throughout this course when you may need help. Whether you missed a lesson, did not understand the content, or just want to review, take advantage of the resources provided in the Dynamic Student Edition.

Use the **Self-Assessment** tool to keep track of your understanding of the lesson's Learning Target and Success Criteria.

Take notes throughout the lesson using the **My Notes** function. These notes will be organized by chapter and lesson.



Check your answers to selected exercises as you work through the lesson. Use the **Help** option to view the Digital Example and Extra Example videos.

Use **tools**, such as the calculator or sketchpad, to help clearly show your work and demonstrate your math knowledge.

USE THESE QR CODES TO EXPLORE ADDITIONAL RESOURCES



Multi-Language Glossary

View definitions and examples of vocabulary words



Skills Trainer

Practice previously learned skills



Interactive Tools

Visualize mathematical concepts



Skills Review Handbook

A collection of review topics

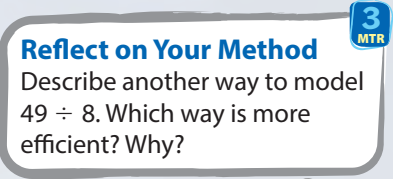
Learning with Newton and Descartes

Who are Newton and Descartes?

Newton and Descartes are helpful math assistants who appear throughout your math book! They encourage you to think deeply about concepts and develop strong mathematical mindsets with Mathematical Thinking and Reasoning questions.



Newton

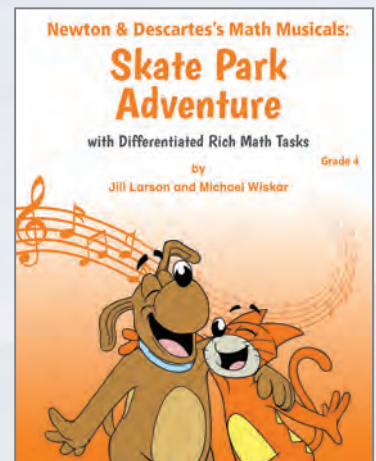


Descartes

Newton & Descartes's Math Musicals with Differentiated Rich Math Tasks

Math Musicals offer an engaging connection between math, literature, and music! Newton and Descartes team up in these educational stories and songs to bring mathematics to life!

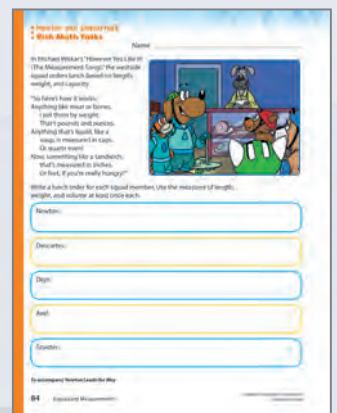
Differentiated Rich Math Tasks combine music and literature with math to create engaging activities and discussions that are directly tied to *Newton & Descartes's Math Musicals*.



Math Musicals animation and story



Sheet Music



Differentiated Rich Math Tasks

1

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17. Model Real Life You sell 8 orchids. You want to raise \$70. Do you reach your goal? Explain.



Flower Sale	
Lily	\$6
Orchid	\$9

DIG DEEPER Newton sells 9 lilies. Descartes sells 5 orchids. Who raises more money, Newton or Descartes? Explain.



4

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Model Real Life B.E.S.T. Test Prep

7
MTR

A research team counts 3,780 turtle nests on an island. The team also counts 915 turtle nests on the mainland. How many more nests does the team count on the island than the mainland?

0	1	2	3	4	5
6	7	8	9	0	1
2	3	4	5	6	7
8	9	0	1	2	3
4	5	6	7	8	9
0	1	2	3	4	5
6	7	8	9	0	1
2	3	4	5	6	7
8	9	0	1	2	3
4	5	6	7	8	9



Some sea turtles can hold their breath underwater for up to 7 hours!



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