Everyday Mathematics®

The University of Chicago School Mathematics Project

GRADE **1**

REVIEWER'S GUIDE & LESSON SAMPLER

Reviewing *Everyday Mathematics*

For over 35 years, *Everyday Mathematics* has helped teachers transform how they deliver math instruction. Since the first edition, the program has incorporated research-based practices such as problem-based instruction, flexible grouping strategies, math discourse, and productive struggle. These features are woven into core instruction rather than appearing as labels or stand-alone parts of the lesson.

> The authors have created a unique tool called "Planning for Rich Mathematical Instruction" to help teachers and reviewers see where these practices appear in lessons and specific activities.
> *See page xx for more information.*

Everyday Mathematics remains the only program that dedicates the time and resources required to develop research-based learning trajectories that are carefully designed to spiral both practice and instruction over time, which has been proven to be the most effective of way of achieving true, life-long mastery of mathematics skills and concepts.

> To help teachers and reviewers see the coherence of the spiral, the authors have created tools such as the spiral tracker which shows how each standard progresses across lessons and units.
> *See page xxx for more information.*

Features

Content

The *Everyday Mathematics* Classroom

A pervasive element of an *Everyday Mathematics* classroom is collaborative learning. Working collaboratively in classrooms creates an atmosphere for sharing ideas and problem-solving strategies. As students encounter different ways of solving problems from peers, they learn to interpret and evaluate each other's point of view and engage in discussions that address the strengths and weaknesses of a variety of approaches.

Each lesson activity includes recommendations for one or more grouping options, helping you create a flexible, dynamic learning environment every day.

WARM UP

Strengthen fluency

FOCUS

Show what you know

Share and learn together

CHECK THE TARGET

Today's Data

Reflect and share

PRACTICE

Teacher Table

Independent

Flexible Stations

Collaboration

An Investment in How Your Children Learn

Behind each student success story is a team of teachers and administrators who set high expectations for themselves and their students. *Everyday Mathematics* is designed to help you achieve those expectations with a research-based approach to teaching mathematics.

The *Everyday Mathematics* Difference

Decades of research show that children who use *Everyday Mathematics* develop deeper conceptual understanding and greater depth of knowledge than children using other programs. They develop powerful, life-long habits of mind such as perseverance, creative thinking, and the ability to express and defend their reasoning.

Daniel LaFlor/Vetta/Getty Images

A Commitment to Educational Equity

Everyday Mathematics was founded on the principle that every child can and should learn challenging, interesting, and useful mathematics. The program is designed to ensure that each of your children develops positive attitudes about math and powerful habits of mind that will carry them through college, career, and beyond.

Provide Multiple Pathways to Learning

Through *Everyday Mathematics*' spiraling structure, your children develop mastery by repeatedly experiencing math concepts in varied contexts, with increasing sophistication, over time. By providing multiple opportunities to access math concepts, you can easily adapt your instruction to better meet the unique learning needs of your children.

Access High Quality Materials

All children deserve strong learning materials especially in early childhood. You can be confident teaching with *Everyday Mathematics* because your instruction is grounded in a century of research in the learning sciences and has been rigorously field tested and proven effective in classrooms for over thirty years.

Use Data to Drive Your Instruction

Using the Quick-Entry Evaluation tool in the ConnectED Teacher Center, you can go beyond tracking progress solely through periodic assessments and easily record evaluations of almost every activity your children engage in every day. The data you collect drives a suite of reports that help you tailor your instruction to meet the needs of every child in your classroom.

Create a System for Differentiation in Your Classroom

Turn your classroom into a rich learning environment that provides multiple avenues for each of your children to master content, make sense of ideas, develop skills, and demonstrate what they know. *Everyday Mathematics* helps you do this by providing the tools you need to effectively address the key components of effective differentiation in your classroom: Content, Process, Product, Classroom Organization, and Learning Environment.*

Build and Maintain Strong Home-School Connections

Research shows that strengthening the link between home and school is integral to your children's success. That's why *Everyday Mathematics* provides a wealth of resources to help you extend what your children learn in your classroom to what they can do at home.

*Tomlinson & Murphy, M (2015). Leading for Differentiation: Growing Teachers Who Grow Kids. ASCD.

Build Mathematical Literacy

Designed for College and Career Readiness, *Everyday Mathematics* builds a solid foundation for success in your mathematics classroom through meaningful practice opportunities, discussion of reasoning and strategies, and engagement in the mathematical practices every day.

Focused Instruction

The instructional design of *Everyday Mathematics* allows you to focus on the critical areas of instruction for each grade.

Lesson
2-2

Addition Number Stories

Overview Children write and solve addition number stories.

▶ **Before You Begin**
Select and sequence Quick Look Cards 102, 78, and 82 for the Mental Math and Fluency activity. For the Focus portion of the lesson, create a unit box for display.

▶ **Vocabulary**
addition number story • unit box • label • number model

Standards

Focus Clusters
• Represent and solve problems involving addition and subtraction.
• Add and subtract within 20.

1 Warm Up 15–20 min	**Materials**	
Mental Math and Fluency Children solve addition facts using Quick Look Cards.	Quick Look Cards 102, 78, and 82	**2.OA.2**
Daily Routines Children complete daily routines.	See pages 4–43.	See pages xiv–xvii.

2 Focus 20–30 min

Focus Clusters

Everyday Mathematics identifies the clusters addressed in the Focus part of each lesson to help you understand the content that is being taught in the lesson.

Major Clusters

Each unit focuses on Major Clusters that are clearly identified in the Unit Organizer.

Focus

In this unit, children will focus on addition and subtraction.

Major Clusters
2.OA.B Add and subtract within 20.
2.NBT.B Use place value understanding and properties of operation

Supporting Clusters
2.OA.C Add and subtract within 20.
2.MD.C Use place value understanding and properties of operations

Process and Practice Standards
SMP7 Look for and make use of structure.
SMP8 Look for and express regularity in repeated reasoning.

Focus

In Unit 2, children review and extend fact strategies and program routines.

Major Clusters
2.OA.B Add and subtract within 20.

2.NBT.B Use place value understanding and properties of operations to add and subtract.

Coherence Within and Across Grades

Spiral Towards Mastery

Carefully crafted, research-based learning progressions provide opportunities for your children to connect skills, concepts, and applications, while developing deep understanding, long-term learning, and transfer of knowledge and skills to new contexts.

/// Spiral Towards Mastery

The *Everyday Mathematics* curriculum is built on the spiral, where standards are introduced, developed, and mastered in multiple exposures across the grade. Go to the Teacher Center at my.mheducation.com to use the Spiral Tracker.

★ **Spiral Towards Mastery Progress** This Spiral Trace outlines instructional trajectories for key standards in Unit 2. For each standard, it highlights opportunities for Focus instruction, Warm Up and Practice activities, as well as formative and summative assessment. It describes the **degree of mastery**—as measured against the entire standard—expected at this point in the year.

Operations and Algebraic Thinking

2.OA.1 — 2-2 Focus Practice — 2-3 Warm Up — 2-5 Warm Up Practice — 2-7 Focus Practice — 2-8 Warm Up — 2-9 Warm Up — 2-11 Practice — 2-12 Warm Up — 3-2 Warm Up Focus — 3-5 Warm Up — 3-7 Focus

★ **Progress Towards Mastery** By the end of Unit 2, expect children to write an addition number story that matches a picture, write a number model to represent their story, and solve their story.

Full Mastery of 2.OA.1 expected by the end of Unit 8.

Coherence

The table below describes how standards addressed in the Focus parts of the lessons link to the mathematics that children have done in the past and will do in the future.

	Links to the Past	Links to the Future
2.OA.2	In Unit 1, children played *Fishing for 10* to review their recall of addition combinations of 10. In Grade 1, children added and subtracted within 20 and demonstrated fluency for addition and subtraction within 10.	In Unit 3, children will explore how thinking about addition facts can help them solve subtraction facts. In Grade 3, children will apply their knowledge of basic addition and subtraction facts to solve addition and subtraction problems within 1,000.
2.OA.3	In Unit 1, children explored even and odd numbers using concrete and visual models. In Grade 1, children wrote number models to represent pictures of real-world items with paired features.	Through Unit 4, children will practice determining whether a number of objects in a group is odd or even and express an even number as a sum of two equal addends. In Unit 9, children will apply their knowledge of even numbers to equal-groups stories. In Grade 3, children will identify and explain arithmetic

Linking Prior and Future Knowledge

Each unit contains information about how the focus standards covered in the unit developed in prior units and grades and how your instruction lays the foundation for future lessons.

Rigorous Content

Everyday Mathematics gives you the tools and resources you need to emphasize conceptual understanding, procedural fluency, and applications with equal intensity.

Planning for Rich Math Instruction

RIGOR		2-1 Grouping by 10	2-2 Addition Number Stories	2-3 Doubles and Combinations of 10	2-4 The Making-10 Strategy
	Conceptual Understanding	Place value through hundreds place Making Exchanges, p. 152	Understanding that addition can be represented with a number model Representing Number Stories, p. 158	Doubles and combinations of ten facts ■ Using Double Ten Frames, p. 164 ■ Naming Doubles and Combinations of 10, p. 165	Making-10 fact strategy ■ Math Message, p. 170 ■ Exploring the Making-10 Strategy, p. 170
	Procedural Skill and Fluency	Mental Math and Fluency, p. 152 Math Boxes ■ 1, ■ 4	■ Mental Math and Fluency, p. 158 ■ Math Message, p. 158 Math Boxes 1, ■ 3, 5, ■ 6 ■ Home Link 2-2, p. 161	■ Mental Math and Fluency, p. 164 ■ Using Double Ten Frames, p. 164 ■ Naming Doubles and Combinations of 10, p. 165 ■ *Fishing for 10*, p. 167 Math Boxes ■ 1, ■ 4 ■ Home Link 2-3, p. 167	■ Mental Math and Fluency, p. 170 ■ Math Message, p. 170 ■ Exploring the Making-10 Strategy, p. 170 ■ Practicing the Making-10 Strategy, p. 172 ■ Enrichment, p. 169 ■ Extra Practice, p. 169 Journal, p. 25: 1, ■ 3, 5, ■ 6 ■ Home Link 2-4, p. 173
	Applications	■ Making Exchanges, p. 152 ■ Counting Money, p. 153 ■ The Exchange Game, p. 154 Extra Practice, p. 151	■ Representing Number Stories, p. 158 ■ Creating and Solving Addition Number Stories, p. 159 Writing Number Stories, p. 159	■ Mental Math and Fluency, p. 164	Math Boxes 2, ■ 6

Problem-based Instruction

Everyday Mathematics builds problem solving into every lesson. Problem solving is in everything they do.

Warm-up Activity	Daily Routines	Math Message	Focus Activities	Summarize	Practice Activities
Lessons begin with a quick, scaffolded Mental Math and Fluency exercise.	Reinforce and apply concepts and skills with daily activities.	Engage in high cognitive demand problem solving activities that encourage productive struggle	Introduce new content with group problem solving activities and classroom discussion.	Discuss and make connections to the themes of the focus activity.	Lessons end with spiraled review of content from past lessons.

Practice Embedded in Every Lesson

Because *Everyday Mathematics* is a problem-based curriculum, practice opportunities appear naturally in daily instruction, but specific activities in the practice part of lessons help you be confident your children are progressing toward mastery and maintaining and applying knowledge and skills over time.

Games

Provide opportunities for fluency practice, along with collaborative learning experiences.
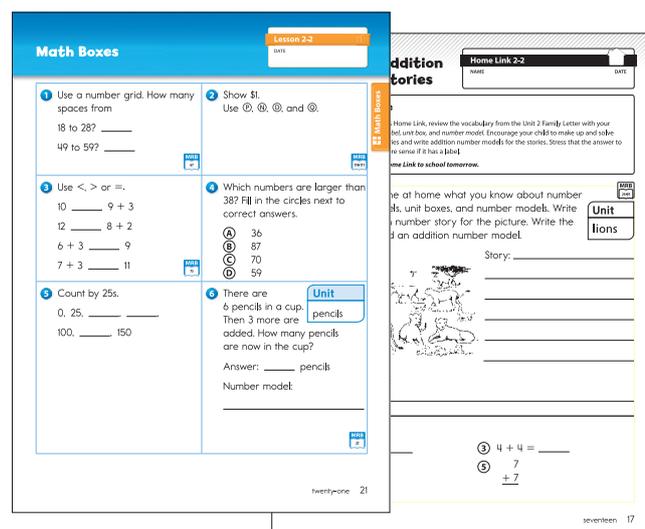
Math Boxes

Provide children with an opportunity to recall previously taught skills and concepts. These are distributed practice activities that include a balance of skills, concepts, and applications.

Home Links

Allow children to practice school mathematics and help family members connect to school.

Mathematical Literacy
Sets The Stage for Algebra

Everyday Mathematics encourages children to recognize, analyze, and generalize patterns; represent quantities and relationships symbolically; model problem situations using objects, pictures, words, and symbols; and understand real-world relationships such as direct proportion—which, along with a fluent mastery of basic arithmetic, are the building blocks of algebraic thinking.

GRADE	K	1	2	3	4	5	6	▶
	Instruction builds on children's curiosity about patterns to explore numbers, shapes, and relationships between them.		Children work with symbolic representations for quantities and relationships, model simple situations, and build arithmetic skills.			Children use symbolic representations to model problem situations, build their understanding of fundamental relations such as direct proportion, and master elementary arithmetic concepts and skills		

Be the Teacher They Will Always Remember

An *Everyday Mathematics* classroom has a unique energy that's a result of student engagement and excitement about learning math. This environment builds growth mindset and other positive attitudes about learning that will help your children succeed long after they've left your classroom.

Math Talk

Talking about mathematics is an essential part of learning mathematics. Opportunities for children to share their problem-solving strategies and their reasoning as well as critique others' reasoning are embedded throughout *Everyday Mathematics,* making it easy for you to facilitate math discussions every day.

"I can share my solution!"

Collaboration

Everyday Mathematics was designed to allow your children to share ideas and strategies. They work in small groups and with partners formed according to their needs, helping you create a rich learning environment that supports powerful instruction.

(t)Steve Debenport/Getty Images, (b)©KidStock/Blend Images LLC

Perseverance and Productive Struggle

Everyday Mathematics helps you create a classroom culture that values and supports productive struggle, that fosters productive dispositions in your children—a belief that mathematics is worthwhile, an inclination to use the mathematics they know to solve problems and confidence in their own mathematical abilities.

"I can do this!"

Hands-on Exploration

Everyday Mathematics includes hands-on activities in every lesson that often involve the use of manipulatives and games to help children make connections to their everyday life. These activities allow children to model mathematics physically, concretely, and visually—deepening their understanding of concepts and skills.

The *Everyday Mathematics* Lesson

Lessons are designed to help teachers facilitate instruction and engineered to accommodate flexible grouping models. The three-part, activity-driven lesson structure helps you easily incorporate research-based instructional methods into your daily instruction.

Embedded Rigor and Spiraled Instruction

Each lesson weaves new content with practice of content introduced in earlier lessons. The structure of the lessons ensures that your instruction includes all elements of rigor in equal measure with problem solving at the heart of everything you do.

Review
Warm Up
FLUENCY

Lessons begin with quick, scaffolded warm up exercises that provide important fluency practice.

Introduction of New Content
Focus
CONCEPTUAL UNDERSTANDING AND APPLICATION

Math Message Children solve a challenging and engaging problem and discuss how they solved it.

Focus Activities Introduce new content, skills, and concepts.

Review
Practice
APPLICATION AND FLUENCY

Spiraled practice that revisits content from earlier lessons.

Lesson 2-2

Addition Number Stories

Overview Children write and solve addition number stories.

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▶ **Vocabulary**
addition number story • unit box • label • number model

Standards

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• Represent and solve problems involving addition and subtraction.
• Add and subtract within 20.

① Warm Up 15–20 min

	Materials	
Mental Math and Fluency Children solve addition facts using Quick Look Cards.	Quick Look Cards 102, 78, and 82	2.OA.2
Daily Routines Children complete daily routines.	See pages 4–43.	See pages xiv–xvii.

② Focus 20–30 min

Math Message Children solve an addition number story.		2.OA.1, 2.OA.2
Representing Number Stories Children are introduced to unit boxes and number models.		2.OA.1, 2.OA.2
Creating and Solving Addition Number Stories Children create addition number stories and represent them with unit boxes and number models.		2.OA.1, 2.OA.2 SMP2
Writing Number Stories Children write and solve number stories about a picture.	*Math Journal 1*, p. 19	2.OA.1, 2.OA.2 SMP2
✓ **Assessment Check-In** See page 160. Expect most children to be able to write an addition number story to match a picture, write a number model to represent their number story, and solve their number story.	*Math Journal 1*, p. 19	2.OA.1, SMP2

③ Practice 10–20 min

Completing Number-Grid Puzzles Children fill in missing numbers on number-grid puzzles.	*Math Journal 1*, p. 20	2.NBT.2, 2.NBT.8
Math Boxes 2-2 Children practice and maintain skills.	*Math Journal 1*, pp. 21 and inside back cover	See page 161.
Home Link 2-2 **Homework** Children write an addition number story.	*Math Masters*, p. 28	2.OA.1, 2.OA.2

Go Online to see how mastery develops for all standards within the grade.

Key Components

The *Everyday Mathematics* authors have developed a suite of resources that support your instruction, helping you create a mathematically rich environment every day.

Open Response and Reengagement Lessons

Every unit includes a 2-day lesson that provides your children the opportunity to work with rich tasks and solve complex problems while explicitly engaging in the mathematical practices.

Games

Research shows that games provide a more effective learning experience than tedious drills and worksheets. Games allow for playful, repetitive practice that develops fluency and confidence and helps children learn to strategize.

Activity Cards

Activity Cards provide structured exploration of content tied to the focus of the lesson independently, in partnerships, and in small groups, especially in centers, where children are expected to complete the activity with minimal teacher guidance.

Quick Looks

Quick Look activities are routines that help your children develop the ability to recognize a quantity without counting and to decompose numbers in various ways. As they encounter various combinations of numbers, they also develop strategies for basic facts.

Online Resources

Digital tools to help you confidently deliver effective mathematics instruction in your classroom are included with every implementation. Everything you need is included in one easy-to-navigate place and you can customize your lessons by adding resources and notes—and everything is saved and available to you year after year.

The Teacher Center

You'll never waste time looking for resources because everything you need for every lesson is right where you need it, when you need it. When you open the *Everyday Mathematics* Teacher Center, you're automatically taken to the overview of the current lesson.
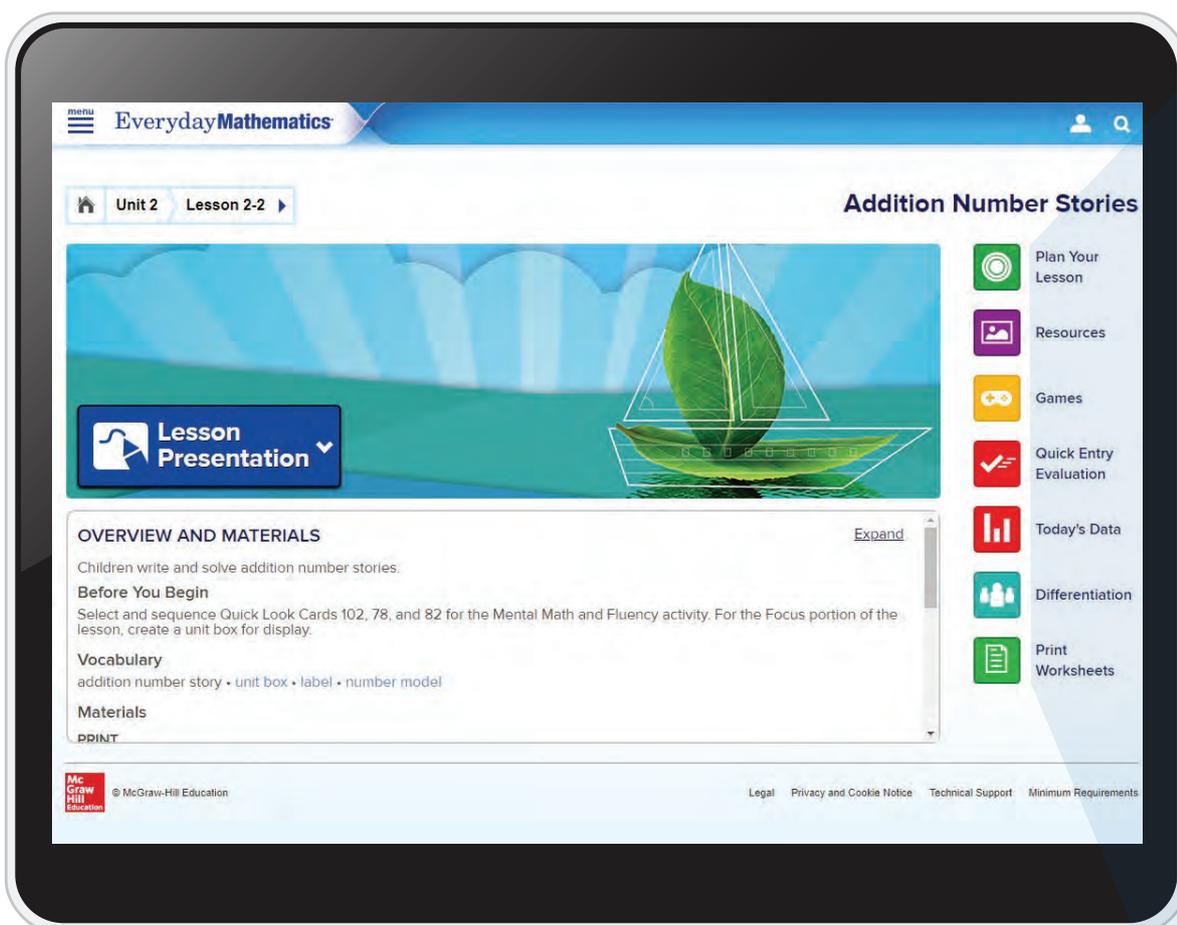
Plan Your Lesson

Review all of the activities for the lesson.

Resources

Access lesson resources, additional projects and home-school connections.

Games

Open online games for fluency practice.

Quick Entry

Easily record evaluations of your children's progress.

Today's Data

Easy access to Data Dashboard reports to drive your daily instruction.

Launch Presentation

Editable versions of digital lessons that help you lead instruction.

Differentiation

Resources to help you adjust the lesson to support all learners.

scottdunlap/iStockvectors/Getty Images

The Student Learning Center

Engineered to help each of your children experience confidence and develop positive feelings about math in a digital environment that keeps them engaged and excited about learning.

Lesson Content

Your children's lessons are synched with your planner so they always have easy access to each day's activities.

My Reference Book

One-click access to the interactive reference book that includes descriptions and examples as well grade-level-appropriate explanations of mathematical content and practices.

eToolkit

eTools and writing tools that enable your children to show their work and explore dynamic extensions.

Geometer's Sketchpad Activities and EM Games Online

Easy to access Fact Practice games and full integration of The Geometer's Sketchpad® activities.

Tutorial Videos

Demonstrations of concepts and skills.

EM at Home

Parents have easy access to resources to help them support their child's learning.

Data Driven Instruction

Everyday Mathematics includes a complete set of tools and resources to help teachers evaluate the development of each child's mathematical understanding and skills, while providing actionable data to inform instruction.

Evaluate

Ongoing Assessments

Assessment Check-In Daily lesson based assessment opportunities.

Writing and Reasoning Prompts Allow children to communicate understanding of concepts and skills and strategies for solving problems.

Pre Unit Assessment

Preview Math Boxes Appear in two lessons toward the end of each unit and help you gauge readiness for upcoming content, plan instruction and choose appropriate differentiation activities.

Data Dashboard Through the reports provided in the ConnectED Teacher Center, data recorded in prior units can provide valuable information to inform instruction in the upcoming unit.

Periodic Assessments

Progress Check lessons at the end of each unit provide formal opportunities to assess children's progress toward mastery of content and process/practice standards.

- **Unit Assessments** Assess children's progress toward mastery of concepts, skills, and applications in the current unit.
- **Self Assessments** Allow children to reflect on their understanding of content and process/practice standards that are the focus of the unit.
- **Challenge Problems** Extend important ideas from the unit, allowing children to demonstrate progress beyond expectations.
- **Cumulative Assessments** Assess children's progress toward mastery of content and process/ practice standards from prior units.
- **Open Response Assessments** Provide information about children's performance on longer, more complex problems and emphasize the process and practice standards for mathematics.

Benchmark Assessments Beginning of Year, Mid-Year, and End of Year benchmarks follow the same format as Unit Assessments.

Record

A full suite of tools including rubrics and class checklists are available to help you track your children's progress.

Quick Entry Evaluation Tool

You can quickly and efficiently record evaluations of your children's performance as well as add notes.

Report

The Data Dashboard is a responsive reporting tool that delivers actionable information to help you adapt and personalize your instruction and provide feedback to families and administrators.
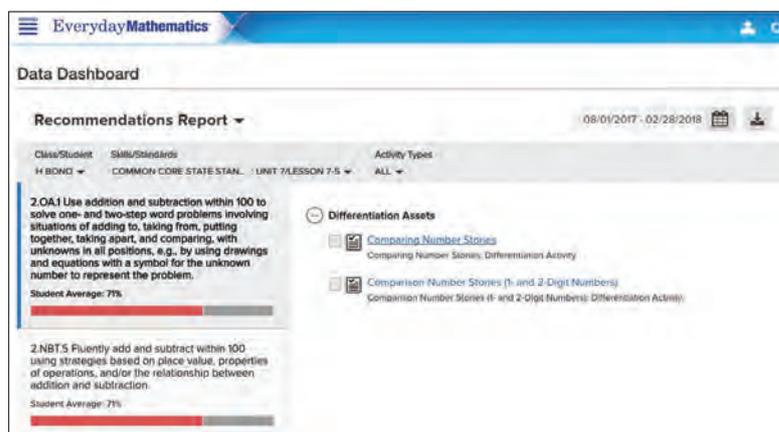
Progress Report

Recommendations Report
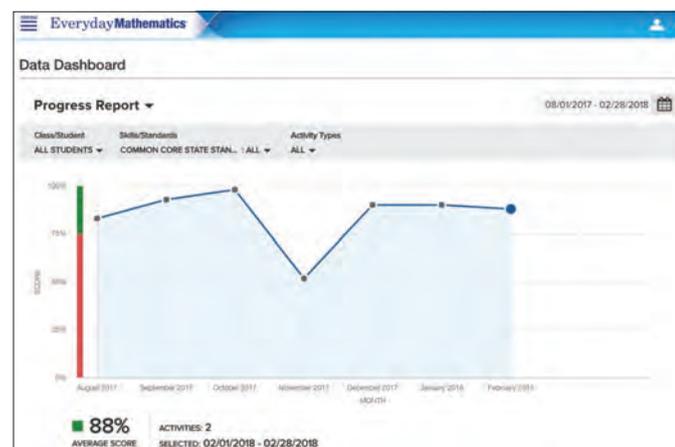
Grade Card Report

Differentiation System

Everyday Mathematics fosters rich learning environments that provide multiple avenues for mastering content, making sense of ideas, developing skills, and demonstrating knowledge. This allows rigorous mathematics content to be accessible and engaging for all children.

Everyday Mathematics Differentiation Model

Content

Clear goals and features that can be readily adapted or scaffolded to adjust the content for individual children.

Process

Engaging activities and point-of-use prompts that help foster rich pedagogical interaction in the classroom.

Product

Multiple opportunities to assess and monitor progress over time and to analyze mathematical strengths and misconceptions.

Classroom Organization

Opportunities for whole-class and small-group instruction built into every lesson, as well as time for children to work in partners, and individually.

Learning Environment

Everyday Mathematics provides multiple opportunities for children to reflect on their own strengths and weaknesses while engaging in productive collaboration.

Differentiation Options

Readiness	5–15 min	Enrichment	5–15 min	Extra Practice	5–15 min
WHOLE CLASS **SMALL GROUP** PARTNER INDEPENDENT		WHOLE CLASS SMALL GROUP **PARTNER** INDEPENDENT		WHOLE CLASS SMALL GROUP **PARTNER** INDEPENDENT	

Putting Groups Together

2.OA.1, 2.OA.2, SMP2

slate, craft stick, 8 counters

For experience using a concrete model to solve number stories, children use counters to model addition number stories on their slates. Show children how to use a craft stick to divide their slates into two sections. Then tell a number story. *For example:* I have 5 white shells and 3 pink shells. How many

Creating Addition Number Stories

2.OA.1, SMP2

Activity Card 21;
Math Masters, p. TA7

Children further explore addition number stories by creating their own. Stories can be collected and assembled into a class book. Encourage children to write both parts-and-total and change-to-more number stories. GMP2.1

Writing an Addition Number Story

2.OA.1, 2.OA.2, SMP

Math Journal 1, p. 1
TA7

For additional prac
number stories, ch
different addition n
describe the pictur
Tell them to write th
with the addition n
Masters, page TA7

English Language Learner

Beginning ELL To prepare children for writing number stories, have them look at the picture on journal page 19 and respond to the following questions (based on the Visual Teaching Strategies method):

- *What do you think is going on in the picture?*
- *What do you see in the picture that makes you say that?*
- *What else do you see in the picture?*

To provide everyday vocabulary support, label the items in the picture to help beginning English language learners build a bank of words for use in their own number stories.

Supplementary Activities

Everyday Mathematics offers specific differentiation options in every lesson for:

- Children who need more scaffolding
- Children who need extra practice
- Advanced Learners
- Beginning English Language Learners
- Intermediate and Advanced English Language Learners

Lesson 2-2 DIFFERENTIATING LESSON ACTIVITIES

Addition Number Stories

ELL   Differentiation Support

Meeting Language Demands

For Beginning ELLs, use . . .
- Visual aids to support understanding of written and oral content.
- Pictorial vocabulary displays to build children's English language vocabulary.
- Simple one-word-response questions to encourage English language production.

For Intermediate and Advanced ELLs, or for Children Who Need More Scaffolding, use . . .
- Sentence frames of varying complexity to scaffold for content terms and encourage their use.
- Highlighted terms on journal pages to promote independent work.

Language Assessment
- **Beginning ELLs** Assess pre-production children's comprehension of number stories by having them act out their solutions or use manipulatives to explain.
- **Intermediate and Advanced ELLs** Listen for children's use of content terms as they explain their strategies for solving their number stories.

See below for suggested modifications that address both language demands and content support for the lesson.

① Warm Up

▶ **Mental Math and Fluency**

Children Who Need More Scaffolding If children continue to have difficulty with Quick Looks, work with them in small groups using a whiteboard that has a double ten frame on it and magnets of two different colors. Consistently use one color for one addend and another color for the second addend. For example, for Quick Look Card 102, use one color for the 6 dots in the ten frame on the left side and a second color for the 6 dots in the ten frame on the right side. Model the different ways to see the patterns with think-alouds, such as: *I saw 6 in the first ten frame and 6 in the second one. I moved 4 from the first one into the second, so I had 10, and 2 more makes 12.*

Vocabulary

Everyday Terms
children	sitting
duck	skating
playing	swimming

Content Terms
addition number story
label
number model
unit box

Differentiation Support Lesson 2-2 | page 1

Differentiate   **Adjusting the Activity**

- Have children represent their stories using manipulatives or tallies. GMP2.1 *For example:* ⫽⫽⫽ sitting, ⫽⫽⫽ standing. How many are there in all? **9**
- Provide tools such as a number grid or a number line.
- Provide a structured frame for w
  _____ + _____
   unit   unit
- Use classroom objects to mode (for example, 5 crayons + 4 cra aloud as you fill in the sentence complete sentence.

Common Misconception

Differentiate   Although this lesson focuses on addition number stories, some children may write subtraction number stories for the picture. Point out that their story is a subtraction number story and suggest that they also write an addition number story.

Go Online   Differentiation Support

Lesson Supplements

Almost every lesson has Differentiation Support Pages found in the ConnectED Teacher Center that offer extended suggestions for working with diverse learners, including English Language Learners and children who need more scaffolding.

Point-of-Use Differentiation

Assessment Adjustments Suggestions for scaffolding and extending Progress Check assessments.
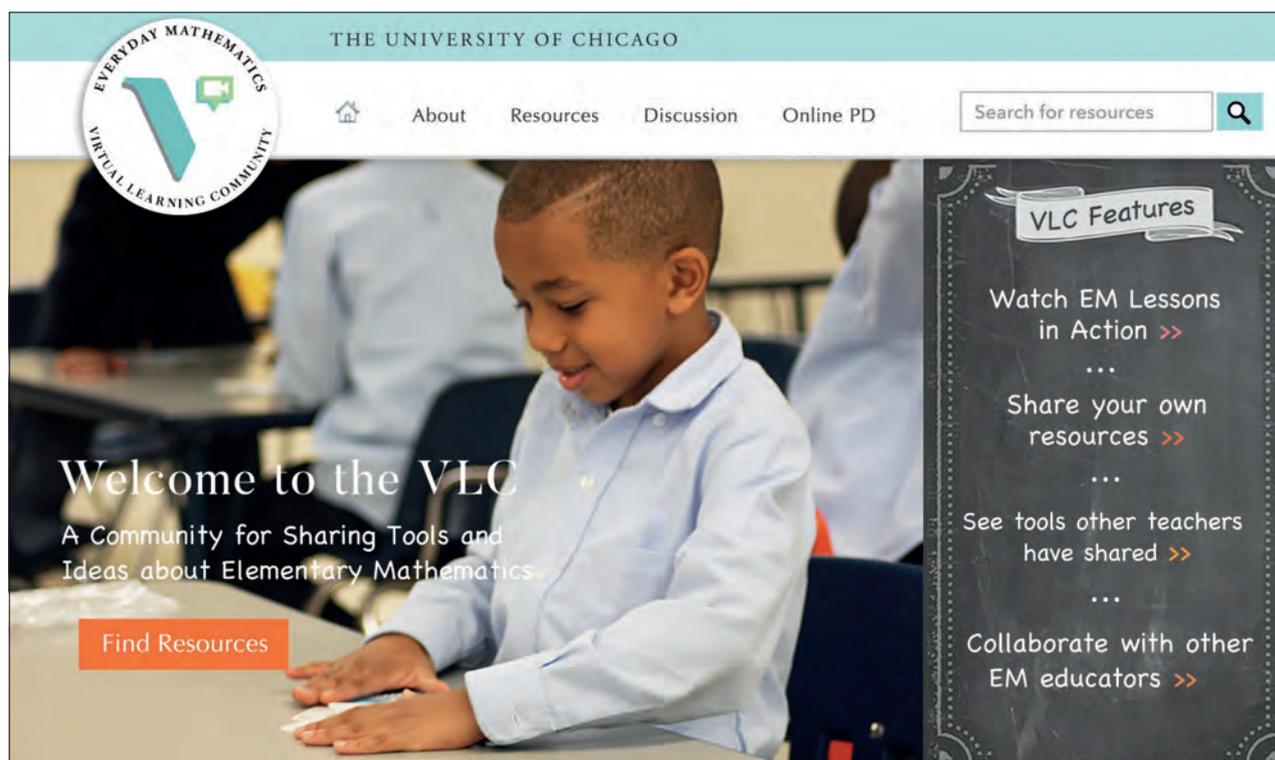
Game and Activity Adjustments Recommendations for tools, visual aids, and other instructional strategies that provide immediate support.

Adjusting the Activity Suggestions for adapting activities to fit children's needs.

Common Misconceptions Notes that suggest how to use observations of children's work to adapt instruction.

Supporting Rich Mathematical Instruction

Everyday Mathematics includes a wealth of resources to help you deliver effective instruction every day.

Planning

Every Unit Organizer includes a chart that shows where the building-blocks for rich mathematical instruction appear throughout every unit.

Unit 2 Organizer

Planning for Rich Math Instruction

		2-1 Grouping by 10	2-2 Addition Number Stories	2-3 Doubles and Combinations of 10	2-4 The Making-10 Strategy
RIGOR	Conceptual Understanding	Place value through hundreds place Making Exchanges, p. 152	Understanding that addition can be represented with a number model Representing Number Stories, p. 158	Doubles and combinations of ten facts ■ Using Double Ten Frames, p. 164 ■ Naming Doubles and Combinations of 10, p. 165	Making-10 fact strategy ■ Math Message, p. 170 ■ Exploring the Making-10 Strategy, p. 170
	Procedural Skill and Fluency	Mental Math and Fluency, p. 152 Math Boxes ■ 1, ■ 4	■ Mental Math and Fluency, p. 158 ■ Math Message, p. 158 Math Boxes 1, ■ 3, 5, ■ 6 ■ Home Link 2-2, p. 161	■ Mental Math and Fluency, p. 164 ■ Using Double Ten Frames, p. 164 ■ Naming Doubles and Combinations of 10, p. 165 ■ *Fishing for 10,* p. 167 Math Boxes ■ 1, ■ 4 ■ Home Link 2-3, p. 167	■ Mental Math and Fluency, p. 170 ■ Math Message, p. 170 ■ Exploring the Making-10 Strategy, p. 170 ■ Practicing the Making-10 Strategy, p. 172 ■ Enrichment, p. 169 ■ Extra Practice, p. 169 Journal, p. 25: 1, ■ 3, 5, ■ 6 ■ Home Link 2-4, p. 173
	Applications	■ Making Exchanges, p. 152 ■ Counting Money, p. 153 ■ The Exchange Game, p. 154 Extra Practice, p. 151 Home Link 2-1, p. 155	■ Representing Number Stories, p. 158 ■ Creating and Solving Addition Number Stories, p. 159 Writing Number Stories, p. 159 Math Boxes 2, ■ 6	■ Mental Math and Fluency, p. 164	Math Boxes 2, ■ 6
Rich Tasks and Mathematical Reasoning		Journal, p. 18: Writing/Reasoning	Creating and Solving Addition Number Stories, p. 159 Writing Number Stories, p. 159	■ Using Double Ten Frames, p. 164 Journal, p. 23: Writing/Reasoning	■ Exploring the Making-10 Strategy, p. 170 ■ Practicing the Making-10 Strategy, p. 172 ■ Extra Practice, p. 169
Mathematical Discourse		Making Exchanges, p. 152 *The Exchange Game,* p. 154 Summarize, p. 155	Creating and Solving Number Stories, p. 159 Summarize, p. 160	Math Message, p. 164 ■ Using Double Ten Frames, p. 164	■ Exploring the Making-10 Strategy, p. 170 ■ Enrichment, p. 169 *The Number-Grid Game,* p. 173
Distributed Practice		Daily Routines Mental Math and Fluency, p. 152 *The Exchange Game,* p. 155 Math Boxes 2-1 p. 155 Home Link 2-1, p. 155 Extra Practice, p. 151	Daily Routines ■ Mental Math and Fluency, p. 158 Completing Number-Grid Puzzles, p. 161 ■ Math Boxes 2-2, p. 161 ■ Home Link 2-2, p. 161 Extra Practice, p. 157	Daily Routines ■ Mental Math and Fluency, p. 164 ■ *Fishing for 10,* p. 167 Math Boxes 2-3, p. 167 ■ Home Link 2-3, p. 167 Extra Practice, p. 163	Daily Routines ■ Mental Math and Fluency, p. 170 *The Number-Grid Game,* p. 173 ■ Math Boxes 2-4, p. 173 ■ Home Link 2-4, p. 173 ■ Extra Practice, p. 169
Differentiation Support		Differentiation Options, p. 151 Online Differentiation Support 2-1 Adjusting the Activity, p. 154 Game Modifications, p. 154	Differentiation Options, p. 157 Online Differentiation Support 2-2 Common Misconception, p. 159 Adjusting the Activity, pp. 160, 161	Differentiation Options, p. 163 Online Differentiation Support 2-3	Differentiation Options, p. 169 Online Differentiation Support 2-4 Adjusting the Activity, p. 171

140   Unit 2 | Fact Strategies   ■ = Fact Work   Red text = Game

Preparing

Every Unit Organizer also includes important background information on both content and practice standards to help you confidently deliver instruction.

Support

The *Everyday Mathematics* Virtual Learning Community (VLC) at The University of Chicago, provides a free space where you can connect with a network of skilled, passionate educators who are also using the program, and interact with the authors. Resources on the VLC include classroom videos of lessons in action and instructional tools and resources.

Resources

Everything you need to successfully implement *Everyday Mathematics* is at your fingertips through the ConnectED Resource page of your Teacher Center including videos from the authors, quick start guides for key features, and the Implementation Guide, a comprehensive guide to using the program.
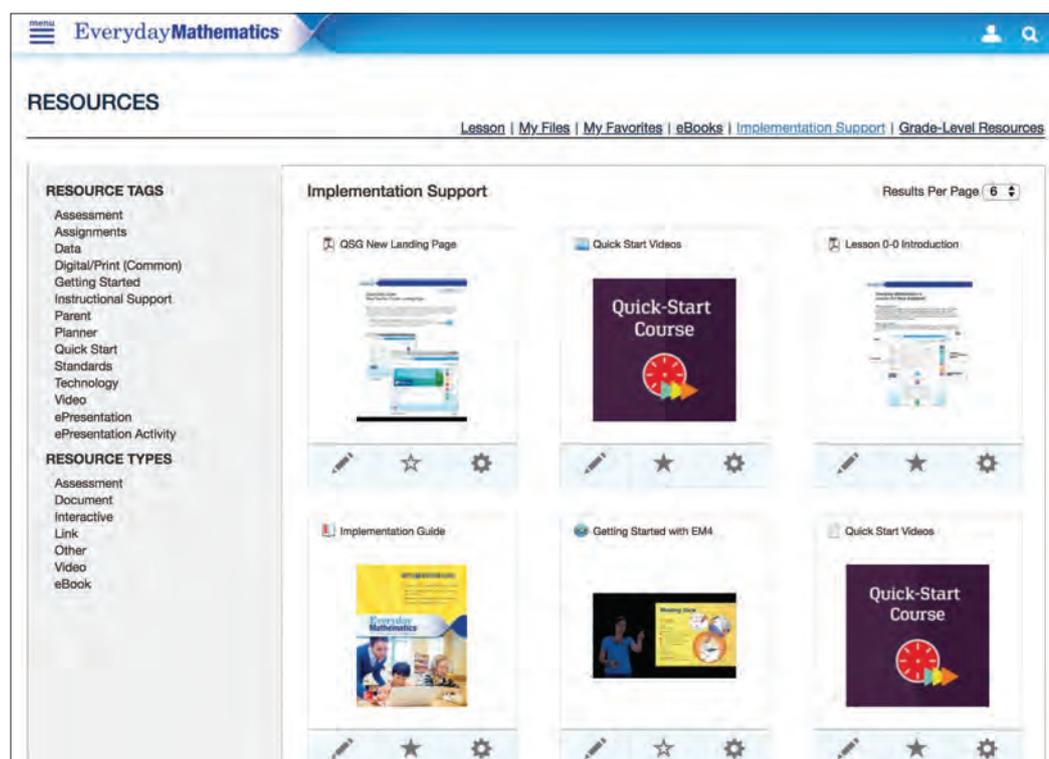
Getting Ready to Teach
First Grade Everyday Mathematics

Welcome to *First Grade Everyday Mathematics.* This guide introduces the organization and pedagogy of *Everyday Mathematics* and provides tips to help you start planning and teaching right away.

Grade 1 has **109 lessons** in 9 units. Plan to spend 60–75 minutes every day on math so that you complete **3–4 lessons each week** and **one unit every 3–5 weeks.**

This pacing is designed for flexibility and depth. You will have flexibility so you can extend a lesson if discussion has been rich or if students' understandings are incomplete. You can add a day for "journal fix-up" or for differentiation—to provide an Enrichment activity to every student, for example—or for games. There will also be time to accommodate outside mandates, district initiatives, and special projects.

This pacing also gives you time to go deep, to create a classroom culture that values and supports productive struggle. You can expect your students to do their own thinking, to solve problems they have not been shown how to solve, to make connections between concepts and procedures, to explain their thinking, and to understand others' thinking. Creating such a classroom culture takes time, but it's what the Mathematical Process and Practice Standards asks you to do—and the pacing of *Everyday Mathematics 4* is designed to give you the time you'll need.

The *Teacher's Lesson Guide* is your primary source for information on planning units and teaching lessons. In most lessons, children will complete pages in their *Math Journals* or digitally in the Student Learning Center. Additional pages that require copies are available as *Math Masters.* See the Materials section on pages xxvi-xxvii for information on the teacher and student components.

Preparing for the Beginning of School

- Use the list on pages xxvi-xxvii to check that your **Classroom Resource Package** is complete.
- See page xxix for manipulatives and supplies you will need.
- Set up the Ongoing Daily Routines so you can initiate them on the first day.
- Read the **Unit 1 Organizer** (pages 38–49) and the **first several lessons in Unit 1** to help you plan for the first week of school.
- Read the *Everyday Mathematics* in Grades 1–6 section of the **Implementation Guide** for more information on getting started.
- Copy the **Unit 1 Family Letter** on *Math Masters,* pages 3–4 to distribute early in the school year.
- Review the **Beginning-of-the-Year Assessment** tasks on pages 73–76 in the *Assessment Handbook* and consider how and when you will administer them.

[Go Online] to join the Virtual Learning Community (VLC) to learn about *Everyday Mathematics* classrooms from other teachers and to find tips for setting up your classroom.

Unit 1 begins on page 38.

See pages 2–3 for more information on each of the Routines.

Lesson Types

First Grade Everyday Mathematics includes four types of lessons, which share many of the same features.

Regular Lessons are the most common lesson type. See the table on the following pages for details about regular lessons.

Explorations Lessons occur once per unit and give children three unique opportunities to explore new concepts and tools in an informal small-group setting. Exploration A is often a teacher-led activity and focuses on the main content of the lesson. Activity Cards provide directions for children to complete most Explorations.

Open Response and Reengagement Lessons extend over two days and occur once per unit. On Day 1 children solve a challenging problem that involves more than one possible strategy or solution. On Day 2 children reengage in the problem and are asked to defend their reasoning and critique the reasoning of other students.

Progress Check Lessons are two-day lessons at the end of every unit. All items on the Progress Check match expectations for progress at that point in the grade and, with the exception of the optional challenge assessment, are fair to grade. On Day 1 children complete a self assessment, a unit assessment, and an optional challenge assessment covering the content and process/practice standards that were the focus of the unit. Day 2 includes one of the following types of assessments:

Open Response Assessments are included in odd-numbered units and allow children to think creatively about a problem. They address both content and process/practice standards and are accompanied by task-specific rubrics.

Cumulative Assessments are included in even-numbered units and cover standards from prior units.

Lesson Parts and Features

Every lesson begins with two planning pages. The remaining pages provide a detailed guide for teaching the three parts of a lesson: Warm Up, Focus, and Practice.

Lesson Parts and Features		Description	Tips
Planning	**Lesson Opener**	An outline of the lesson to assist in your planning that includes information on content and standards, timing suggestions, assessment, and materials.	• See the **Before You Begin** section for preparation tips. • Follow the time allotments for each part of the lesson.
	Differentiation Options	Optional **Readiness**, **Enrichment**, **Extra Practice**, and **English Language Learners (ELL) Support** activities that allow you to differentiate instruction. Additional Differentiation Support pages are available online for each regular lesson.	• Choose to complete Differentiation Options as a whole class, as a small group, or individually depending on the needs of your children. • Note that some children may benefit from completing the **Readiness** activity prior to the lesson. Go Online to the *Implementation Guide* for information on differentiation.

Part 1: Warm Up		Description	Tips
Instruction	**Mental Math and Fluency**	Quick, leveled warm-up exercises children answer orally, with gestures, or on slates or tablets that provide practice towards fluency.	• Select the levels that make sense for your children and customize for your class. • Spend 5 or fewer minutes on this feature.
	Routines	Daily activities that reinforce mathematical concepts and help children connect those concepts to their everyday lives. Routines are described on pages 2–3 of the *Teacher's Lesson Guide.*	• Establish the six Grade 1 Routines early in the year and let children grow into them at their own pace. Each routine includes suggestions for adding complexity as the year progresses. Go Online to the VLC for information on establishing routines.

Part 2: Focus		Description	Tips
Instruction	**Math Message and Math Message Follow-Up**	An introductory activity to the day's lesson that usually requires children to solve a problem they have not been shown how to solve. The follow-up discussion connects to the focus activities of the lesson and gives children opportunities to discuss their strategies.	• Consider where and how you will display the Math Message and how children will record their answers. • Maintain high cognitive demand by expecting children to work through the problem without your help before the follow-up discussion begins.

Part 2: Focus, con't.	Description	Tips
Focus Activities	Two to four main instructional activities, including games, in which children explore and engage in new content (skills, concepts, games).	• Encourage children to discuss and work together to solve problems during focus activities. • Remember that many focus skills, concepts, applications, and games will be revisited in later practice. 〈Go Online〉 to the Spiral Tracker to see the complete spiral. • Look for Goals for Mathematical Process and Practice icons. **GMP1.1** Use these to facilitate discussions about the standards. See also the *Implementation Guide* for information on Mathematical Process and Practice Standards.
Assessment Check-In ✓	A daily assessment opportunity to assess the focus content standards in the lesson. Assessment Check-Ins provide information on expectations for particular standards at that point in the curriculum.	• Use results to inform instruction. Expectation statements in the Assessment Check-Ins help you decide which children would benefit from differentiation activities. • Consider Assessment Check-Ins as "fair to grade" in most cases. 〈Go Online〉 to record children's progress and to see trajectories toward mastery for these and other standards. See also the *Implementation Guide* for assessment information.

(Instruction — vertical label on left)

Part 3: Practice	Description	Tips
Practice Activity	An opportunity to practice previously taught skills and content through a practice page or a game.	• Allow time for practice pages and games because they are critical for children to meet expectations for standards. This is an essential part of the distributed practice in *Everyday Mathematic*s. • Plan for all children to play *Everyday Mathematics* games at least 60 minutes per week. 〈Go Online〉 to the *Implementation Guide* for tips to ensure that all children have ample game time. See also the Virtual Learning Community (VLC) to observe many *Everyday Mathematics* games in action.
Math Boxes	A daily *Math Journal* page, beginning in Lesson 2-3, that reviews skills and concepts which children have seen prior to that point in the program. Preview Math Boxes anticipate content in the upcoming unit.	• Aim to have children complete Math Boxes with as little teacher support as possible. • Complete Math Boxes at any point during the day.
Home Link	A daily homework page, beginning in Lesson 1-7, that provides practice and informs families about the math from that day's lesson.	Encourage children to do these activities with someone at home, such as a parent, caregiver, or sibling.

(Instruction — vertical label on left)

Differentiation and Language Features		Description and Purpose
Differentiation	**Adjusting the Activity**	Allows for differentiated instruction by offering modifications to lesson activities.
	Common Misconception	Offers point-of-use intervention tips that address common misconceptions.
	Game Modifications	Provides suggestions for modifying games to support children who struggle and challenge children who are ready.
	Differentiation Support	Offers two online pages of specific differentiation ideas for each lesson, as well as ELL suggestions, and scaffolding for children who need it.
Language Notes	**Academic Language Development**	Suggests how to introduce new academic vocabulary that is relevant to the lesson. These notes benefit all children, not solely English language learners.
	English Language Learners (ELL)	Provides activities and point-of-use ideas for supporting children at different levels of English language proficiency.

Getting to Know Your Classroom Resource Package

Complete access to all digital resources is included in your Classroom Resource Package. To access these resources, log into **my.mheducation.com**.

Planning, Instruction, and Assessment	
Resource	**Description**
***Teacher's Lesson Guide* (Volumes 1 and 2)** ☑ digital ☑ print	• Comprehensive guide to the *Everyday Mathematics* lessons and assessments • Standards alignment information: digital version includes online tracking of each content standard • Point-of-use differentiation strategies: Readiness, Enrichment, Extra Practice, English Language Learners Support, general language development, Adjusting the Activity, Game Modifications, Common Misconception • Additional Differentiation Support pages available digitally for virtually every lesson • Unit overviews • Planning and calendar tools
eToolkit ☑ digital ☐ print	• Online tools and virtual manipulatives for dynamic instruction • A complete list of Grade 1 eTools on page xxix
ePresentations ☑ digital ☐ print	• Ready-made interactive white board lesson content to support daily instruction
Math Masters ☑ digital ☑ print	• Reproducible masters for lessons, Home Links, Family Letters, and games
***Minute Math*+** ☑ digital ☑ print	• Brief activities that require little or no materials; useful for transition times and for spare moments throughout the day
Classroom Posters ☑ digital ☑ print	• Posters that display grade-specific mathematical content

Planning, Instruction, and Assessment (con't)

Resource	Description
Assessment Handbook ☑ digital ☑ print	• Assessment masters for unit-based assessments and interim assessments • Record sheets for tracking individual and class progress
Assessment and Reporting Tools ☑ digital ☐ print	• Student, class, school, and district reports • Data available at point-of-use in the planning and teaching materials • Real-time data to inform instruction and differentiation
Spiral Tracker ☑ digital ☐ print	• Online tool that helps you understand how standards develop across the spiral curriculum

Professional Development

Resource	Description
Implementation Guide ☑ digital ☐ print	• Online resource with information on implementing the curriculum
Virtual Learning Community ☑ digital ☐ print	• An online community, sponsored and facilitated by the Center for Elementary Mathematics and Science Education (CEMSE) at the University of Chicago, to network with other educators, and share best practices • A collection of resources including videos of teachers implementing lessons in real classrooms, photos, work samples, and planning tools

Family Communications

Resource	Description
Home Connection Handbook ☑ digital ☐ print	• A collection of tips and tools to help you communicate to families about *Everyday Mathematics* • Reproducible masters for home communication for use by both teachers and administrators

Student Materials

Resource	Description
Student Math Journal, (Volumes 1 and 2) ☑ digital ☑ print	• Student work pages that provide daily support for classroom instruction • Provide a long-term record of each student's mathematical development
Pattern Block Template ☑ digital ☑ print	• eTools to support mathematical concepts, including geometry and measurement • Also available as plastic templates
My Reference Book ☑ digital ☑ print	• Resource to support student learning in the classroom and at home • Includes explanations of mathematical content and directions for many *Everyday Mathematics* games
Activity Cards ☑ digital ☑ print	• Directions for students for Explorations, Differentiation Options, and other small-group activities
Student Learning Center ☑ digital ☐ print	• Combines Student Journal, *My Reference Book,* eToolkit, and Activity Cards, and other resources for students in one location • Interactive functionality provides access in English and Spanish • Interactive functionality provides immediate feedback on select problems • Animations that can help with skills and concepts and reinforce classroom teaching • Provides access to EM Games Online and Facts Workshop Game
EM Games Online ☑ digital ☐ print	• Digital versions of many of the *Everyday Mathematics* games that provide important practice in a fun and engaging setting
Facts Workshop Game ☑ digital ☐ print	• Games that build computation skill and fact fluency with *Everyday Mathematics* routines such as fact families and fact triangles

Manipulative Kits and eToolkit

The table below lists the materials that are used on a regular basis throughout *First Grade Everyday Mathematics.* All of the items below are available from McGraw-Hill Education. They may be purchased as a comprehensive classroom manipulatives kit or by individual items. The manipulative kit comes packaged in durable plastic tubs. Note that some lessons call for additional materials, which you or your children can bring in at the appropriate times. These additional materials are listed in the Unit Organizers and in the lessons in which they are used.

Manipulative Kit Contents		eTools
Item	**Quantity**	**Item**
Attribute blocks	2 sets of 60	✔
Base-10 Flats	3 packs of 10 flats	✔
Base-10 Longs	5 packs of 50 longs	✔
Base-10 Unit Cubes	10 packs of 100 cubes	✔
Clock face	1 pack of 25	✔
Connecting cubes	3 packs of 100	✔
Connectors	1 pack of 2,000	
Counters, translucent	1 pack of 500	✔
Counting sticks	1 pack of 1,000	✔
Dice, blank	1 pack of 16	✔
Dice, dot	2 packs of 12	✔
Dice, polyhedral	3 packs of 6	✔
Dominoes, double-9	5 sets of 55	✔
Everything Math Decks	3 packs of 5	✔
Geoboards, two-sided	8 individual boards	✔
Geosolids	5 sets of 12	✔
Marker Boards	25 boards	
Number line, −35 to 180	1 number line	✔
Pattern blocks	2 sets of 250	✔
Play money bills		✔
Pennies, play coins	1 set of 500	✔
Dimes, play coins	1 set of 250	✔
Quick Look Cards	1 pack each of 3 types: dot patterns, ten frames, double-ten frames	✔
Rubber bands	1 pack of 400	
Spinners	Not in kit	✔
Straws	1 pack of 500	
Ten frames	7 sets of frames and circles	✔
Thermometer	1	✔

Clear Pathway to Mastery

You can be confident your children are progressing toward mastery of every standard because *Everyday Mathematics* provides detailed information about the learning trajectories for each standard as well as expectations for mastery at every step of the way.

Unpack

Standards for Mathematical Content

Strand Operations and Algebraic Thinking 2.OA	*Everyday Mathematics* **Goals for Mathematical Content**
Cluster Represent and solve problems involving addition and subtraction.	
2.OA.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	**GMC** Model 1-step problems involving addition and subtraction. **GMC** Use addition and subtraction to solve 1-step number stories. **GMC** Model 2-step problems involving addition and subtraction. **GMC** Use addition and subtraction to solve 2-step number stories.
Cluster Add and subtract within 20.	
2.OA.2 Fluently add and subtract within 20 using mental strategies.[1] By end of Grade 2, know from memory all sums of two one-digit numbers.	**GMC** Add within 20 fluently. **GMC** Subtract within 20 fluently. **GMC** Know all sums of two 1-digit numbers automatically.
Cluster Work with equal groups of objects to gain foundations for multiplication.	
2.OA.3 Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.	**GMC** Determine whether the number of objects in a group is odd or even. **GMC** Express an even number as a sum of two equal addends.

Goals for Mathematical Content

The *Everyday Mathematics* authors developed Goals for Mathematical Content (GMC) that break down each content standard to provide detailed information about the learning trajectories required to meet the full standard. See pages EM3–EM5 for a full view of the content standards and the related GMCs.

Goals for Mathematical Practice

The authors created Goals for Mathematical Practice (GMP) that unpack the practice standards, operationalizing them in ways that are appropriate for elementary students. See pages EM6–EM9 for a full view of the practice standards and the related GMPs.

Standards for Mathematical Process and Practice

Standards for Mathematical Process and Practice	*Everyday Mathematics* **Goals for Mathematical Process and Practice**
1 Make sense of problems and persevere in solving them.	
Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.	**GMP1.1** Make sense of your problem. **GMP1.2** Reflect on your thinking as you solve your problem. **GMP1.3** Keep trying when your problem is hard. **GMP1.4** Check whether your answer makes sense. **GMP1.5** Solve problems in more than one way. **GMP1.6** Compare the strategies you and others use.
2 Reason abstractly and quantitatively.	
Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically	**GMP2.1** Create mathematical representations using numbers, words, pictures, symbols, gestures, tables, graphs, and concrete objects.

Track

Everyday Mathematics provides the tools you need to easily monitor your children's progress toward mastery.

Visible Learning Trajectories

Get a full picture of how each standard develops across a unit—and the entire grade.

Each unit organizer contains a view of the progression of the standards in the unit across recent and upcoming lessons.

Using the online Spiral Tracker you can see how each standard progresses across the grade.

Master

Unit organizers include mastery expectation statements that provide guidance about what you should expect your children to know by the end of the unit and to help you make decisions about differentiation and groupings.

⭐ **Progress Towards Mastery** By the end of Unit 2, expect children to write an addition number story that matches a picture, write a number model to represent their story, and solve their story.

Full Mastery of 2.OA.1 expected by the end of Unit 8.

The Mastery Expectations charts starting on page xl provide a full picture of how every standard develops across the entire grade.

Standards	First Quarter Benchmark Expectations for Units 1 and 2	Second Quarter Benchmark Expectations for Units 3 and 4	Third Quarter Benchmark Expectations for Units 5 and 6	Fourth Quarter Benchmark Expectations for Units 7 through 9
2.OA.1	Write an addition number story that matches a picture, write a number model to represent the story, and solve the story.	Add and subtract within 20 to solve one-step word problems involving situations of adding to, taking from, putting together, and taking apart by using drawings	Add and subtract within 100 to solve one-step word problems involving situations of adding to, taking from, putting together, and taking apart, e.g. by using	⭐ Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking

Correlation to the Standards for Mathematics

Everyday Mathematics is a standards-based curriculum engineered to focus on specific mathematical content in every lesson and activity. The chart below shows complete coverage of each mathematics standard in the core program throughout the grade level.

*Bold lesson numbers indicate that content from the standard is taught in the Focus part of the lesson. Lesson numbers not in bold indicate that content from the standard is addressed in the Warm Up or Practice part of the lesson. The second set of lesson numbers, which are in parentheses, indicate that content from the standard is being addressed in Home Links or Math Boxes.

Content Standards for Mathematics for Grade 1	*Everyday Mathematics* Grade 1 Lessons*
Operations and Algebraic Thinking 1.OA	
Represent and solve problems involving addition and subtraction.	
1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	**Routines 1, 2, 3, 6; 1-5, 1-10, 2-1,** 2-3, **2-4, 2-8, 2-9, 2-10, 2-11, 3-1, 3-2, 3-3, 3-4, 3-6, 3-8,** 4-1, 4-2, 4-4, 4-6, **4-9,** 4-11, 5-3, **5-9, 5-10, 5-11,** 5-12, **6-2, 6-5, 6-7, 6-8,** 6-1, 6-4, 6-10, 6-11, 7-1, **7-3,** 7-6, 7-7, 7-9, 8-7, **8-11, 9-2, 9-5, 9-6, 9-7** (2-2, 2-12, 4-3, 4-5, 4-7, 4-10, 5-1, 5-2, 5-4, 5-5, 5-6, 5-10, 6-2, 6-3, 6-5, 6-6, 6-9, 7-4, 7-10, 8-1, 8-3, 8-8, 9-1)
1.OA.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	**Routine 6; 4-10,** 5-3, 5-12, **6-2,** 6-4, 7-3, 7-6, **9-2,** 9-4, **9-5, 9-6,** 9-7 (3-3, 5-4, 5-7, 5-9, 6-1, 6-3, 6-11, 7-4, 7-9, 7-11, 8-11)
Understand and apply properties of operations and the relationship between addition and subtraction.	
1.OA.3 Apply properties of operations as strategies to add and subtract. *Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)*	**Routine 6; 1-10, 2-1,** 2-4, **2-5, 3-5, 3-6,** 3-7, **3-8,** 3-10, **4-8, 4-9, 4-10,** 5-6, **5-7,** 5-9, 5-10, **6-2,** 6-3, 6-4, 6-6, **6-9, 7-1, 7-2, 7-3,** 7-4, **7-6,** 7-8, 7-11, 8-1, 8-6, 9-7, 9-1, **9-4, 9-8,** 9-11 (2-7, 2-9, 2-10, 2-11, 3-2, 3-3, 3-12, 4-5, 4-11, 5-4, 5-8, 5-11, 5-13, 6-1, 6-7, 6-8, 6-10, 6-11, 7-5, 7-7, 7-9, 7-11, 8-4, 8-8, 8-11, 9-10)
1.OA.4 Understand subtraction as an unknown-addend problem. *For example, subtract 10 − 8 by finding the number that makes 10 when added to 8.*	**Routines 3, 5; 2-9, 5-10,** 6-2, 6-7, 6-11, **7-1, 7-2, 7-3, 7-4, 7-6,** 7-7, 8-1, 8-2, 9-1, 9-11 (3-9, 3-11, 4-1, 4-2, 4-3, 4-5, 4-9, 4-11, 5-2, 5-5, 6-4, 6-6, 6-8, 6-12, 7-10, 8-3, 9-4, 9-6)

Content Standards for Mathematics for Grade 1	Everyday Mathematics Grade 1 Lessons*
Add and subtract within 20.	
1.OA.5 Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).	**Routines 1, 3, 5; 1-5,** 1-6, 1-9, 1-10, **1-11, 2-1,** 2-2, 2-3, **2-6,** 2-7, **2-8, 2-9,** 2-10, 2-11, **3-2,** 3-3, **3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11,** 4-1, 4-3, 4-7, 4-8, **4-9,** 5-4, **5-10, 5-12, 7-4,** 8-2 (2-4, 3-1, 3-4, 3-12, 4-2, 4-4, 4-5, 4-6, 4-10, 4-12, 5-1, 5-3, 5-6, 5-7, 5-8, 5-9, 5-11, 5-13, 6-4, 6-12, 7-10)
1.OA.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 − 4 = 13 − 3 − 1 = 10 − 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 − 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).	**Routines 1, 2, 3, 4, 6; 1-1, 1-3, 1-5, 1-7, 1-8, 1-10, 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-8, 2-9, 2-10, 2-11, 3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 3-8, 3-9, 3-10,** 4-1, 4-2, 4-4, **4-5, 4-6, 4-7, 4-8, 4-9, 4-10,** 4-11, 5-1, 5-3, **5-4, 5-5,** 5-6, **5-7,** 5-8, **5-9, 5-10,** 5-11, 5-12, 6-1, **6-2, 6-3, 6-4, 6-5, 6-6,** 6-7, **6-8, 6-9,** 6-10, 6-11, **7-1, 7-2, 7-3, 7-4, 7-6,** 7-7, **7-8, 7-9, 7-10,** 7-11, 8-1, 8-2, 8-3, 8-6, **8-7, 8-9,** 9-1, **9-4,** 9-6, 9-7, **9-8,** 9-11 (2-7, 2-12, 3-11, 3-12, 4-3, 4-12, 5-2, 5-13, 6-12, 7-5, 8-4, 8-5, 8-8, 8-10, 8-11, 9-3, 9-9)
Work with addition and subtraction equations.	
1.OA.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? $6 = 6, 7 = 8 − 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2$.*	**Routine 1, 2-10, 5-4, 5-5,** 5-6, **5-9,** 5-10, **6-3, 6-9,** 7-2, **7-10,** 8-9, **9-4,** 9-6, **9-8** (5-11, 5-12, 6-4, 6-10, 6-11, 7-1, 7-3, 7-4, 7-5, 7-7, 7-11, 8-1, 8-8, 8-12, 9-3)
1.OA.8 Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11, 5 = \square − 3, 6 + 6 = \square$.*	**2-8, 2-9, 2-10, 2-11, 3-1, 3-2, 3-4,** 3-6, **3-7,** 3-8, **3-9, 3-10,** 4-2, 4-4, 4-6, 5-7, **5-9,** 6-4, **7-1, 7-2, 7-3, 7-4, 7-8, 7-9, 7-10,** 8-1, 8-2, 8-3, 8-11 (3-5, 4-1, 4-3, 4-7, 4-9, 4-10, 4-11, 4-12, 5-4, 5-6, 5-11, 5-12, 5-13, 6-5, 6-6, 6-7, 6-8, 6-10, 6-12, 7-7, 7-11, 8-5, 8-6, 8-7, 8-9, 8-10, 9-1, 9-3, 9-6, 9-9, 9-12)
Number and Operations in Base Ten 1.NBT	
Extend the counting sequence.	
1.NBT.1 Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.	**Routines 1, 2, 3, 4, 5, 6; 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9,** 1-10, **1-11, 2-1,** 2-2, **2-3, 2-4,** 2-5, **2-7,** 2-10, 2-11, 3-2, **3-3,** 3-4, **3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11,** 4-1, 4-3, **4-4, 4-5,** 4-7, 4-11, **5-2, 5-3,** 5-4, **5-6** (2-6, 2-8, 2-9, 2-12, 3-1, 3-12, 4-2, 4-6, 4-8, 4-10, 4-12, 5-9, 5-10, 5-13)

Content Standards for Mathematics for Grade 1	*Everyday Mathematics* Grade 1 Lessons*
Understand place value.	
1.NBT.2 Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:	**Routines 1, 2; 4-5, 5-1, 5-2, 5-3,** 5-5, **5-6,** 5-7, **5-8,** 5-9, **5-11,** 6-2, **6-6,** 6-9, **6-10, 6-11,** 7-1, 7-2, 7-7, 8-6, 8-8, **8-10, 8-11,** 9-2, 9-3, 9-5, 9-8, **9-9** (4-8, 4-12, 5-12, 5-13, 6-4, 6-5, 6-7, 7-3, 7-4, 7-5, 7-6, 7-8, 7-9, 7-10, 7-11, 7-12, 8-1, 8-2, 8-3, 8-4, 8-7, 8-12, 9-4, 9-6, 9-7, 9-10, 9-12)
1.NBT.2a 10 can be thought of as a bundle of ten ones—called a "ten."	**Routine 1; 5-1, 5-2, 5-3,** 5-5, 5-7, **5-8,** 5-9, **5-11, 6-10, 6-11,** 7-2, 7-7, 8-6, 8-8, 8-10, 9-2, **9-9** (4-8, 5-6, 6-2, 6-4, 6-5, 6-6, 6-7, 7-6, 7-9, 7-10, 7-11, 8-3, 8-12, 9-4, 9-5, 9-7, 9-8, 9-9)
1.NBT.2b The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.	**Routine 1; 5-1, 5-2, 5-3,** 5-5, 5-7, **5-11, 6-6, 6-10, 6-11,** 7-2, 8-6, 8-10, **9-9** (6-5, 6-7, 7-1, 7-9, 7-10, 7-11, 8-1, 8-12)
1.NBT.2c The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	**Routine 1; 5-1, 5-2, 5-3,** 5-7, **5-11, 6-10, 6-11,** 7-2, 8-6, 8-10, 9-2, **9-9** (5-13, 6-2, 7-7, 7-10, 7-11, 8-12, 9-5, 9-12)
1.NBT.3 Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	**Routines 1, 3, 5; 1-2, 1-3,** 1-5, **1-6,** 1-7, 1-8, 1-11, 2-1, **2-2, 2-6,** 2-8, 2-10, **3-1,** 3-3, 4-2, 4-3, 4-5, 4-7, 4-8, 4-11, **5-1, 5-2, 5-4, 5-5, 5-6,** 5-7, 5-8, **5-9,** 5-11, 6-2, **6-8, 6-11,** 7-4, 8-10, 9-5, **9-8** (3-6, 3-7, 3-10, 4-10, 5-13, 6-3, 6-5, 6-7, 6-9, 6-10, 7-6, 7-11, 8-1, 8-7, 8-8, 8-12, 9-1)
Use place value understanding and properties of operations to add and subtract.	
1.NBT.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	**Routines 1, 2, 3; 5-11, 5-12, 6-2, 6-7, 6-8,** 7-5, **7-9,** 8-2, **8-11, 9-1, 9-2, 9-3, 9-4, 9-5, 9-6, 9-7, 9-8,** 9-9 (5-10, 5-13, 6-3, 6-4, 6-5, 6-6, 6-12, 7-1, 7-3, 7-4, 7-6, 7-10, 7-11, 8-1, 8-5, 8-8, 8-12, 9-10, 9-11, 9-12)
1.NBT.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	**Routines 1, 2, 5; 4-11,** 5-11, 6-1, 6-9, 7-5, **7-8, 7-10,** 8-2, 8-4, 8-5, **8-10, 8-11, 9-3,** 9-8, **9-9,** 9-11 (5-2, 5-5, 6-3, 6-7, 6-10, 6-11, 7-2, 7-12, 8-7, 9-4, 9-6)
1.NBT.6 Subtract multiples of 10 in the range 10–90 from multiples of 10 in the range 10–90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	**Routines 1, 5; 5-11, 6-2, 6-7,** 6-8, 7-1, 7-5, 8-7, **8-11, 9-2, 9-5, 9-6, 9-7,** 9-11 (4-8, 4-12, 6-4, 6-6, 7-3, 7-4, 8-6, 8-10, 9-1, 9-9, 9-10, 9-12)

Content Standards for Mathematics for Grade 1	*Everyday Mathematics* Grade 1 Lessons*
Measurement and Data 1.MD	
Measure lengths indirectly and by iterating length units.	
1.MD.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.	**3-3,** 3-11, **4-1, 4-3, 4-4,** 4-5, 4-9, 5-3, 5-7, **5-8** (3-12, 4-8, 4-12, 6-2, 7-1, 9-8, 9-11)
1.MD.2 Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*	**4-2, 4-3, 4-4,** 4-5, 4-9, **5-7, 5-8, 9-1** (4-11, 5-1, 5-3, 5-6, 5-11, 6-1, 6-3, 6-7, 6-10, 7-1, 7-2, 7-5, 8-1, 8-3, 9-8, 9-11)
Tell and write time.	
1.MD.3 Tell and write time in hours and half-hours using analog and digital clocks.	**Routine 6; 6-1,** 6-5, 6-7, **7-11,** 8-1, 8-3, **8-8,** 8-9, 9-1, 9-4, 9-9, 9-10 (5-9, 5-12, 6-2, 6-8, 6-12, 7-1, 7-3, 7-5, 7-9, 8-4, 8-6, 8-7, 8-10, 9-2, 9-7)
Represent and interpret data.	
1.MD.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.	**Routines 3, 4, 6; 1-7, 1-8,** 2-2, **2-4, 4-5, 4-6, 8-3,** 8-6, **8-9** (2-6, 3-7, 3-9, 3-10, 3-11, 5-2, 5-4, 5-5, 5-7, 5-8, 5-12, 6-1, 6-3, 7-1, 7-3, 7-4, 8-11)
Geometry 1.G	
Reason with shapes and their attributes.	
1.G.1 Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.	**1-1, 1-3, 1-9, 4-5, 6-3, 7-5, 7-6, 7-7, 8-1, 8-5, 8-6,** 8-8, 8-10, 9-5, **9-10** (3-7, 3-10, 6-8, 6-12, 7-8, 7-12, 8-2, 8-3, 8-4, 8-7, 8-8, 8-9, 8-11, 8-12, 9-1, 9-2, 9-3, 9-4, 9-6, 9-7, 9-8, 9-9, 9-11, 9-12)
1.G.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.	**1-9, 4-5, 8-5, 8-6, 8-7,** 8-10, 9-5, **9-10** (6-3, 9-3)
1.G.3 Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of*, and *quarter of.* Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.	**7-6, 8-2, 8-3, 8-4, 8-5,** 8-7, **8-8, 9-4, 9-11** (7-8, 7-12, 8-9, 8-11, 8-12, 9-1, 9-2, 9-3, 9-5, 9-6, 9-7, 9-8, 9-9, 9-10, 9-12)

Correlation to the Mathematical Processes and Practices

Everyday Mathematics is a standards-based curriculum engineered to focus on specific mathematical content, processes, and practices in every lesson and activity. The chart below shows complete coverage of each mathematical process and practice in the core program throughout the grade level.

Mathematical Processes and Practices	*Everyday Mathematics* Goals for Mathematical Processes and Practices
1. Make sense of problems and persevere in solving them.	
Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.	**Pages** 59, 63, 69, 70, 71, 72, 74, 75, 85, 86, 101, 107, 108, 109, 110, 143, 152, 155, 157, 158, 163, 164, 166, 176, 182, 183, 190, 202, 203, 223, 224, 227, 230, 235, 238, 241, 243, 245, 246, 249, 251, 257, 258, 262, 263, 270, 273, 274, 280, 285, 286, 287, 288, 310, 316, 317, 323, 328, 330, 332, 355, 360, 361, 365, 366, 368, 369, 403, 408, 414, 415, 420, 421, 431, 433, 434, 438, 444, 449, 450, 451, 452, 456, 457, 458, 464, 466, 511, 512, 513, 514, 517, 519, 529, 535, 547, 548, 549, 550, 551, 553, 554, 555, 559, 560, 561, 567, 570, 615, 616, 621, 623, 627, 633, 634, 646, 647, 649, 650, 653, 655, 656, 657, 660, 661, 670, 671, 686, 691, 693, 695, 700, 701, 705, 706, 707, 710, 713, 715, 717, 728, 738, 745, 750, 783, 784, 785, 787, 790, 791, 793, 794, 797, 799, 801, 803, 804, 815, 817, 818, 819, 822, 831, 840, 841
2. Reason abstractly and quantitatively.	
Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.	**Pages** 51, 54, 55, 89, 90, 92, 95, 114, 143, 145, 146, 147, 149, 155, 158, 170, 175, 181, 183, 187, 189, 193, 199, 225, 226, 232, 241, 242, 243, 245, 246, 247, 250, 261, 313, 338, 344, 347, 353, 354, 356, 366, 395, 396, 397, 398, 401, 402, 407, 408, 409, 413, 419, 429, 433, 439, 440, 443, 447, 455, 505, 518, 523, 525, 526, 529, 530, 531, 532, 535, 536, 537, 541, 543, 557, 558, 563, 564, 565, 566, 569, 570, 571, 572, 573, 595, 602, 603, 605, 614, 659, 662, 663, 685, 692, 693, 697, 701, 721, 722, 725, 728, 731, 732, 734, 737, 739, 740, 741, 749, 797, 803, 810, 821, 827, 828, 829, 833, 837, 839, 842

Mathematical Processes and Practices	*Everyday Mathematics* Goals for Mathematical Processes and Practices
3. Construct viable arguments and critique the reasoning of others.	
Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.	**Pages** 87, 95, 98, 99, 141, 149, 185, 312, 317, 327, 328, 329, 330, 332, 333, 348, 349, 351, 374, 398, 416, 439, 440, 475, 525, 536, 542, 597, 598, 689, 692, 693, 694, 717, 747, 809, 811, 812, 821, 827, 833
4. Model with mathematics.	
Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.	**Pages** 96, 97, 147, 158, 195, 199, 200, 201, 202, 229, 235, 237, 335, 337, 341, 342, 343, 344, 345, 375, 413, 419, 445, 446, 505, 511, 549, 551, 553, 554, 557, 629, 645, 647, 649, 650, 691, 703, 704, 705, 706, 707, 709, 710, 711, 723, 737, 739, 740, 741, 783, 785, 786, 787, 815, 823, 824, 825, 839

Mathematical Processes and Practices	Everyday Mathematics Goals for Mathematical Processes and Practices
5. Use appropriate tools strategically.	
Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.	**Pages** 53, 64, 65, 67, 79, 83, 85, 86, 87, 99, 103, 110, 113, 114, 116, 117, 169, 178, 179, 181, 187, 203, 249, 251, 252, 253, 255, 257, 258, 259, 261, 264, 265, 285, 286, 287, 288, 289, 294, 295, 323, 324, 325, 328, 329, 330, 332, 333, 335, 339, 353, 413, 425, 431, 432, 434, 455, 461, 462, 463, 464, 466, 467, 507, 508, 513, 514, 541, 543, 544, 561, 662, 663, 733, 734, 735, 775, 777, 778, 780, 781, 800, 803, 809, 810, 815, 816, 817, 823, 824, 831, 839, 843
6. Attend to precision.	
Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.	**Pages** 53, 54, 55, 57, 59, 63, 66, 67, 71, 72, 74, 77, 78, 79, 80, 81, 83, 87, 89, 93, 101, 103, 104, 107, 111, 113, 117, 122, 123, 137, 138, 139, 143, 144, 149, 153, 157, 158, 169, 170, 173, 175, 177, 179, 182, 184, 185, 187, 188, 189, 191, 196, 223, 229, 230, 235, 236, 237, 239, 249, 250, 253, 255, 259, 267, 273, 285, 309, 310, 312, 313, 315, 318, 319, 321, 324, 337, 338, 350, 351, 353, 354, 357, 359, 360, 361, 363, 365, 366, 369, 371, 374, 396, 407, 410, 416, 417, 420, 427, 428, 431, 437, 443, 445, 449, 451, 452, 453, 455, 459, 505, 506, 507, 508, 517, 519, 520, 523, 530, 532, 536, 545, 549, 551, 553, 554, 563, 569, 572, 601, 604, 607, 610, 613, 614, 617, 620, 621, 625, 632, 634, 635, 637, 641, 653, 659, 687, 688, 689, 697, 698, 699, 700, 713, 716, 717, 719, 729, 733, 735, 737, 747, 749, 752, 775, 776, 777, 778, 780, 781, 789, 790, 791, 793, 794, 795, 798, 799, 800, 803, 806, 809, 810, 812, 813, 815, 833, 838, 840, 841

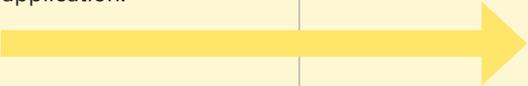| Mathematical Processes and Practices	*Everyday Mathematics* Goals for Mathematical Processes and Practices
7. Look for and make use of structure.	
Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5 - 3(x - y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.	**Pages** 57, 60, 113, 137, 140, 141, 150, 155, 161, 162, 163, 164, 166, 167, 173, 191, 249, 251, 252, 265, 267, 268, 269, 271, 273, 274, 275, 276, 277, 279, 280, 282, 283, 347, 349, 354, 356, 359, 362, 365, 367, 368, 371, 372, 373, 375, 402, 403, 404, 422, 425, 426, 427, 428, 441, 595, 596, 598, 599, 601, 603, 605, 607, 608, 609, 611, 613, 615, 619, 620, 621, 622, 623, 625, 626, 627, 628, 629, 631, 632, 633, 635, 637, 639, 640, 653, 685, 689, 713, 719, 721, 722, 723, 725, 729, 743, 744, 745, 746, 747, 749, 750, 751, 753, 830, 831, 834, 835, 836, 837, 850, 851
8. Look for and express regularity in repeated reasoning.	
Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process and practice, while attending to the details. They continually evaluate the reasonableness of their intermediate results.	**Pages** 140, 171, 223, 255, 257, 258, 279, 281, 282, 283, 525, 536, 597, 598, 615, 619, 631, 637, 638, 639, 640, 641, 643, 644, 645, 646, 648, 649, 650, 651, 654, 657, 753, 818

Mastery Expectations

In First Grade, *Everyday Mathematics* focuses on procedures, concepts, and applications in four critical areas:
- Understanding addition, subtraction, and strategies within 20.
- Understanding whole number relationships and place value, including grouping by tens and ones.
- Understanding linear measurement as iterating length units.
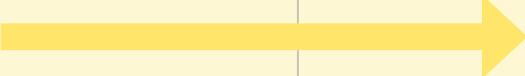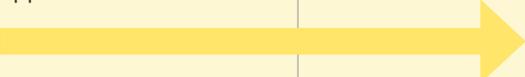- Composing and decomposing geometric shapes and reasoning about the attributes of shapes.

Standards	First Quarter Benchmark Expectations for Units 1 though 3	Second Quarter Benchmark Expectations for Units 4 and 5	Third Quarter Benchmark Expectations for Units 6 and 7	Fourth Quarter Benchmark Expectations for Units 8 and 9
1.OA.1	Solve parts-and-total number stories within 10.	Solve and write number models for parts-and-total, change, and comparison number stories within 10.	⭐ Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	Ongoing practice and application.
1.OA.2	No expectations for mastery at this point.	Solve number stories with three addends by first finding a combination of 10 or a double from two of the addends.	⭐ Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	Ongoing practice and application.
1.OA.3	Explain what the turnaround rule means.	Recognize that a fact and a turnaround fact have the same sum. Add three numbers by first finding a combination of 10 or a double from two of the addends.	⭐ Apply properties of operations as strategies to add and subtract. Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)	Ongoing practice and application.

Standards	First Quarter Benchmark Expectations for Units 1 though 3	Second Quarter Benchmark Expectations for Units 4 and 5	Third Quarter Benchmark Expectations for Units 6 and 7	Fourth Quarter Benchmark Expectations for Units 8 and 9
1.OA.4	Understand that some addition strategies can be used to solve subtraction problems. *For example, think "What do I need to add to 7 in order to get 10?"*	Understand that a difference can be found with both subtraction and addition.	⭐ Understand subtraction as an unknown-addend problem. *For example, subtract 10 - 8 by finding the number that makes 10 when added to 8.*	Ongoing practice and application.
1.OA.5	Use counting on a number line or number grid to solve addition and subtraction problems.	⭐ Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).	Ongoing practice and application.	
1.OA.6	Add and subtract on the number line to solve simple number stories and extend number patterns.	Add and subtract within 10, including fluently solving addition and subtraction doubles and combinations of 10.	Use think addition, counting up, and counting back strategies to solve subtraction facts.	⭐ Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 - 4 = 13 - 3 - 1 = 10 - 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 - 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).
1.OA.7	Use an equal sign to write addition and subtraction number models.	Explain the meaning of the equal sign and identify true and false number sentences containing addition and subtraction facts within 10.	⭐ Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 - 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.	Ongoing practice and application.

Instruction concludes for this standard during this quarter (but the standard may be revisited for review, practice, or application to promote long-term retention, applications, generalization, and transfer).

⭐ Mastery expected during this quarter.

Standards	First Quarter Benchmark Expectations for Units 1 though 3	Second Quarter Benchmark Expectations for Units 4 and 5	Third Quarter Benchmark Expectations for Units 6 and 7	Fourth Quarter Benchmark Expectations for Units 8 and 9
1.OA.8	Find the unknown number of hops between two numbers.	⭐ Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = \_ - 3$, $6 + 6 = \_$.	Ongoing practice and application.	→
1.NBT.1	Use skip counting to add and subtract on the number line. Extend number patterns within 100.	⭐ Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.	Ongoing practice and application.	→
1.NBT.2	No expectations for mastery at this point.	Identify the two-digit number represented by base-10 blocks.	⭐ Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:	Ongoing practice and application.
1.NBT.2a	No expectations for mastery at this point.	Exchange 1 ten for 10 ones.	⭐ 10 can be thought of as a bundle of ten ones—called a "ten."	Ongoing practice and application.
1.NBT.2b	No expectations for mastery at this point.	Identify the teen number represented by base-10 blocks.	⭐ The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.	Ongoing practice and application.
1.NBT.2c	No expectations for mastery at this point.	Identify the multiple of 10 represented by base-10 blocks.	⭐ The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	Ongoing practice and application.
1.NBT.3	Compare the value of two numbers (<20).	Use >, =, and < to record comparisons of numbers.	⭐ Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	Ongoing practice and application.

Standards	First Quarter Benchmark Expectations for Units 1 though 3	Second Quarter Benchmark Expectations for Units 4 and 5	Third Quarter Benchmark Expectations for Units 6 and 7	Fourth Quarter Benchmark Expectations for Units 8 and 9
1.NBT.4	No expectations for mastery at this point.	Add a two-digit and a one-digit number using tools.	Add within 100 using tools.	⭐ Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
1.NBT.5	No expectations for mastery at this point.	Given a two-digit number, find 10 more and 10 less than the number using any tool	Given a two-digit number, find 10 more or 10 less than the number using a tool only if needed.	⭐ Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
1.NBT.6	No expectations for mastery at this point.	Subtract two-digit multiples of 10 from other two-digit multiples of 10 using tools.	Subtract two-digit multiples of 10 from other two-digit multiples of 10 using tools.	⭐ Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
1.MD.1	Identify the shortest and longest out of two or three objects.	Order three objects by length.	⭐ Order three objects by length; compare the lengths of two objects indirectly by using a third object.	Ongoing practice and application.

◼ Instruction concludes for this standard during this quarter (but the standard may be revisited for review, practice, or application to promote long-term retention, applications, generalization, and transfer).

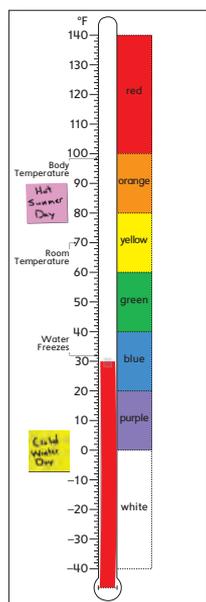⭐ Mastery expected during this quarter.

Standards	First Quarter Benchmark Expectations for Units 1 though 3	Second Quarter Benchmark Expectations for Units 4 and 5	Third Quarter Benchmark Expectations for Units 6 and 7	Fourth Quarter Benchmark Expectations for Units 8 and 9
1.MD.2	No expectations for mastery at this point.	Measure a path with base-10 cubes.	⭐ Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*	Ongoing practice and application.
1.MD.3	No expectations for mastery at this point.	No expectations for mastery at this point.	Show time to the hour on an analog clock with both the hour and minute hands.	⭐ Tell and write time in hours and half-hours using analog and digital clocks.
1.MD.4	Organize data in a tally chart. Answer simple questions about a tally chart.	Organize data in a tally chart. Answer simple questions about a tally chart or bar graph.	Organize data in a tally chart or bar graph. Answer simple questions about a tally chart or bar graph.	⭐ Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
1.G.1	Draw shapes.	Build shapes with a specified number of sides.	Name defining attributes of 2-dimensional shapes.	⭐ Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.

Standards	First Quarter Benchmark Expectations for Units 1 though 3	Second Quarter Benchmark Expectations for Units 4 and 5	Third Quarter Benchmark Expectations for Units 6 and 7	Fourth Quarter Benchmark Expectations for Units 8 and 9
1.G.2	Combine pattern blocks to make designs; combine base-10 blocks to build structures.	Compose a new two-dimensional shape from two two-dimensional shapes; compose shapes with base-10 blocks.	Using two two-dimensional shapes, compose two different two-dimensional shapes.	⭐ Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.
1.G.3	No expectations for mastery at this point.	No expectations for mastery at this point.	No expectations for mastery at this point.	⭐ Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves, fourths,* and *quarters,* and use the phrases *half of, fourth of, and quarter of.* Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

Instruction concludes for this standard during this quarter (but the standard may be revisited for review, practice, or application to promote long-term retention, applications, generalization, and transfer).

⭐ Mastery expected during this quarter.

Contents

Getting Ready to Teach
First Grade Everyday Mathematics

Focus

In Unit 1, children work in an active, collaborative environment to learn both mathematics content and mathematical process and practice.

Major Clusters

1.OA.C Add and subtract within 20.

1.NBT.A Extend the counting sequence.

Supporting Clusters

1.MD.C Represent and interpret data.

Focus

In Unit 4, children measure lengths using nonstandard units and begin working on addition-fact fluency.

Major Clusters

1.OA.B Understand and apply properties of operations and the relationship between addition and subtraction.

1.OA.C Add and subtract within 20.

1.NBT.C Use place value understanding and properties of operations to add and subtract.

1.MD.A Measure lengths indirectly and by iterating length units.

Supporting Cluster

1.MD.C Represent and interpret data.

Focus

In Unit 5, children investigate place-value concepts for tens and ones. They compare and add 2-digit numbers. They also explore path measurement.

Major Clusters

1.OA.C Add and subtract within 20.

1.OA.D Work with addition and subtraction equations.

1.NBT.B Understand place value.

1.NBT.C Use place value understanding and properties of operations to add and subtract.

1.MD.A Measure lengths indirectly and by iterating length units.

Focus

Unit 6 **Addition Fact Strategies** **492**

In Unit 6, children work toward fluency with addition facts. They also explore telling time and solving number stories.

Major Clusters

1.OA.A Represent and solve problems involving addition and subtraction.

1.OA.C Add and subtract within 20.

1.NBT.B Understand place value.

1.NBT.C Use place value understanding and properties to add and subtract.

Supporting Clusters

1.MD.B Tell and write time.

Focus

Unit 7 **Subtraction Fact Strategies and Attributes of Shapes** **582**

In Unit 7, children explore the relationship between addition and subtraction, compare different subtraction strategies, and continue to work on fact fluency. They also explore the defining and nondefining attributes of 2-dimensional shapes. Children continue to work on telling time.

Major Clusters

1.OA.B Understand and apply properties of operations and the relationship between addition and subtraction.

1.OA.C Add and subtract within 20.

1.OA.D Work with addition and subtraction equations.

Supporting Clusters

1.MD.B Tell and write time.

1.G.A Reason with shapes and their attributes.

Place Value and Comparisons

Contents

*The standards listed here are addressed in the **Focus** of each lesson. For all the standards in a lesson, see the Lesson Opener.

Focus

In this unit, children investigate place-value concepts for tens and ones. They compare and add 2-digit numbers. They also explore path measurement.

Major Clusters

1.OA.C Add and subtract within 20.

1.OA.D Work with addition and subtraction equations.

1.NBT.B Understand place value.

1.NBT.C Use place value understanding and properties of operations to add and subtract.

1.MD.A Measure lengths indirectly and by iterating length units.

Process and Practice Standards

SMP2 Reason abstractly and quantitatively.

SMP6 Attend to precision.

Coherence

The table below describes how standards addressed in the Focus parts of the lessons link to the mathematics that children have done in the past and will do in the future.

	Links to the Past	Links to the Future
1.OA.1	In Units 2 and 3, children modeled and solved change and parts-and-total number stories, where the position of the unknown varied. This built upon work done in Kindergarten representing number stories with objects and drawings.	Throughout the remaining units of Grade 1, children will apply their strategies for solving number stories to situations involving bigger numbers. In Grade 2, children will solve number stories within 100 of all different types, and with the unknown in varying positions.
1.OA.4	In Unit 2, work with change-to-less diagrams may have encouraged children to informally consider subtraction as an unknown-addend problem. In Kindergarten, children determined unknown-addends within combinations of ten.	In Unit 7, children will apply their understanding of subtraction as an unknown-addend problem as they identify fact families, solve fact triangles, and play the game *Salute!*. They will also be introduced to the subtraction strategy Think Addition, which they will continue to use in Grade 2 as they work towards fluency with all subtraction facts.
1.OA.7	In Unit 2, children were formally introduced to the idea of using number models to represent addition and subtraction number stories, developing their understanding of the meaning of the equal sign. In Kindergarten, children learned to decompose numbers less than or equal to 10 into two parts, expressing the decomposition with an equation.	In Unit 6, children will continue to use their understanding of the equal sign to evaluate if given number sentences are true or false. In Grade 2, children will build upon their understanding of equivalence as they work towards fluency with facts within 20.
1.NBT.2	In Kindergarten, children developed an understanding of teen numbers as 10 ones and some further ones.	In Unit 6, children will develop deeper understanding of place value as they represent tens and ones using base-ten blocks and money contexts. They extend this understanding to include hundreds in Grade 2.
1.NBT.3	In Unit 1, children ordered and compared numbers within 15, using the Class Number Line as an aid. They were introduced to the game *Top-It* which provides practice comparing numbers within 15. This work builds upon Kindergarten experiences comparing small numbers expressed as written numerals.	In Unit 6, children will develop a deeper understanding of equivalence as they build name-collection boxes. In Grade 2, children will use their understanding of place value to compare numbers up to 1000.
1.NBT.4	In Kindergarten, children developed an understanding of teen numbers as 10 ones and some further ones.	In Unit 6, children will continue to develop strategies for adding and subtracting within 100. In Grade 2, they will expand upon those strategies to make sense of addition and subtraction within 1000.
1.MD.2	In Unit 4, children learned to estimate lengths and measure lengths by iteration of a single unit, such as a paper clip or a pencil. These ideas built upon Kindergarten experiences identifying measurable attributes of objects, including length.	In Unit 9, children will create paper-clip rulers to measure lengths more efficiently. In Grade 2, children will learn to use tools such as rulers, yardsticks, and measuring tapes to measure lengths with standard units.

Planning for Rich Math Instruction

		5-1 Introducing Place Value	**5-2** Digits and Place Value	**5-3** Place-Value Application: Pennies and Dimes	**5-4** Greater Than, Less Than, and Equal To
RIGOR	**Conceptual Understanding**	**Place value** Naming Numbers with Base-10 Blocks, pp. 396–397 Exchanging Base-10 Blocks, pp. 397–398	**Place value** Investigating Base-10 Block Patterns, pp. 402–403 Investigating Digit Patterns, p. 403 Discovering the Role of Place in the Value of Digits, pp. 404–405	**Place value** Using Dimes as Tens, pp. 408–409 Exchanging Pennies for Dimes, pp. 409–410	**Meaning of relation symbols** ■ Math Message, p. 414 ■ Using the Equal Sign, pp. 414–415 Introducing Relation Symbols > and <, p. 416
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	5-5 The Equal Sign	5-6 Counting and Place-Value Application: Number Scrolls	5-7 Measuring a Path	5-8 Explorations — Exploring Base-10 Exchanges, Lengths, and Path Measurement	
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Planning for Rich Math Instruction

RIGOR		**5-9** More Comparison Symbols	**5-10** Comparison Number stories	**5-11** Two-Digit Addition and Subtraction	**5-12** Open Response Adding Animal Weights (2-Day Lesson)
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Notes

5-13 Assessment
Unit 5 Progress Check

Lesson 5-13 is an assessment lesson. It includes:

- **Self Assessment**
- **Unit Assessment**
- **Optional Challenge assessment**
- **Open Response Assessment**
- **Suggestions for adjusting the assessments**

Go Online:

Evaluation Quick Entry
Use this tool to record children's performance on assessment tasks.

Data Use the Data Dashboard to view children's progress reports.

Unit 5 Materials

Lesson	Math Masters	Activity Cards	Manipulative Kit	Other Materials
5-1	pp. 125–126; TA20; G35	54–55	Quick Look Cards 85, 86, and 87; base-10 blocks; per partnership: 4 each of number cards 0–9	*Math Journal 1*, Activity Sheet 4 (Tens-and-Ones Mat); slate; Number Cards
5-2	pp. 127, TA4, TA20, G35 (optional)	56	base-10 blocks; calculator; per partnership: 4 each of number cards 0–9	slate; Tens-and-Ones Mat; Number Cards; Class Number Grid; grid paper
5-3	pp. 128; G35–G36 (optional)	57	per partnership: dot die, 30 pennies, 5 dimes, 4 each of number cards 0–9	clear plastic cup or jar; 1 small envelope; per partnership: Number Cards,1 sheet of paper labeled "Bank"; small cup labeled "10 cents" (optional); string; strips of paper
5-4	pp. 129–131; TA21–TA22; G8 (optional)	58	per partnership: two sets of number cards 0–22; number cards 15 and 17; base-10 cubes	slate; Number Cards; prepared large number and symbol cards; relation
5-5	pp. 132; G37 (optional); G38	59–60	Quick Look Cards 84, 102, and 119; counters (optional); per partnership: 4 each of number cards 0–9	slate (optional); Number Cards; large number and symbol cards
5-6	pp. 133–134; 135 (optional) 136; G15–G16; G39 (optional)	61	per partnership: 4 each of number cards 1–10, dot die; number cards 0–9	number lines or number grids (optional); examples of scrolls; per partnership: Number Cards, 2 game markers
5-7	pp. 137–139	62–63	base-10 blocks; number cards 10–22	slate; Tens-and-Ones Mat; Number Cards; prepared Z-shaped path on floor; envelope; unsharpened pencils; measurement kits; 10-cm and 11-cm length strips of paper; foot-long pieces of string; 30 paper clips
5-8	pp. 140–142; G35 (optional); G36; G40 (optional)	64–66	base-10 blocks; dot die; per partnership: 4 each of number cards 0–9; 30 pennies; 5 dimes	Tens-and-Ones Mat, strips of paper; measurement kit; Number Cards; 1 sheet of paper labeled "Bank"
5-9	pp. 143–146; TA21; TA23–TA26; G40 (optional)	67–68	base-10 blocks (optional); per partnership: base-10 blocks (cubes and longs), dot die; 2 sets of number cards 1–20	slate; Tens-and-Ones Mat (optional); Activity Sheets 5–8 (Animal Cards); Number Cards; 3 prepared cards labeled is more than, *is less than, is equal to; scissors*
5-10	pp. 147; G23 (optional); G24–G25; G41 (optional)	69	number line; pennies; per partnership: 4 each of number cards 1–10; 40 toolkit pennies; counters; base-10 blocks; 4 each of number cards 12–22	slate; Animal Cards; number grid (optional); per partnership: Number Cards, 1 sheet of paper labeled "Bank"
5-11	pp. 148; TA21; TA23–TA26; G34; G37 (optional); G38; G42–G46		number line; base-10 blocks; counters; per partnership: 4 each of number cards 0–9	slate; number grid; per partnership: Number Cards
5-12	pp. 149–151; TA3		Class Number Line; base-10 cubes and longs	Class Number Grid; Standards for Mathematical Process and Practice Poster; Animal Cards
5-13	pp. 152–155; *Assessment Handbook*, pp. 31–36			

Literature Link   Optional Books   5-1 *The Warlord's Beads*   5-4 *Just Enough Carrots*
5-9 *Alfie the Alligator: A Teaching Rhyme About Comparing Numbers*

Go Online for a complete literature list in Grade 1 and to download all Quick Look Cards.

✅ Assessment Check-In

These ongoing assessments offer an opportunity to gauge children's performance on one or more of the standards addressed in that lesson.

✅ Evaluation Quick Entry
Record children's performance online.

📊 Data View reports online to see children's progress towards mastery.

Lesson	Task Description	Standards	Processes and Practices
5-1	Solve place-value riddles.	1.NBT.2, 1.NBT.2a, 1.NBT.2b, 1.NBT.2c	
5-2	Identify digits in 2-digit numbers.	1.NBT.2	
5-3	Make place-value exchanges.	1.NBT.2, 1.NBT.2a	
5-4	Use relation symbols to compare 2-digit numbers.	1.NBT.3	
5-5	Categorize number sentences as true or false.	1.OA.7	
5-6	Fill a number scroll to at least 120.	1.NBT.1, 1.NBT.2	SMP6
5-7	Understand that length is the distance along a path.	1.MD.2	
5-9	Use relation symbols to compare 1- and 2-digit numbers.	1.NBT.3	
5-10	Solve a comparison number story.	1.OA.1	
5-11	Use a strategy to add a 2-digit number and a 1-digit number.	1.NBT.4	
5-12	Find the sum of a 1-digit and a 2-digit number.	1.NBT.4	SMP5

▼ Virtual Learning Community

vlc.uchicago.edu

While planning your instruction for this unit, visit the *Everyday Mathematics* Virtual Learning Community. You can view videos of lessons in this unit, search for instructional resources shared by teachers, and ask questions of *Everyday Mathematics* authors and other educators. Some of the resources on the VLC related to this unit include:

UCHICAGO
STEM EDUCATION

EM4: Grade 1 Unit 5 Planning Webinar
This webinar provides a preview of the lessons and content in this section. Watch this video with your grade-level colleagues and plan together under the guidance of an *Everyday Mathematics* author.

Combinations of 10
This video shows a first-grade teacher guiding students to find facts that make ten.

Scaffolding More Careful Mathematical Thinking
As a teacher reviews a student's response to problems in her math journal, she sees an error and asks the student to count her money.

For more resources, go to the VLC Resources page and search for Grade 1.

⫶⫶⫶ Spiral Towards Mastery

The *Everyday Mathematics* curriculum is built on the spiral, where standards are introduced, developed, and mastered in multiple exposures across the grade. Go to the Teacher Center at my.mheducation.com to use the Spiral Tracker.

⭐ **Spiral Towards Mastery Progress** This Spiral Trace outlines instructional trajectories for key standards in Unit 5. For each standard, it highlights opportunities for Focus instruction, Warm Up and Practice activities, as well as formative and summative assessment. It describes the **degree of mastery—**as measured against the entire standard—expected at this point in the year.

Operations and Algebraic Thinking

1.OA.4
| 2-9 Focus | 5-10 Focus | 6-2 Practice | 6-7 Practice | 6-11 Practice | 7-1 through 7-4 Focus Practice ✓ | 7-6 Focus Practice | 7-7 Warm Up Practice | 7-12 Progress Check 💥✓ | 8-1 Practice | 8-2 Warm Up |

⭐ **Progress Towards Mastery** By the end of Unit 5, expect children to understand that a difference can be found with both subtraction and addition.

Full Mastery of 1.OA.4 expected by the end of Unit 7.

1.OA.7
| 2-10 Focus | 5-4 Focus | 5-5 Focus Practice ✓ | 5-6 Warm Up | 5-9 Focus | 5-10 Warm Up Practice | 5-13 Progress Check 💥 | 6-3 Warm Up Focus | 6-9 Focus Practice ✓ | 6-12 Progress Check 💥 | 7-2 Practice | 7-10 Focus Practice |

⭐ **Progress Towards Mastery** By the end of Unit 5, expect children to explain the meaning of the equal sign and identify true and false number sentences containing addition and subtraction facts within 10.

Full Mastery of 1.OA.7 expected by the end of Unit 7.

Numbers and Operations in Base Ten

1.NBT.2
| Routine 1 | 4-5 Focus | 5-1 through 5-3 Warm Up Focus Practice ✓ | 5-5 Practice | 5-6 Focus Practice ✓ | 5-7 Warm Up Practice | 5-8 Focus Practice | 5-9 Practice | 5-11 Focus | 5-13 Progress Check 💥✓ | 6-2 Warm Up Practice |

⭐ **Progress Towards Mastery** By the end of Unit 5, expect children to identify the two-digit number represented by base-10 blocks.

Full Mastery of 1.NBT.2 expected by the end of Unit 7.

1.NBT.3
| 4-12 Progress Check 💥✓ | 5-1 Focus | 5-2 Focus | 5-4 through 5-6 Focus Practice ✓ | 5-7 Warm Up Practice | 5-8 Practice | 5-9 Focus Practice ✓ | 5-11 Practice | 5-13 Progress Check 💥✓ | 6-2 Warm Up Practice | 6-8 Focus Practice |

⭐ **Progress Towards Mastery** By the end of Unit 5, expect children to use >, =, and < to record comparisons of numbers.

Full Mastery of 1.NBT.3 expected by the end of Unit 7.

Key ✓ = Assessment Check-In   💥✓ = Progress Check Lesson   ▱ = Current Unit   ▱ = Previous or Upcoming Lessons

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1.NBT.4

| 5-11 Focus Practice ✓ | 5-12 Focus Practice ✓ | 5-13 Progress Check | 6-2 Focus Practice ✓ | 6-7 Focus | 6-8 Warm Up Focus | 6-12 Progress Check | 7-1 Warm Up Practice | 7-5 Practice | 7-9 Warm Up | 8-2 Practice | 8-7 Warm Up |

⭐ **Progress Towards Mastery** By the end of Unit 5, expect children to add a two-digit and a one-digit number using tools.

Full Mastery of 1.NBT.4 expected by the end of Unit 9.

1.NBT.6

| 5-11 Focus Practice | 6-2 Focus | 6-7 Focus | 6-8 Warm Up | 7-1 Practice | 7-5 Practice | 8-7 Warm Up Practice | 8-11 Focus | 9-2 Focus ✓ | 9-5 Focus | 9-6 Focus ✓ | 9-9 Practice |

⭐ **Progress Towards Mastery** By the end of Unit 5, expect children to find the difference between two-digit B multiples of ten using tools.

Full Mastery of 1.NBT.6 expected by the end of Unit 9.

Measurement and Data

1.MD.2

| 4-2 through 4-4 Focus Practice ✓ | 4-5 Practice | 4-9 Practice | 4-11 Practice | 4-12 Progress Check | 5-7 Focus Practice ✓ | 5-8 Focus Practice | 5-13 Progress Check | 6-12 Progress Check | 9-1 Focus Practice ✓ | 9-12 Progress Check |

⭐ **Progress Towards Mastery** By the end of Unit 5, expect children to measure a path with base-10 cubes.

Full Mastery of 1.MD.2 expected by the end of Unit 6.

Key ✓ = Assessment Check-In   💥 = Progress Check Lesson   ▱ = Current Unit   ▰ = Previous or Upcoming Lessons

Mathematical Background: Content

▶ Place Value (Lessons 5-1 through 5-3, 5-6, and 5-8)

In *Kindergarten Everyday Mathematics,* work on place value emphasized that the numbers 11 through 19 can be represented as ten ones and some additional ones, or "ten and some more." Children practiced counting through at least 100 and explored written numbers in this range on a number line and a number grid. These activities fostered an intuitive sense of base-ten patterns for a limited range of numbers but did not explicitly address numbers beyond 20. In *First Grade Everyday Mathematics,* children begin working with larger numbers and must develop a firm grasp of the notation that we use to write numbers in everyday life. This notation, called *base-ten numeration,* uses ten digits to represent whole numbers and decimals. The value of digits is determined according to a basic rule: The value of a digit is 10 times the place to its right. Thus, the 2 in 72 is worth 2, but the 2 in 27 is worth 10 times as much, or 20; and the 2 in 275 is worth another 10 times as much, or 200. The system is called a *place-value* system because the value of a digit depends on its place in the number.

Understanding place value is a critical component of learning arithmetic. It improves children's sense of the magnitude of numbers and serves as a basis for work with computation they learn in later grades. In Unit 5, children learn about place value through a variety of hands-on activities. In the beginning of the unit, they use base-10 blocks to visually represent the place value of each digit in any given 2-digit number. For example, in the number 36, the 3 in the tens place is worth "3 tens" (which can be represented with 3 longs) and the 6 in the ones place is worth "6 ones" (which can be represented with 6 cubes). **1.NBT.2** Extra time is spent working with teen and decade numbers. **1.NBT.2b, 1.NBT.2c**

In Lesson 5-1, children explore the relationship between places by grouping 10 cubes and exchanging them for 1 long. These exchanges emphasize that "1 ten" can be thought of as a group of "10 ones." **1.NBT.2a** They also encourage children to think flexibly about numbers. For instance, the number 35 can be represented by 35 ones, 1 ten and 25 ones, 2 tens and 15 ones, or 3 tens and 5 ones.
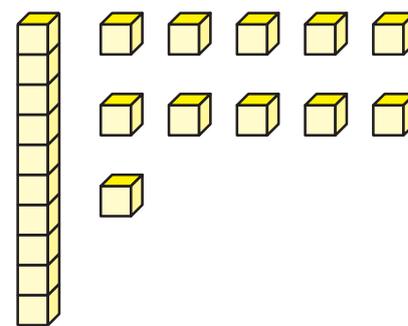
What number do these base-10 blocks represent?

Unit 5 Vocabulary

addend	digits	teen number
base-10 blocks	exchange	tens place
comparison diagram	long	tool
cube	ones place	

▶ Place Value *continued*

In Lesson 5-2, children use a calculator to investigate how numbers in the counting sequence change when they count by 10s or 1s. As children count by 10s, they see how the digit in the tens place changes while the digit in the ones place stays the same. They also observe what happens to both digits as they count by 1s, including the transition to decade numbers, such as counting from 29 to 30.

Dimes and pennies give children another chance to apply their work with base-10 numeration in a hands-on way. In Lesson 5-3, dimes and pennies provide a practical, real-world context in which tens (dimes) can be thought of as groups of 10 ones (pennies). **1.NBT.2** In Grade 1, the use of money is limited to pennies, dimes, and dollars as a way to illustrate place-value concepts. (In later grades, children will solve problems that feature money as a key concept.)

In Lesson 5-6, children make *number scrolls* (a long, extended number grid) by taping together pages of blank number grids and filling in the numbers, beginning at 1 and continuing forward as time allows. Making scrolls strengthens children's number sense, counting ability, and grasp of the order and place value of numbers. Many teachers continue doing this activity for several weeks or longer, depending on children's interest.

▶ Comparing Numbers
(Lessons 5-1, 5-3 through 5-6, 5-9, and 5-10)

Children have already had experience comparing numbers with tools, such as the number line, and in games, such as *Monster Squeeze* and *Top-It*. In Unit 5, children use their understanding of place value to compare numbers based on the digits in the tens and ones places. **1.NBT.3**

In Lesson 5-10, children work with comparison number stories. In these number stories, children are given two quantities to compare and are asked to find "How many more?" or "How many fewer?" For example, *Elijah had 15 tickets. Travis had 8 tickets. How many more tickets did Elijah have?*

As with change and parts-and-total number stories, *Everyday Mathematics* provides a situation diagram to help children make sense of and solve comparison number stories.

Quantity
15

Quantity	
8	?
	Difference

Comparison diagram
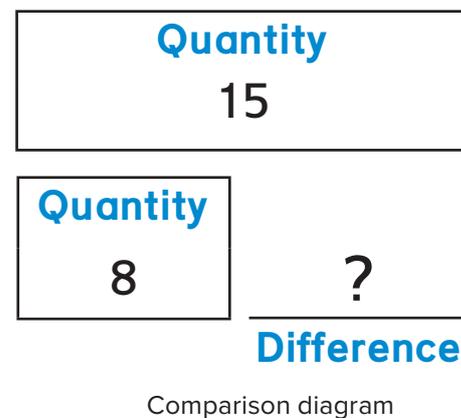
▶ Relation Symbols (Lessons 5-4, 5-5, and 5-9)

In Lesson 5-4, children are introduced to the $<$, $>$, and $=$ symbols to record the results of comparisons. **1.NBT.3** Because these symbols are easily confused, the lessons offer several strategies, such as drawing an open-mouthed alligator, to help children use the symbols properly.

$$5 \lessdot 8$$

The alligator's open mouth "swallows" the larger number.

Children also begin to deepen their understanding of the equal sign in this unit. **1.OA.7** Although they are familiar with reading and solving number sentences such as $3 + 8 = 11$ and $15 - 7 = \square$, they often have only a partial understanding of the role of the $=$ symbol in number sentences. Because number sentences are often shown with only a single number on the right of the $=$ symbol, many children, even those in higher grades, are confused by—or reject as false—number sentences such as $5 = 5$, $4 = 2 + 2$, or $4 + 3 = 5 = 2$. To prevent such misconceptions, lessons in *Everyday Mathematics* include examples of the equal sign in different positions (writing $12 = 5 + 7$ just as often as $5 + 7 = 12$), and they encourage children to say "means the same as" or "looks different but is really the same as" wherever the $=$ symbol appears.

▶ Measurement (Lessons 5-7 and 5-8)

Children revisit length measurement in Unit 5. They practice measuring lengths with nonstandard units and further explore the concept of length as the distance along a path—even if the path is not straight. **1.MD.2** Children practice measuring jagged paths by adding the lengths of all the parts of the path.

The length of this path can be measured by adding the lengths of the parts.

▶ Adding Larger Numbers (Lessons 5-11 and 5-12)

Children begin developing strategies for adding larger 2-digit numbers in Lessons 5-11 and 5-12. They use their understanding of place value, as well as a variety of tools and representations, to help them solve these problems. In Lesson 5-11, children practice adding within 100 and subtracting multiples of 10 from other multiples of 10 by playing *Stop and Go*. **1.NBT.4, 1.NBT.6** Base-10 blocks are once again useful here to support early understanding of addition and subtraction of multidigit numbers. These blocks are used throughout *First Grade Everyday Mathematics* and in later grades to guide children's transition to more advanced algorithms.

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Mathematical Background:
Process and Practice

See below for some of the ways that children engage in **SMP2 Reason abstractly and quantitatively** and **SMP6 Attend to precision** through **Operations and Algebraic Thinking, Number and Operations in Base Ten, Measurement and Data,** and the other mathematical content of Unit 5.

▶ Standard for Mathematical Process and Practice 2

Standard for Mathematical Process and Practice 2 encourages children to "make sense of quantities and their relationships in problem situations." One way that children make sense of quantities is by "creating mathematical representations." **GMP2.1** A mathematical representation can be anything that represents a mathematical idea, including words, pictures, and symbols. For example, in Lesson 5-7, children create and label a drawing to represent a long, jagged path. **GMP2.1** In other lessons in Unit 5, children use base-10 blocks (concrete representation) and base-10 shorthand (pictorial representation) to represent place value.

Children also "make sense of... representations" **GMP2.2, GMP2.3** and "make connections between representations." **GMP2.3** For example, children connect what they know about representing numbers with base-10 blocks to the bundling of straws in the Number of the Day Routine. **GMP2.3** In Lesson 5-2, they consider different ways to represent the same number with base-10 blocks. And, in Lesson 5-3, children represent numbers with pennies and dimes and then compare these representations to base-10 block representations. **GMP2.3**

▶ Standard for Mathematical Process and Practice 6

According to Standard for Mathematical Process and Practice 6, "proficient students try to communicate precisely to others." They explain their mathematical thinking clearly and precisely. They use clear labels, units, and mathematical language. **GMP6.1, GMP6.3** Children practice these skills constantly, and often simultaneously, throughout *First Grade Everyday Mathematics*. For instance, in Lesson 5-4, children discuss how they compared numbers during the game *Top-It* and are encouraged to use mathematical language and terminology learned in previous lessons. In Lesson 5-9, children explain how they use the relation symbols $<$, $>$, and $=$ to write number models. And, in Lesson 5-10, children describe how number sentences model comparison number stories. **GMP6.1, GMP6.3**

Accuracy and efficiency when calculating, measuring, and counting and when expressing answers with the appropriate level of precision are important to Standard for Mathematical Process and Practice 6. **GMP6.4, GMP6.2** The distinction between *accuracy* and *precision is important. Accuracy* refers to proximity to the true value, given the units in which you measure or calculate. *Precision* refers to the units themselves. The smaller the unit of measure you use, the more precise the measurement.

Children have many opportunities to practice accurate and efficient counting, calculating, and measuring. Children accurately count dimes by 10s when playing *Penny-Dime Exchange* in Lesson 5-3, look for efficient ways to use counting when they fill in number scrolls in Lesson 5-6, and measure accurately in Lesson 5-7. **GMP6.4**

Standards and Goals for Mathematical Process and Practice

SMP2 Reason abstractly and quantitatively.

GMP2.1 Create mathematical representations using numbers, words, pictures, symbols, gestures, tables, graphs, and concrete objects.

GMP2.2 Make sense of the representations you and others use.

GMP2.3 Make connections between representations.

SMP6 Attend to precision.

GMP6.1 Explain your mathematical thinking clearly and precisely.

GMP6.2 Use an appropriate level of precision for your problem.

GMP6.3 Use clear labels, units, and mathematical language.

GMP6.4 Think about accuracy and efficiency when you count, measure, and calculate.

Go Online to the *Implementation Guide* for more information about the Mathematical Process and Practice Standards.

For children's information on the Mathematical Process and Practice Standards, see *My Reference Book,* pages 1–22.

Place-Value Application: Pennies and Dimes

Overview Children apply their understanding of the relationship between tens and ones by exchanging pennies and dimes.

▶ **Before You Begin**
Each child needs 5 dimes, either real or manipulatives. Gather dimes so that each child has at least 1 real dime. For the optional Enrichment activity, fill one small bag with about 50 pennies for each partnership.

Standards

Focus Clusters
- Extend the counting sequence.
- Understand place value .

① **Warm Up** 15–20 min

	Materials	
Mental Math and Fluency Children solve number stories.		**1.OA.1, 1.OA.2, 1.OA.6**
Daily Routines Children complete daily routines.	See pages 2–37.	See pages xiv–xvii.

② **Focus** 35–40 min

Math Message Children find whether 11 cents can be made with two coins.		**1.NBT.2** **SMP1**
Using Dimes as Tens Children practice counting by 10s in a money context. They relate dimes and pennies to tens and ones.	clear plastic cup or jar, dimes, pennies	**1.NBT.1, 1.NBT.2, 1.NBT.2b, 1.NBT.2c** **SMP2**
Exchanging Pennies for Dimes Children exchange pennies for dimes in a banking activity.	1 small envelope, 12 dimes, per child: 1–4 pennies	**1.NBT.1, 1.NBT.2, 1.NBT.2a** **SMP2**
Introducing *Penny-Dime Exchange* Game Children practice exchanging 10s and 1s.	*Math Masters,* p. G36 (optional); per partnership: 1 die, 30 pennies, 5 dimes, paper labeled "Bank"	**1.NBT.2, 1.NBT.2a** **SMP6**
✓ **Assessment Check-In** See page 411. Expect most children to correctly make place-value exchanges while playing the game *Penny-Dime Exchange*.	small cup labeled "10 cents" (optional)	**1.NBT.2, 1.NBT.2a**

③ **Practice** 10–15 min

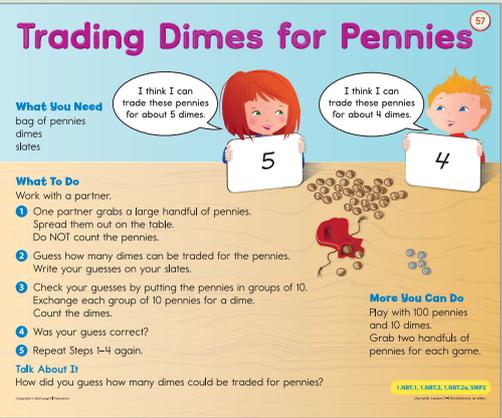|		
Comparing Similar Lengths Children practice comparing lengths indirectly.	*Math Journal 1,* p. 71; string; strips of paper	**1.MD.1**
Math Boxes 5-3 Children practice and maintain skills.	*Math Journal 1,* p. 72	See page 411.
Home Link 5-3 **Homework** Children exchange pennies and dimes.	*Math Masters,* p. 128	**1.NBT.1, 1.NBT.2, 1.NBT.2a, 1.NBT.2b, 1.NBT.2c, SMP6**

〰 〔 Go Online 〕 to see how mastery develops for all standards within the grade.

Differentiation Options

Readiness 10–15 min	Enrichment 10–15 min	Extra Practice 10–15 min
WHOLE CLASS **SMALL GROUP** PARTNER INDEPENDENT	WHOLE CLASS SMALL GROUP **PARTNER** INDEPENDENT	WHOLE CLASS SMALL GROUP **PARTNER** INDEPENDENT

Doing More Stop-and-Start Counting

1.NBT.1, SMP6

To provide additional experience counting with a concrete model, have children use their hands and fingers to count by 10s and 1s. **GMP6.4** Begin by modeling a *high five.* Tell them that today they will be doing *high tens.* A *high ten* is a *high five* that uses both hands. Have children sit in a circle. Ask children to give you a *high ten* when you come to them. Count by 10s to 40 as you give *high tens.* Continue around the circle, this time giving *high ones* (touching one finger to one finger) while counting by 1s to 44. Repeat until children are comfortable transitioning from counts by 10s to counts by 1s.

Trading Dimes for Pennies

1.NBT.1, 1.NBT.2, 1.NBT.2a, SMP2

Activity Card 57

To further explore place-value exchanges and provide additional experience counting and estimating, challenge children to guess how many dimes can be traded for an unknown quantity of pennies. Children then check their estimates by exchanging pennies for dimes. **GMP2.3**

Trading Dimes for Pennies 57

I think I can trade these pennies for about 5 dimes.

I think I can trade these pennies for about 4 dimes.

5 4

What You Need
bag of pennies
dimes
slates

What To Do
Work with a partner.
1 One partner grabs a large handful of pennies. Spread them out on the table. Do NOT count the pennies.
2 Guess how many dimes can be traded for the pennies. Write your guesses on your slates.
3 Check your guesses by putting the pennies in groups of 10. Exchange each group of 10 pennies for a dime. Count the dimes.
4 Was your guess correct?
5 Repeat Steps 1–4 again.

Talk About It
How did you guess how many dimes could be traded for pennies?

More You Can Do
Play with 100 pennies and 10 dimes. Grab two handfuls of pennies for each game.

1.NBT.1, 1.NBT.2, 1.NBT.2a, SMP2

Playing *The Digit Game*

1.NBT.2, 1.NBT.3, SMP2

Math Masters, p. G35 (optional); per partnership: 4 each of number cards 0–9

For practice comparing 2-digit numbers based on place value, have children play *The Digit Game.* For detailed instructions, see Lesson 5-1.

Observe
• Which children quickly represent the larger number from their two digits? **GMP2.1**

Discuss
• *What would you do differently if the player with the smaller number took the cards?*

The Digit Game NAME DATE

Materials	number cards 0–9 (4 of each)
Players	2
Skill	Comparing 2-digit numbers
Object of the Game	To collect more cards

Directions
1 Shuffle the cards. Place them facedown on the table.
2 Each player turns over 2 cards and makes the larger of the two possible 2-digit numbers with his or her cards.
3 Each player says his number and what each digit represents.
4 The player with the larger number takes all the cards.
5 The game ends when no cards are left.

English Language Learner

Beginning ELL Hearing the difference between the names of the teen numbers and multiples of 10 through 90 may continue to be difficult for children. To provide oral language practice with multiples-of-10 words, have children do choral counting by 10s to 100. Then distribute number cards with the teen numerals 13 through 19 and multiples of 10 from 30 through 90. Call out numbers and have children show the appropriate numeral and pronounce the corresponding word.
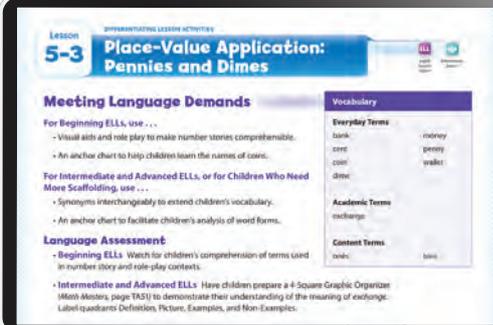
Lesson 5-3 Place-Value Application: Pennies and Dimes

Meeting Language Demands

Differentiation Support pages are found in the online Teacher's Center.

Standards and Goals for
Mathematical Process and Practice

SMP1 **Make sense of problems and persevere in solving them.**
　GMP1.1 Make sense of your problem.

SMP2 **Reason abstractly and quantitatively.**
　GMP2.3 Make connections between representations.

SMP6 **Attend to precision.**
　GMP6.4 Think about accuracy and efficiency when you count, measure, and calculate.

NOTE Some children may not be familiar with dimes. If time permits, you may wish to spend some time examining, discussing, and sharing more information about the coins.

Academic Language Development

Other words that sound like the word *cents* have different meanings. Give examples of sentences with these homonyms. For example: *A mouse lifting up an elephant doesn't make sense!* or *The scent of this perfume is making me sneeze!* Ask children how they could tell that you weren't talking about money in these sentences.

1 Warm Up 15–20 min

▶ Mental Math and Fluency

Pose number stories and have children share their solutions, briefly discussing their strategies.

- ●○○ Brooke walked 8 blocks. Then she walked another 5 blocks. How many blocks did Brooke walk in all? **13 blocks**
- ●●○ Rich wants 12 balloons. He already has 4 balloons. How many more balloons does Rich need? **8 balloons**
- ●●● Sheena read 7 books in April, 6 books in May, and 4 books in June. How many books did Sheena read in all? **17 books**

▶ Daily Routines

Have children complete the Daily Routines. For detailed instructions, see pages 2–37. For specifics on standards coverage, see pages xiv–xvii.

2 Focus 35–40 min

▶ Math Message

Angela says, "I have 11 pennies in my pocket. That's 11 cents."
Marcus says, "I have 11 cents, too. But I only have 2 coins in my pocket."

Could Marcus be right? How? Record what you think. **GMP1.1**

▶ Using Dimes as Tens

| WHOLE CLASS | SMALL GROUP | PARTNER | INDEPENDENT |

Math Message Follow-Up Have children share their responses to the Math Message. Guide a brief discussion to conclude that Marcus must have 1 dime and 1 penny, but do not discuss ones-to-tens exchanges yet. Remind children that in previous lessons they used cubes and longs to show ones and tens. Today they will use pennies and dimes to think more about ones and tens. **GMP2.3**

Briefly introduce the **dime** as you distribute the coins to children. Ask: *How much is a penny worth?* **1 cent** *How much is a dime worth?* **10 cents, or 10 pennies** *How many pennies could you exchange for 1 dime?* **10 pennies** Point out that dimes are useful counting tools because counting dimes is the same as counting cents by 10s.

Have one child move around the room with a clear container, collecting one dime from each child. Have children count by 10s, beginning with 0 cents to represent the empty cup (0 cents, 10 cents, 20 cents, and so on) until they reach 100. Ask: *When we had 60 cents in the cup, how many dimes did we have?* 6 dimes *How many tens does the 6 in 60 represent?* 6 tens *How many pennies did we have?* 0 pennies *How many ones does the 0 in 60 represent?* 0 ones

Empty the cup and start again from a different number. For example, begin with 1 dime and 3 pennies in the cup. Ask: *How much money is in the cup?* 13 cents *What are the tens and ones digits in 13?* 1 is the tens digit, 3 is the ones digit *How many dimes and pennies make up 13 cents?* 1 dime and 3 pennies Have children add dimes as they count up by 10s (13 cents, 23 cents, 33 cents, and so on). Continue counting by 10s from different numbers, challenging children to predict the final total beforehand. For example: *If we start with 41 cents in the cup and drop in 3 more dimes, how much money will we have?* 71 cents

▶ Exchanging Pennies for Dimes

WHOLE CLASS	SMALL GROUP	PARTNER	INDEPENDENT

Remind children that they exchanged 10 cubes for 1 long in a previous lesson. Explain that, similarly, 10 pennies can be exchanged for 1 dime. **GMP2.3**

Have children sit in a circle around a piece of paper labeled "Bank"— a very unusual bank that only uses pennies and dimes. Place 10 dimes in the bank. Give each child 1–4 pennies, varying the number per child.

Ask one child to be the banker and carry a tiny envelope.

Pose the following problem to encourage the class to estimate before counting: *If every child in our class gave the banker a few pennies, how much money would the banker have?*

Have the banker collect the pennies from each child. Record as shown on page 410. Explain that, because of the tiny envelope, the banker must stop at the bank and exchange pennies for dimes whenever possible. Ask: *How many pennies must the banker have before exchanging?* 10 pennies

Keep track as the banker collects pennies.

After 10 pennies have been collected, have the class say, "Exchange!" as the banker exchanges 10 pennies for 1 dime. The pennies go in the bank and the dime goes in the envelope.

Professional Development

This lesson focuses on dimes and pennies to provide children with another representation of a ten (dime) as a "bundle" of 10 ones (pennies). **1.NBT.2a, GMP2.3** Be sure to make explicit place-value connections as children count dimes and pennies, asking questions to help children understand that the numbers 11–19 are composed of 1 ten (dime) and various ones (pennies), and that counting only dimes refers to 1–9 tens (dimes) and 0 ones (pennies). **1.NBT.2b, 1.NBT.2c**

Penny-Dime Exchange

NAME   DATE

Materials	1 dot die, 30 pennies, 5 dimes, 1 sheet of paper labeled "Bank"
Players	2
Skill	Exchanging ones for tens
Object of the Game	To collect more dimes

Directions

① Put the pennies and dimes in the bank. Take turns.

② Roll the die. Take that number of pennies from the bank.

③ When you have 10 pennies, say, "Exchange!" Put the 10 pennies back in the bank and take 1 dime.

④ Keep playing until there are no more dimes in the bank.
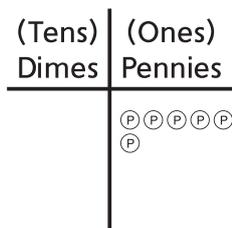
⑤ The player with more dimes wins.

Another Way to Play
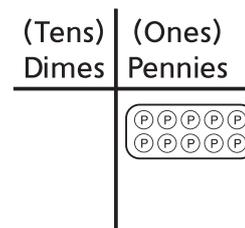
Put more money in the bank and use 2 dice.
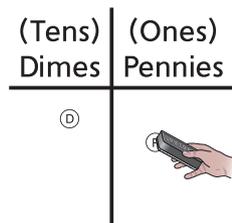
G36   **1.NBT.2, 1.NBT.2a**

Continue until all of the pennies have been collected. Then ask the banker to report what coins are in the envelope. Start with the dimes, count by 10s, and then count by 1s to include any remaining pennies to find the total.
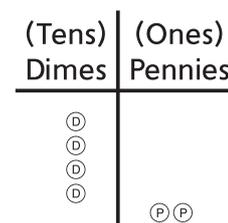
(Tens) Dimes	(Ones) Pennies
	P P P P P P

Keep track.

(Tens) Dimes	(Ones) Pennies
	P P P P P P P P P P

Exchange!

(Tens) Dimes	(Ones) Pennies
D	

Draw a dime and erase the pennies to show the exchange.

(Tens) Dimes	(Ones) Pennies
D D D D	P P

Final count

Differentiate   **Adjusting the Activity**

Children who struggle may benefit from additional practice exchanging pennies for dimes using a ten frame to remind them when to exchange.   **Go Online**   Differentiation Support

▶ **Introducing *Penny-Dime Exchange***

| WHOLE CLASS | SMALL GROUP | PARTNER | INDEPENDENT |

Introduce children to *Penny-Dime Exchange.* In this game, each player is a banker and makes exchanges. Demonstrate how to play. You may wish to distribute the game directions (*Math Masters,* page G36).

Observe

• Which children are accurately exchanging 10 pennies for 1 dime?

• Which children can accurately count dimes by 10s? **GMP6.4**

Discuss

• *How much money do you have in your bank? Count your coins by 10s and 1s.*

Differentiate   **Game Modifications**   **Go Online**   Differentiation Support

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Comparing Similar Lengths

Lesson 5-3
DATE

Use another object to compare the lengths of these objects.

marker

pencil

CRAYON

crayon

paintbrush

toothbrush

pen
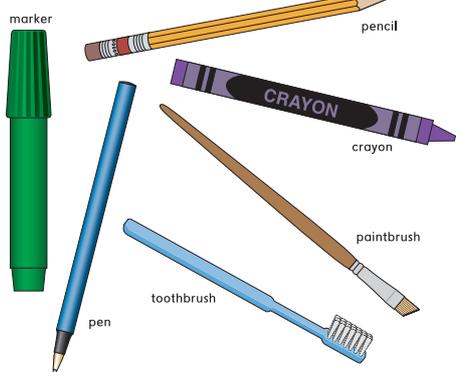
Which is **longer,** the pencil or the pen? __pencil__

Which is **shorter,** the toothbrush or the crayon? __toothbrush__

Which object is the **longest?** __paintbrush__

Which object is the **shortest?** __marker__   Sample

What did you use to compare? answers: a string; a piece

Show a partner how you compared the lengths.   of paper

1.MD.1

seventy-one   71

✔ **Assessment Check-In**   1.NBT.2, 1.NBT.2a

Observe as children play *Penny-Dime Exchange* to assess their understanding of place-value exchanges. Expect most children to remove 1 dime from the bank for every 10 pennies they put in. However, some may not remove the dime from the bank, and thus would not be *replacing* their 10 pennies with a dime.

For children who do not remove 1 dime from the bank for every 10 pennies they put in, provide a ten frame to help them remember. To help children understand that a dime should replace 10 pennies, give these children a half-sheet of paper as a "wallet" on which to collect their coins. Provide a small cup labeled "10 cents" that they will take to the bank to exchange. Demonstrate how to take 10 pennies from the wallet and place them in the cup, pour the pennies from the cup into the bank, add a dime to the cup as the exchange, and then pour it onto the wallet.

✔ **Evaluation Quick Entry** Go online to record children's progress and to see trajectories toward mastery for these standards.

Summarize Ask children to discuss with a partner whether they would rather have 3 dimes or 30 pennies. Share answers aloud as time permits.

③ **Practice**   10–15 min

▶ **Comparing Similar Lengths**

Math Journal 1, p. 71

| WHOLE CLASS | SMALL GROUP | **PARTNER** | **INDEPENDENT** |

Have children practice comparing lengths of objects indirectly using journal page 71. Encourage children to use anything they choose to compare. Suggest items such as string or strips of paper. Challenge children to list all of the objects from longest to shortest.

▶ **Math Boxes 5-3**

Math Journal 1, p. 72

| WHOLE CLASS | SMALL GROUP | **PARTNER** | **INDEPENDENT** |

Mixed Practice Math Boxes 5-3 are paired with Math Boxes 5-1 and 5-6.

▶ **Home Link 5-3**

Math Masters, p. 128

Homework Children practice exchanging pennies and dimes.

Exploring Base-10 Exchanges, Lengths, and Path Measurement

Overview Children play a game to explore the relationship between tens and ones. They compare lengths of two objects indirectly and measure a path.

▶ **Before You Begin**

For Exploration B, write or draw two large classroom objects in the indicated boxes on Math Masters, page 140 before copying it. For the optional Readiness activity, prepare strips of paper of slightly different lengths, one for each child

1 Warm Up 15–20 min

	Materials	
Mental Math and Fluency Children solve addition facts.	slate	**1.OA.6**
Daily Routines Children complete daily routines.	See pages 2–37.	See pages xiv–xvii.

2 Focus 35–40 min

Math Message Children use base-10 blocks to show a number multiple ways.	*Math Journal 1,* Activity Sheet 4; base-10 blocks	**1.NBT.2, 1.NBT.2a** **SMP1**
Showing Base-10 Block Exchanges Children show a number, making all possible exchanges with base-10 blocks.	*Math Journal 1,* Activity Sheet 4; base-10 blocks	**1.NBT.2, 1.NBT.2a**
Exploration A: Introducing *Base-10 Exchange* **Game** Children explore the relationship between tens and ones.	*Math Journal 1,* Activity Sheet 4; *Math Masters,* p. G40 (optional); base-10 blocks; dot die	**1.NBT.2, 1.NBT.2a** **SMP2**
Exploration B: Deciding Which Is Taller Children explore ways to compare the heights of two objects using a third object.	Activity Card 64; *Math Masters,* p. 140; measurement kit	**1.MD.1** **SMP3**
Exploration C: Finding Paths to the Treasure Children use paper clips to measure paths on a map.	Activity Card 65; *Math Journal 1,* pp. 81– 82; measurement kit	**1.MD.2** **SMP2**

3 Practice 10–15 min

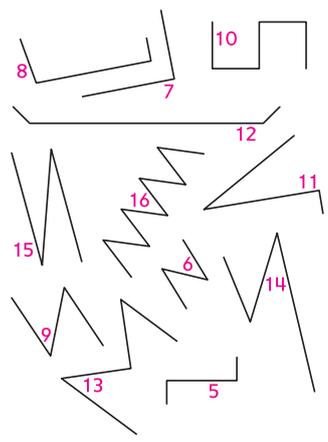|		
Playing *The Digit* **Game** **Game** Children practice comparing 2-digit numbers based on place value.	*Math Masters,* p. G35 (optional); per partnership: 4 each of number cards 0–9	**1.NBT.2, 1.NBT.3** **SMP7**
Math Boxes 5-8 Children practice and maintain skills.	*Math Journal 1,* p. 83	See page 441.
Home Link 5-8 **Homework** Children practice showing numbers with base-10 blocks.	*Math Masters,* p. 142	**1.NBT.2, 1.NBT.2a, 1.MD.2**

⫿⫿⫿ Go Online ⟩ to see how mastery develops for all standards within the grade.

Differentiation Options

Readiness	10–15 min	Enrichment	15–20 min	Extra Practice	10–15 min
WHOLE CLASS **SMALL GROUP** PARTNER INDEPENDENT		WHOLE CLASS SMALL GROUP **PARTNER** INDEPENDENT		WHOLE CLASS SMALL GROUP **PARTNER** INDEPENDENT	

Race to Order

1.MD.1, SMP6

strip of paper per child (each of slightly different length)

To provide additional experience ordering objects by length, have children compare paper lengths. Have them stand in a circle with their hands behind their backs as you hand each child one strip of paper. Time children as they silently compare strips of paper and line themselves up in order based on the length of their papers. Stop timing when they are all holding their strips of paper in the air to show they are done. Children check their results by placing the strips of paper on the floor to examine all the lengths at once. **GMP6.4** Collect the strips and repeat. Challenge children to get faster each time.
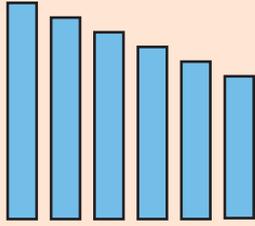
Catch a Crooked Path

1.MD.2, SMP6

Activity Card 66; *Math Masters,* p. 141

To further explore measuring lengths of paths, have children estimate and then measure the lengths of crooked paths using base-10 cubes. **GMP6.4**

Catch a Crooked Path 66

What You Need
Crooked Paths, page 141
number cards 5–16
base-10 cubes
slate

What To Do
Work with a partner.
1. Mix the number cards and place them facedown.
2. Pick a number card.
3. Look at the paths on the page.
4. Pick the path that you think is as many unit cubes long as the number you picked.
5. Use one unit cube to measure each part of the path.
6. If you picked the correct path, keep the number card.

Crooked Paths   Lesson 5-8   NAME   DATE

1.MD.2, SMP6   one hundred forty-one   141

Playing *Penny-Dime Exchange*

1.NBT.2, 1.NBT.2a, SMP6

Math Masters, p. G36; 1 dot die; 30 pennies; 5 dimes; 1 sheet of paper labeled "Bank"

To provide practice exchanging ones for tens, have children play *Penny-Dime Exchange.* For detailed instructions, see Lesson 5-3.

Observe
- Which children accurately count dimes by 10s? **GMP6.4**
- Which children exchange pennies for dimes at the appropriate time?

Discuss
- *In what ways* is this game like the Base-10 Exchange *Exploration?*
- *If you have 1 dime and 2 pennies in the bank, how much money do you have? How many 10s do you have? How many 1s?*

Penny-Dime Exchange   NAME   DATE

Materials	1 dot die, 30 pennies, 5 dimes, 1 sheet of paper labeled "Bank"
Players	2
Skill	Exchanging ones for tens
Object of the Game	To collect more dimes

Directions
1. Put the pennies and dimes in the bank. Take turns.
2. Roll the die. Take that number of pennies from the bank.
3. When you have 10 pennies, say, "Exchange!" Put the 10 pennies back in the bank and take 1 dime.
4. Keep playing until there are no more dimes in the bank.
5. The player with more dimes wins.
1.NBT.2, 1.NBT.2a

English Language Learner

Beginning ELL Reinforce children's understandings of the terms gap, overlap, and end-to-end by using paper clips to measure lines drawn on paper. In one example, leave gaps between the paper clips along the line; in another, overlap the paper clips; and in a third example, lay paper clips end-to-end. Think aloud as you label each example. Use Show Me commands, such as: Show me a gap, Show me an overlap. Then ask children to fix the gaps and overlaps so the paper clips are lined up end-to-end.
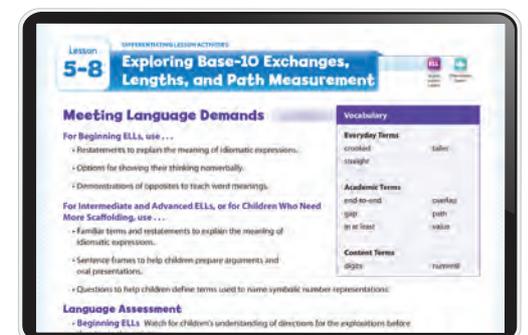
Differentiation Support pages are found in the online Teacher's Center.

1 Warm Up   15–20 min

▶ Mental Math and Fluency

Ask children to solve each fact and record the answers on their slates.

● ○ ○ $3 + 2$ **5**; $2 + 8$ **10**; $4 + 4$ **8**
● ● ○ $5 + 2$ **7**; $9 + 9$ **18**; $7 + 3$ **10**
● ● ● $6 + 3$ **9**; $8 + 8$ **16**; $4 + 6$ **10**

▶ Daily Routines

Have children complete the Daily Routines. For detailed instructions, see pages 2–37. For specifics on standards coverage, see pages xiv–xvii.

2 Focus   35–40 min

▶ Math Message

Math Journal 1, Activity Sheet 4

Use base-10 blocks to show the number 38 in at least two different ways. Record your ways with | *and* ■. **GMP1.1**

▶ Showing Base-10 Block Exchanges

Math Journal 1, Activity Sheet 4

| **WHOLE CLASS** | SMALL GROUP | PARTNER | INDEPENDENT |

Math Message Follow-up Have children share their responses to the Math Message, displaying their solutions with base-10 blocks arranged on their Tens-and-Ones Mats (*Math Journal 1,* Activity Sheet 4). Be sure to show the four possible arrangements of base-10 blocks: 3 longs with 8 cubes, 2 longs with 18 cubes, 1 long with 28 cubes, and 38 cubes. Discuss why all four sets of blocks represent 38. Have children model how 10 cubes can be grouped together to show 1 long. Demonstrate the exchange of cubes for longs until all four representations are identical.

Tell children that today they will learn a new game to practice exchanging ones for tens. At the other Explorations stations, they will continue to explore length measurement.

Math Journal 1, Activity Sheet 4

Tens-and-Ones Mat

Tens 10s

Ones 1s
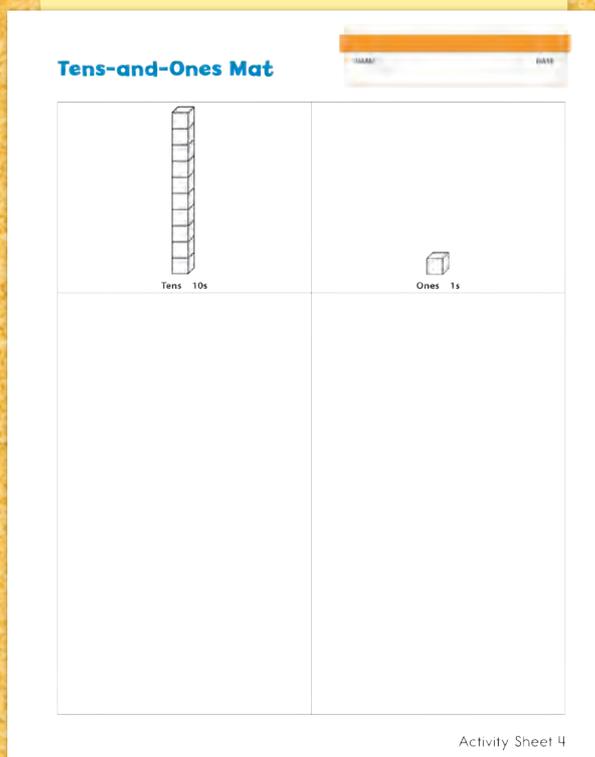
Activity Sheet 4

▶ **Exploration A:** Introducing *Base-10 Exchange*

Math Journal 1, Activity Sheet 4

| WHOLE CLASS | SMALL GROUP | **PARTNER** | INDEPENDENT |

Demonstrate how to play *Base-10 Exchange.* You may wish to distribute the game directions (*Math Masters,* page G40). As children play, be sure to ask questions that reinforce place-value concepts.

Observe
- Which children consistently exchange cubes for a long each time they collect 10 cubes?

Discuss
- When base-10 blocks represent teen numbers, ask: *What number is shown by your cubes? How do you write that as a numeral? What is the value of the tens digit? What is the value of the ones digit?* **GMP2.2**
- When base-10 blocks represent multiples of 10, ask: *What number is shown by your cubes? How do you write that as a numeral? What is the value of the tens digit? What does the 0 mean?* **GMP2.2**

Differentiate **Game Modifications** — Go Online — Differentiation Support

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Differentiate **Adjusting the Activity**

Provide templates for children to use to record some of their numbers as they play the game to reinforce the understanding of the representations with base-10 blocks. For example, "My numbers is _____. I have _____ longs and _____ cubes." — Go Online — Differentiation Support

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▶ **Exploration B:** Deciding Which Is Taller

Activity Card 64; *Math Masters,* p. 140

| WHOLE CLASS | **SMALL GROUP** | PARTNER | INDEPENDENT |

Have children explore ways to compare the heights of two objects using a third object. Before making copies of *Math Masters,* page 140, draw or write the names of two large, immovable classroom objects (for example, a teacher's desk and a bookcase) in the spaces. Provide children with the measurement kits you prepared for Lesson 4-2. Have children work in groups to make arguments about which object is taller, citing evidence that goes beyond just looking at the objects. **GMP3.1** Have each group draw or write their methods and results on *Math Masters,* page 140. Tell children that at the end of the lesson, groups will share their reports.

Academic Language Development Provide groups with sentence frames to use in preparing their arguments, such as: "We think _____ is taller. We think so because _____."

Finding Paths to the Treasure

65

1, 2, 3, 4, 5, …

What You Need
Math Journal 1, pages 81 and 82
20 small paper clips

What To Do
Work with a partner.
1 Start at the space marked START HERE.
2 Find different paths to the TREASURE.
  Use paper clips to measure the paths.
3 Follow the directions on journal page 82.

More You Can Do
• Write a number model showing how to add each part
  of a path to find the total length.
• Ask a partner to find different paths to the treasure.
• Draw your own treasure map.

1.MD.2, SMP2
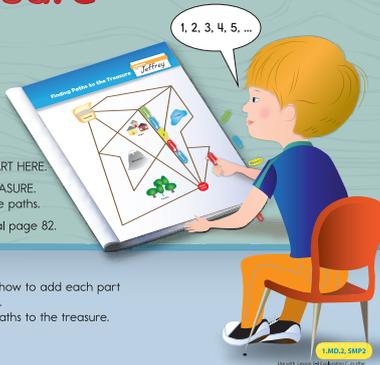
▶ # Exploration C: Finding Paths to the Treasure

Activity Card 65; *Math Journal 1,* pp. 81–82

| WHOLE CLASS | **SMALL GROUP** | **PARTNER** | **INDEPENDENT** |

Invite children to use paper clips to measure paths to a treasure. This is another opportunity for children to measure length along more complex paths. Remind them to either measure the whole path or measure and add the section lengths by placing paper clips end-to-end without gaps or overlaps to find the total length of the path. Challenge children to create their own treasure maps and have a partner find the lengths of the paths. **GMP2.2**

Summarize Have groups share their Measurement Reports from Exploration B. Ask children to discuss why they may have gotten different measures for the same objects, including errors, rounding, or different units. **GMP3.1**

Finding Paths to the Treasure Record Sheet

Lesson 5-8
DATE

Find different paths to the treasure.
Measure with paper clips.

Answers vary.

1 Find the **shortest** path to the treasure.
  About how many paper clips long is the shortest path?

  _____ paper clips

  Trace the path with a **red** crayon or marker.

2 Find a **long** path to the treasure.
  About how many paper clips long is this path?

  _____ paper clips

  Trace the path with a **blue** crayon or marker.

3 Find a path that is about 8 paper clips long.
  Trace the path with a **green** crayon or marker.

4 Find a path that is about 10 paper clips long.
  Trace the path with a **brown** crayon or marker.

5 Find a path that is about 13 paper clips long.
  Trace the path with a **purple** crayon or marker.

Find another path.

I found a path that is about _____ paper clips long.

I colored it _____.

82   eighty-two   **1.MD.2**

Math Journal 1, p. 82

Math Journal 1, p. 81

Finding Paths to the Treasure

Lesson 5-8
DATE

Answers vary.

TREASURE

Town

Lake

Mountain

Forest

START HERE

1.MD.2   eighty-one   81

3 Practice 10–15 min

▶ **Playing *The Digit Game***

| WHOLE CLASS | SMALL GROUP | **PARTNER** | INDEPENDENT |

Children practice comparing 2-digit numbers based on place value. For detailed instructions, see Lesson 5-1.

Observe
- Which children use the meanings of the tens and ones digits to identify the larger number?

Discuss
- *How does knowing how much each digit is worth help you decide which number is larger?* GMP7.2

▶ **Math Boxes 5-8**

Math Journal 1, p. 83

| WHOLE CLASS | SMALL GROUP | **PARTNER** | **INDEPENDENT** |

Mixed Practice Math Boxes 5-8 are paired with Math Boxes 5-11.

▶ **Home Link 5-8**

Math Masters, p. 142

Homework Children practice representing numbers with base-10 blocks.

Explorations and Exchanges

Family Note

Today your child learned a game involving exchanges with base-10 blocks and explored comparing and measuring length. Have your child tell you about the Explorations that the class did today.

Please return this Home Link to school tomorrow.

① This is one way to show the number 21 with base-10 blocks.

Use ❘ and ▪ to show 21 in two other ways.

Practice   Answers vary.

② Use a fork to measure.

How many forks wide is your kitchen sink?

_____ forks

142   one hundred forty-two   1.NBT.2, 1.NBT.2a, 1.MD.2

Math Masters, p. 142

The Digit Game

NAME   DATE

Materials number cards 0–9 (4 of each)
Players 2
Skill Comparing 2-digit numbers
Object of the Game To collect more cards

Directions

① Shuffle the cards. Place them facedown on the table.

② Each player turns over 2 cards and makes the larger of the two possible 2-digit numbers with his or her cards.

③ Each player says his number and what each digit represents.

④ The player with the larger number takes all the cards.

⑤ The game ends when no cards are left.

⑥ The player with more cards wins.

5 3   4 1

53 wins.

1.NBT.2, 1.NBT.3   G35

Math Boxes   Lesson 5-8
DATE

① Liam used his number line. He started at 9. He moved forward 0 hops.

Where did he land? Choose the best answer.
- ⬭ 0
- ⬭ 8
- ⬬ 9
- ⬭ 10

② Draw a pencil that is 3 paper clips long.

Answers vary by paper-clip size.

③ Use your number grid.

Start at 20. Count back 9.

You end at ___11___.

④ **Writing/Reasoning** How do you know which pet is most popular?

Favorite Pets

Sample answer: I know the cat is because its bar is taller than the other animals' bars.

① 1.OA.3, 1.OA.5, 1.OA.6 ② 1.MD.2
③ 1.OA.5, 1.NBT.1 ④ 1.MD.4, SMP4   eighty-three 83

Adding Animal Weights

Overview **Day 1:** Children use tools to solve an open response problem about adding animal weights. **Day 2:** The class discusses children's solutions from Day 1, and children revise their work.

Day 1: Open Response

▶ **Before You Begin**

Solve the open response problem and consider how children might use various tools to add. If possible, schedule time to review children's work and plan for Day 2 of this lesson with your grade-level team.

▶ **Vocabulary**

tool

Standards

Focus Clusters

- Add and subtract within 20.
- Use place value understanding and properties of operations to add and subtract.

① **Warm Up** 15–20 min	**Materials**	
Mental Math and Fluency Children solve number stories and write number models.	slate	**1.OA.2, 1.OA.3**
Daily Routines Children complete daily routines.	See pages 2–37.	See pages xiv–xvii.

②ᵃ **Focus** 45–55 min		
Math Message Children count up on a number grid.	*Math Journal 1,* p. 91	**2.OA.1, 2.OA.2** **SMP4**
Using a Number Grid Children discuss how they used the number grid as a tool to help them add.	*Math Journal 1*, p. 91; Class Number Grid; Standards for Mathematical Process and Practice Poster	**1.OA.5, 1.NBT.4** **SMP5**
Solving the Open Response Problem Children choose and use a tool to help them add two animal weights and describe what they did.	*Math Masters,* pp. 149–150; Animal Cards (*Math Journal 1,* Activity Sheets 5–8); Class Number Line; Class Number Grid; base-10 cubes and longs	**1.NBT.4** **SMP5**

Getting Ready for Day 2 →

Review children's work and plan discussion for reengagement.

Math Masters, p. TA3; children's work from Day 1

〰 **Go Online** to see how mastery develops for all standards within the grade.

Warm Up 15–20 min

▶ **Mental Math and Fluency**

Have children solve and record number models for number stories on their slates.

● ○ ○ Peter painted 9 rocks in the morning. He painted 1 rock in the afternoon. He painted 3 more rocks before bed. How many rocks did he paint all together? 13 rocks; $9 + 1 + 3 = 13$

● ● ○ Binita had 12 pennies. Her mother gave her 2 more pennies. Her brother gave her 3 more pennies. How many pennies does Binita have now? 17 pennies; $12 + 2 + 3 = 17$

● ● ● Veer ate 3 strawberries, 11 blueberries, and 6 raspberries. How many berries did Veer eat in all? 20 berries; $3 + 11 + 6 = 20$

▶ **Daily Routines**

Have children complete the Daily Routines. For detailed instructions, see pages 2–37. For specifics on standards coverage, see pages xiv–xvii.

2a Focus 45–55 min

▶ **Math Message**

Math Journal 1, p. 91

Complete journal page 91. Show your partner how you used the number grid. GMP5.2

▶ **Using a Number Grid**

Math Journal 1, p. 91

WHOLE CLASS	SMALL GROUP	PARTNER	INDEPENDENT

Math Message Follow-Up Have volunteers share their strategies for solving the problem. Have children point to the Class Number Grid to illustrate what they did. If they are not mentioned, demonstrate the following two correct strategies:

• Start at 44. Count up 21 spaces. We end at 65.
• Start at 44. Add two 10s by moving down two rows. Then count on 1 more. We end at 65.

Professional Development

The focus of this lesson is **GMP5.2**. A *tool* is an object that aids in accomplishing a task. Examples of tools in *Everyday Mathematics* include manipulatives such as base-10 blocks, devices such as calculators, measuring implements such as rulers and scales, and abstract mathematical objects such as number lines and number grids. An important part of children's work in this lesson is to show how they use tools effectively to solve problems.

Go Online for information about **SMP5** in the *Implementation Guide.*

Math Journal 1, p. 91

Using the Number Grid

Lesson 5-12

Use the number grid.

Start at 44.
Count up 21 spaces.
Where do you land? 65

−9	−8	−7	−6	−5	−4	−3	−2	−1	0
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80

Show your partner how you used the number grid.

1.OA.5, 1.NBT.4, SMP5   ninety-one 91

Adding Animal Weights

Lesson 5-12

NAME

DATE

① Choose two animals.

Animal: _____ Weight: _____ lb

Animal: _____ Weight: _____ lb

② What is the total weight of the animals you chose?
Use a tool to help you find your answer.

_____ lb

Answers vary.

③ Use words and pictures to show how you used your tool.

Answers vary. See sample children's work on page 467 of the *Teacher's Lesson Guide.*

1.NBT.4, SMP5   one hundred forty-nine   149

ELL Support

Review the vocabulary from the Animal Cards. Use Total Physical Response commands, such as: *Point to the squirrel. Show me the word* peacock. *Show me an animal that weighs more (less) than 10 pounds. Show me three animals that weigh more (less) than 10 pounds.*

Use yes/no questions, such as: *Does the peacock weigh 9 pounds? Does the peacock weigh more than the flamingo?*

Use short-response questions, such as: *How much does the squirrel weigh? Which animal weighs more (less) than the peacock?*

Ask children to help you write a number model for what they did. 44 + 21 = 65

Tell children that when they solved this problem, they used the number grid as a tool to help them add. Explain that a **tool** is something mathematicians use to help them solve a problem. Ask: *How was the number grid helpful in solving the problem?* Sample answers: It helped me keep track of the numbers. It helped me count faster because I could count by 10s when I moved down. *Where did you look to find your answer?* **GMP5.2** Sample answer: I looked at the number where I landed.

Ask children to name some other tools they have used to add. Sample answers: my fingers; number lines; base-10 blocks Make a list of the tools on the board. Be sure number grids, number lines, and base-10 blocks are on the list.

Refer to the Standards for Mathematical Process and Practice Poster and point out the goals under Standard for Mathematical Process and Practice 5. Tell children that they will choose one of the tools from the class list and use it to add animal weights. **GMP5.1** Explain that part of their job is to describe how they used their tool. **GMP5.2**

▶ Solving the Open Response Problem

Math Masters, pp. 149–150

| WHOLE CLASS | SMALL GROUP | **PARTNER** | **INDEPENDENT** |

Distribute *Math Masters,* page 149 to each child. Children should also have their Animal Cards and access to the Class Number Line, the Class Number Grid, base-10 blocks, and any other tools on the class list from the previous activity.

Have children choose two Animal Cards and record the names and weights of the animals in Problem 1. You may have children choose any two animals they wish, or you may adjust the task to the needs of your class or specific groups by asking them to choose animals with specific weight requirements. *Suggestions:*

- To provide practice with adding a 2-digit number and a 1-digit number, have children choose one animal that weighs more than 10 pounds and one that weighs less than 10 pounds.
- To provide practice with adding a 2-digit number and a multiple of 10, have children choose two animals that weigh more than 10 pounds, one with a weight that ends in 0 and one with a weight that ends in a different number.
- To provide practice with adding two 2-digit numbers, have children choose two animals that each weigh more than 10 pounds.

After children have chosen their animals, they should choose one of the tools from the class list and use it to find how much their chosen animals weigh in all. **GMP5.1, GMP5.2** Children record the total in Problem 2.

Note that some children may be able to find the total weight mentally or on paper without using any of the tools. Encourage these children to think about and explain how they could use one of the tools, for example, number lines or number grids, to check their answers.

Some children may have difficulty using the first tool they choose. For example, a child who chooses two animals with heavy weights, such as the porpoise (98 lb) and the cheetah (120 lb), may realize that the number grid does not have high enough numbers to allow them to find the total. Similarly, a child who chooses two animals with 2-digit weights may find it difficult to count up so many hops on the Class Number Line. Encourage these children to think about another tool they might find easier to use. **GMP5.1** If this happens often in your classroom, consider using the second reengagement suggestion on Day 2 of the lesson.

After children have used a tool to find the total weight of their animals, have them explain to their partners how they used their tool. Then they should use words or pictures to describe how they used the tool in Problem 3. **GMP5.2**

Children who used the number line or number grid can use *Math Masters,* page 150 to help them record their work, if desired. Some children may not understand how to use the blank number line to record their work, as they have not worked with blank number lines before. Encourage these children to think about which numbers they used on the Class Number Line to add their animal weights and write those numbers on the blank number line. You may want to model this process for children. Some children may prefer to draw their number lines freehand or to describe their work in writing.

Differentiate   **Adjusting the Activity**

If children struggle to describe their work in writing, have them demonstrate how they used their tool. Then encourage them to draw pictures to represent their thinking. Sentence frames might also be helpful, such as: "I used _____ to help me add. First I _____ . Then I _____. "

Children can also dictate their explanations to an adult.

Summarize Ask: *How are tools helpful when you add?* **GMP5.2**
Sample answer: They help me think about the numbers.

Collect children's work so that you can evaluate it and prepare for Day 2.

Getting Ready for Day 2

Math Masters, p. TA3

Planning a Follow-Up Discussion
Review children's work. Use the Reengagement Planning Form (*Math Masters,* page TA3) and the rubric on page 465 to plan ways to help children meet expectations on the numbers in base-10 content standard and **GMP5.2**. Look for common misconceptions or errors in the addition, as well as interesting ways children used their tools, either effectively or ineffectively.

-9	-8	-7	-6	-5	-4	-3	-2	-1	0
1	2	3	④	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60

③ Use words and pictures to show how you used your tool.
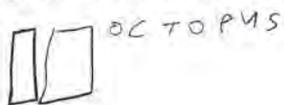
I Started at 4 and hopt 41 hops and it was 44 lbs.

Sample child's work, Child B

③ Use words and pictures to show how you used your tool.

I Staried at 120
I Cawtied With my Fingrs to
cawt up 20 and my answr
Was 140.

Sample child's work, Child C

③ Use words and pictures to show how you used your tool.

OCTOPUS

BluE crab

Organize the discussion in one of the ways below or in another way you choose. If children's work is unclear or if you prefer to show work anonymously, rewrite the work for display.

Go Online for sample children's work that you can use in your discussion.

1. Show work where a child used a tool inefficiently or found an incorrect answer, as in Child A's work. Child A tried to find the total weight of the first-grade girl (41 lb) and the squirrel (4 lb) by counting by 1s on the number grid and obtained an incorrect answer. Ask:
   • *How did this child use the number grid?* **GMP5.2** Sample answer: This child started at 4 and counted up 41 by 1s.
   • *What would you do the same or differently? Why?* **GMP1.6, GMP5.2** Sample answers: I would count by 10s first instead of all by 1s. I would start with 41 because that is the bigger number and then count up 4. *Show us how to do that on the Class Number Grid. Do you get the same answer?* Sample answer: No. The answer is 45.
   • *Why is it helpful to count by 10s first or to start with the bigger number?* **GMP5.2** Sample answer: I don't have to count so many, so I wouldn't get confused or make a mistake.

2. Show work where a child used a tool that was not the most appropriate for this problem. For example, Child B used fingers to count up to find the total weight of the cheetah (120 lb) and the octopus (20 lb). Ask:
   • *Do you think it was easy or hard to use fingers to add correctly? Why?* **GMP1.6** Sample answer: It's hard because you can lose track with only 10 fingers.
   • *What other tool might make it easier to add these two weights correctly?* **GMP5.1** Sample answer: Base-10 blocks might be easier because you can make 120 with blocks, and then just add 2 more longs.

3. Show work with an incomplete description of how a tool was used. For example, Child C found the weight of the octopus (20 lb) and blue crab (2 lb). Ask:
   • *What tool did this child use? How can you tell?* **GMP5.1** Sample answer: The drawing shows base-10 blocks.
   • *What did this child do with the base-10 blocks?* **GMP5.2** Sample answer: This child used 2 longs for the octopus and 2 cubes for the blue crab. Then I'm not sure what this child did. *What else could this child do to show how to use the blocks?* **GMP5.2** Sample answer: This child could write counts below the blocks or say how to count the blocks to find the total.

Planning for Revisions

Have copies of *Math Masters,* pages 149–150 or extra paper available for children to use in revisions. You might want to ask children to use colored pencils so you can see what they revised.

Adding Animal Weights

Overview **Day 2:** The class discusses children's solutions from Day 1, and children revise their work.

Day 2: Reengagement

▶ **Before You Begin**
Have extra copies available of Math Masters, pages 149–150 for children to revise their work.

Standards

Focus Cluster
• Use place value understanding and properties of operations to add and subtract.

2b **Focus**   50–55 min

	Materials	
Setting Expectations Children review the open response problem and discuss what a good response might include. They also review how to discuss others' work respectfully.	Guidelines for Discussions Poster	**1.NBT.4** **SMP5**
Reengaging in the Problem Children discuss how other children used various tools.	selected samples of children's work	**1.NBT.4** **SMP1, SMP5**
Revising Work Children revise their work from Day 1.	*Math Masters,* pp. 149–150 (optional); Class Number Line; Class Number Grid; base-10 cubes and longs; children's work from Day 1; colored pencils (optional)	**1.NBT.4** **SMP5**
✔ **Assessment Check-In** See page 467 and the rubric below. Expect most children to correctly find the sum of a 1-digit number and a 2-digit numbe .		**1.NBT.4** **SMP5**

Goal for Mathematical Process and Practice GMP5.2 Use tools effectively and make sense of your results.	Not Meeting Expectations	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
	Provides no evidence of using a tool to help find the total weight.	Attempts to use a tool, but uses the tool incorrectly, does not identify the tool used, or provides an incomplete explanation.	Uses words or pictures to clearly identify a tool, and shows all steps for how it can be used correctly to find the total weight.	Meets expectations and shows how two different tools can be used, or provides both a complete written explanation and a complete picture.

3 **Practice**   10–15 min

Math Boxes 5-12 Children practice and maintain skills.	*Math Journal 1,* p. 92	See page 466.
Home Link 5-12 **Homework** Children list tools used by others and explain how they use a tool in math class.	*Math Masters,* p. 151	**1.OA.6** **SMP5**

/// Go Online to see how mastery develops for all standards within the grade.

Adding Animal Weights

Overview **Day 2:** The class discusses children's solutions from Day 1, and children revise their work.

Day 2: Reengagement

▶ **Before You Begin**
Have extra copies available of Math Masters, pages 149–150 for children to revise their work.

Standards

Focus Cluster
• Use place value understanding and properties of operations to add and subtract.

2b **Focus**   50–55 min

	Materials	
Setting Expectations Children review the open response problem and discuss what a good response might include. They also review how to discuss others' work respectfully.	Guidelines for Discussions Poster	**1.NBT.4** **SMP5**
Reengaging in the Problem Children discuss how other children used various tools.	selected samples of children's work	**1.NBT.4** **SMP1, SMP5**
Revising Work Children revise their work from Day 1.	*Math Masters,* pp. 149–150 (optional); Class Number Line; Class Number Grid; base-10 cubes and longs; children's work from Day 1; colored pencils (optional)	**1.NBT.4** **SMP5**
✔ **Assessment Check-In** See page 467 and the rubric below. Expect most children to correctly find the sum of a 1-digit number and a 2-digit numbe .		**1.NBT.4** **SMP5**

Goal for Mathematical Process and Practice GMP5.2 Use tools effectively and make sense of your results.	Not Meeting Expectations	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
	Provides no evidence of using a tool to help find the total weight.	Attempts to use a tool, but uses the tool incorrectly, does not identify the tool used, or provides an incomplete explanation.	Uses words or pictures to clearly identify a tool, and shows all steps for how it can be used correctly to find the total weight.	Meets expectations and shows how two different tools can be used, or provides both a complete written explanation and a complete picture.

3 **Practice**   10–15 min

Math Boxes 5-12 Children practice and maintain skills.	*Math Journal 1,* p. 92	See page 466.
Home Link 5-12 **Homework** Children list tools used by others and explain how they use a tool in math class.	*Math Masters,* p. 151	**1.OA.6** **SMP5**

/// Go Online to see how mastery develops for all standards within the grade.

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Math Journal 1, p. 92

Math Boxes

Lesson 5-12
DATE

① Record the time.
A little after ___4___ o'clock

② Use base-10 blocks to add.
$10 + 14 =$ __24__
Show your sum with | and ▪ .
Sample answer: || ▪▪

③ How many dots in all? __15__ dots
How can you know without counting?
Sample answer: I can add 7 dots and 8 dots to get 15 dots.
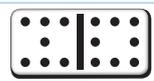
④ Fill in the rule and the missing numbers.
Rule
Add 10
2 12 22 32 42

① 1.MD.3 ② 1.NBT. 2, 1.NBT.4 ③ 1.OA.6
92   ninety-two   ④ 1.OA.5, 1.OA.8, 1.NBT.1

2b Focus   50–55 min

▶ Setting Expectations

WHOLE CLASS | SMALL GROUP | PARTNER | INDEPENDENT

Briefly review the open response problem from Day 1. Ask: *What were you asked to do?* Sample answer: Use a tool to add and say what I did. *What do you think a good response should include?* **GMP5.2** Sample answers: It should say what tool I used and how I used it. I can use words or pictures to show how I used it.

After this brief discussion, tell children they will look at other children's work and see if they understand how they used the tools. Point out that some children may have made mistakes when they used the tools. Remind children that it is all right to make mistakes and that they should help each other learn from their mistakes. Refer to your discussion guidelines from previous units and encourage children to use these sentence frames:

- I like how you _____.
- I wonder why _____.

▶ Reengaging in the Problem

WHOLE CLASS | SMALL GROUP | **PARTNER** | INDEPENDENT

Children reengage in the problem by analyzing and critiquing other children's work in pairs and in a whole-group discussion. Have children discuss with partners before sharing with the whole group. Guide this discussion based on the decisions you made in Getting Ready for Day 2. **GMP1.6, GMP5.1, GMP5.2**

▶ Revising Work

WHOLE CLASS | SMALL GROUP | **PARTNER** | **INDEPENDENT**

Pass back children's work from Day 1. Make tools from Day 1 available. Before children revise anything, ask them to examine their responses and decide how to improve them. Ask the following questions one at a time. Have partners discuss their responses and then give a thumbs-up or thumbs-down based on their own work.

- *Did you choose a tool to help you add?* **GMP5.1**
- *Is there a different tool that might make it easier for you to add?* **GMP5.1**
- *Did you make any mistakes you can fix?* **GMP5.2**
- *Did you use words and pictures to show how you used your tool?* **GMP5.2**

Tell children they now have a chance to revise their work. Make sure they all have something to improve. Children who wrote complete explanations on Day 1 can try to use a different tool to add. Encourage children to add to their earlier work using colored pencils or to use another sheet of paper, instead of erasing their original work.

Differentiate   **Adjusting the Activity**

To help children identify something they can change or add to their work, display or distribute a list of things to check, such as: *Did I identify the tool I used? Can I add more words to describe my steps? Can I add a picture? Can I add labels to my picture?*

Summarize   Children reflect on their work and revisions. Ask: *How did you improve your explanations about how to use your tool?* Answers vary.

✔️ **Assessment Check-In**   1.NBT.4

Collect and review children's revised work. Expect children to improve their work based on the class discussion. For the content standard, expect most children to correctly find the total weight of two animals. You can use the rubric on page 465 to evaluate children's revised work for **GMP5.2**. Note that a child can meet expectations using any tool, even if it is not the most efficient or appropriate for the problem.

✔️ **Evaluation Quick Entry**   Go online to record children's progress and to see trajectories toward mastery for these standards.

Go Online for optional generic rubrics in the *Assessment Handbook* that can be used to assess any additional GMPs addressed in the lesson.

Sample Children's Work—Evaluated

See the sample in the margin. This work meets expectations for the content standard because the child found the correct total weight. This work meets expectations for the mathematical process and practice standard because the drawing, together with the words *first, next,* and *last,* clearly show the steps of representing the weights of the two animals with base-10 blocks separately and then putting them together. **GMP5.2** Note that this work would have exceeded expectations with a full written description of the steps.

Go Online for other samples of evaluated children's work.

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3 **Practice**   10–15 min

▶ **Math Boxes 5-12**

Math Journal 1, p. 92

| WHOLE CLASS | SMALL GROUP | **PARTNER** | **INDEPENDENT** |

Mixed Practice   Math Boxes 5-12 are paired with Math Boxes 5-10.

▶ **Home Link 5-12**

Math Masters, p. 151

Homework   Children list tools others use and tell someone at home how they use a tool in math class.

Math Masters, p. 151

Unit 5 Progress Check ✅

Overview   **Day 1:** Administer the Unit Assessments.
Day 2: Administer the Open Response Assessment.

Day 1: Unit Assessment

✅ Quick Entry Evaluation Record results and track progress toward mastery.

1 Warm Up   5–10 min

Self Assessment
Children complete the Self Assessment.

Materials

Assessment Handbook, p. 31

2a Assess   35–50 min

Unit 5 Assessment
These items reflect mastery expectations to this point.

Assessment Handbook, pp. 32–34

Unit 5 Challenge (Optional)
Children may demonstrate progress beyond expectations.

Assessment Handbook, p. 35

Standards	Goals for Mathematical Content (GMC)	Lessons	Self Assessment	Unit 5 Assessment	Unit 5 Challenge
1.OA.1	Solve number stories by adding and subtracting.	5-9 to 5-12	5	9–11	2
1.OA.3	Apply properties of operations to add or subtract.	5-7		7	
1.OA.5	Relate counting to addition and subtraction.*	5-10, 5-12			1, 2
1.OA.6	Add within 10 fluently.*	5-4, 5-5, 5-9, 5-10		7, 9	2
	Subtract within 10 fluently.	5-10		7, 9	
	Add and subtract within 20 using strategies.	5-5, 5-7, 5-9		10	
1.OA.7	Understand the meaning of the equal sign.	5-4, 5-5, 5-9		7, 8	
	Determine whether equations involving addition or subtraction are true or false.	5-4, 5-5, 5-9	4	7	
1.NBT.1	Count on from any number.*	5-2, 5-3, 5-6			1, 2
1.NBT.2	Understand place value.	5-1 to 5-3, 5-6, 5-8, 5-11	1	1–5	
	Represent whole numbers as tens and ones.	5-1 to 5-3, 5-6, 5-8, 5-11	1	1–4	
	Understand exchanging tens and ones.	5-1 to 5-3, 5-8, 5-11	2	4	
	Understand *11* to *19* as a ten and some ones.	5-1, 5-3, 5-11		1	
	Understand *10, 20, …, 90* as some tens and no ones.	5-1 to 5-3, 5-11		2	
1.NBT.3	Compare and order numbers.	5-1, 5-2, 5-4 to 5-6, 5-9	3	6	
	Record comparisons using >, =, or <.	5-4, 5-5, 5-9	3	6	
1.NBT.4	Understand adding 2-digit numbers and 1-digit numbers.	5-11, 5-12	6	11, 12	
	Understand adding 2-digit numbers and multiples of 10.	5-11, 5-12			1, 2
1.MD.2	Measure length using same-size units with no gaps or overlaps.	5-7, 5-8		14	
	Express length as a whole number of units.	5-7, 5-8		14	

Standards	Goals for Mathematical Process and Practice (GMP)	Lessons	Self Assessment	Unit 5 Assessment	Unit 5 Challenge
SMP1	Solve problems in more than one way. GMP1.5	5-2, 5-5, 5-7, 5-10		3, 4	
	Compare the strategies you and others use. GMP1.6	5-11		13	
SMP2	Make sense of the representations you and others use. GMP2.2	5-1, 5-8		5	
	Make connections between representations. GMP2.3	5-1 to 5-3	1		
SMP5	Use tools effectively and make sense of your results. GMP5.2	5-7, 5-12			1, 2
SMP6	Explain your mathematical thinking clearly and precisely. GMP6.1	5-4, 5-9, 5-10		8, 12	
SMP7	Use structures to solve problems and answer questions. GMP7.2	5-5, 5-6			2

/// Go Online to see how mastery develops for all standards within the grade.

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1 Warm Up 5–10 min

▶ Self Assessment

Assessment Handbook, p. 31

WHOLE CLASS	SMALL GROUP	PARTNER	**INDEPENDENT**

Children complete the Self Assessment to reflect on their progress in Unit 5.

Remind children of a time when they did each type of problem.

Item	Remind children that they ...
1	used pennies and dimes to think about tens and ones. (Lesson 5-3)
2	made place-value exchanges to show different ways to represent numbers. (Lessons 5-1 and 5-3)
3	compared animal weights. (Lesson 5-9)
4	sorted number sentences depending on whether they were true or false. (Lesson 5-5)
5	solved comparison number stories. (Lesson 5-10)
6	added animal weights. (Lessons 5-11 and 5-12)

Assessment Handbook, p. 31

Unit 5 Self Assessment

Put a check in the box that tells how you do each skill.

Skills	I can do this by myself. I can explain how to do this.	I can do this by myself.	I can do this with help.
① Explain how pennies and dimes are like 1s and 10s.			
② Exchange 10s for 1s and 1s for 10s.			
③ Use <, >, and = to compare numbers.			
④ Tell whether a number sentence is true or false.			
⑤ Solve comparison number stories.			
⑥ Add 2-digit and 1-digit numbers.			

Assessment Masters 31

▶ Unit 5 Assessment

Assessment Handbook, pp. 32–34

WHOLE CLASS	SMALL GROUP	PARTNER	**INDEPENDENT**

Children complete the Unit 5 Assessment to demonstrate their progress on the standards covered in this unit.
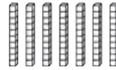
Generic rubrics in the *Assessment Handbook* appendix can be used to evaluate children's progress on the Mathematical Process and Practice Standards.

Assessment Handbook, p. 32

Adjusting the Assessment

Item(s)	Adjustments
1	To scaffold item 1, have children use only cubes to represent the long and cubes. Then have them count the cubes. To extend item 1, have children draw 4 more cubes and then write the number.
2	To scaffold item 2, remind children that they can count the longs by 10s. To extend item 2, have children draw 2 more longs and 2 cubes and then write the number.
3, 4	To scaffold items 3 and 4, have children build each number on the Tens-and-Ones Mat (*Math Journal 1,* Activity Sheet 4) using longs and cubes.
5	To scaffold item 5, have children build 23 with base-10 blocks before answering.
6	To scaffold item 6, have children build the numbers with base-10 blocks. Remind them that the "mouth" opens to "swallow" the larger number.
7	To scaffold item 7, have children use counters to model both sides of each equation.
8	To extend item 8, have children use = to write true number sentences.
9, 10	To scaffold items 9 and 10, provide a number line or counters.
11	To scaffold item 11, provide a number grid, a number line, base-10 blocks, or counters. To extend item 11, ask children to find the weight if the girl is holding 2 peacocks (or 3 or more peacocks).
12, 13	To scaffold items 12 and 13, have children share their answers orally for you to record.
14	To extend item 14, give children only one base-10 cube with which to measure the path.

NAME DATE Lesson 5-13 ✔

Unit 5 Assessment (continued)

7) Write True or False.

12 = 11 **False**   3 + 2 = 2 + 3 **True**

10 = 5 + 5 **True**   5 − 1 = 6 **False**

8) What does = mean?
Sample answer: What is on both sides of the = are the same amount.

9) Jason has 9 stars.
Stephanie has 5 stars.

Who has more stars?
Jason

| Quantity |
| Quantity |
| Difference |

How many more? **4 more stars**

10) Which weighs more, a skunk or a koala? **koala**

| Quantity |
| Quantity |
| Difference |

Skunk
9 lb

Koala
19 lb

How much more? **10 more pounds**

Assessment Masters **33**

NAME DATE Lesson 5-13 ✔

Unit 5 Assessment (continued)

A first-grade girl is holding a peacock.

11) How much do they weigh in all?

Girl
41 lb

Peacock
8 lb

41 + 8 = **49**

12) How can you find the sum using a number grid?
Sample answer: You can start at 41 and count up 8 hops to 49.

13) Sam found the sum using base-10 blocks. How is that like how you found the sum? How is it different?
Sample answer: He used 8 cubes for the peacock. I counted up 8 hops. But we both found the same sum.

14) How long is this path? Measure it with base-10 cubes.
10 cubes

34 *Assessment Handbook*

Advice for Differentiation

All instruction and most practice is complete for the content that is marked with an asterisk (*) on page 468.

Go Online:

✔️ **Quick Entry Evaluation** Record children's progress and to see trajectories toward mastery for these standards.

📊 **Data** Review your children's progress reports. Differentiation materials are available online to help you address children's needs.

NOTE See the Unit Organizer on pages 388–389 or the online Spiral Tracker for details on Unit 5 focus topics and the spiral.

▶ Unit 5 Challenge (Optional)

Assessment Handbook, p. 35

WHOLE CLASS	SMALL GROUP	PARTNER	**INDEPENDENT**

Children can complete the Unit 5 Challenge after they complete the Unit 5 Assessment.

NAME   DATE   Lesson 5-13 ✔

Unit 5 Challenge
Beno's Calculator is Broken!

Beno is counting on his calculator.   *Sample answers*
He wants to start at 62 and count by 10s.   *given.*
He usually follows these steps:

- Press [ONC] to clear his calculator.
- Press the *starting number,* 62.
- Press the [+] key to tell the calculator to count *up.*
- Press 10 to tell the calculator to *count by 10s.*
- Press [=].

But Beno's calculator is broken.
The [1] will not work so he can't tell it to count by 10s.

1. Beno still wants to start at 62 and count up by 10s.
   What steps could he follow that don't use the [1]?
   List the steps in order.   1. Press [ONC]
   Answers vary   2. Press 62.
   but should add 10   3. Press the [+] key.
   without using   4. Press 5.
   the 1 key.   5. Press [=] twice.

2. Explain why your way will work.
   Since 5 + 5 = 10, every other number is
   a count by 10 from 62.

Assessment Masters   **35**

Assessment Handbook, p. 35

Day 2: Cumulative Assessment

2b Assess   50–55 min

Materials

Solving the Open Response Problem
After a brief introduction, children solve an open response problem using place-value concepts and then write an argument to support their answer.

Assessment Handbook, p. 36; base-10 blocks (optional)

Discussing the Problem
After completing the problem, children share their arguments.

Assessment Handbook, p. 36

Standards	Goals for Mathematical Content (GMC)	Lessons
1.NBT.2	Understand place value.	5-1 to 5-3, 5-6, 5-8, 5-11
1.NBT.3	Compare and order numbers.	5-1, 5-2, 5-4, 5-6, 5-9

	Goal for Mathematical Process and Practice (GMP)	
SMP3	Make mathematical conjectures and arguments. **GMP3.1**	2, 3

▶ **Evaluating Children's Responses**
Evaluate children's abilities to compare 2-digit numbers based on the meanings of the tens and ones digits. Use the rubric below to evaluate their work based on **GMP3.1**.

Goal for Mathematical Process and Practice **GMP3.1** Make mathematical conjectures and arguments.	Not Meeting Expectations	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
	Does not provide an argument, or provides an argument that does not relate to using number cards to make the largest possible 2-digit number.	Provides an argument that relates to using number cards to create the largest possible 2-digit number, but does not include any of the points mentioned under Meeting Expectations.	Provides a partial argument for why the number is the largest that refers to one of the following: • Using the two largest digits • Using the largest digit first or in the tens place • Knowing the number is the closest of the possibilities to 100.	Provides a complete argument for why the number is the largest possible. For example, explains using the largest digit first and the second-largest digit second.

3 Look Ahead   10–15 min

Materials

Math Boxes 5-13
Children preview skills and concepts for Unit 6.

Math Journal 1, p. 93

Home Link 5-12
Children take home the Family Letter that introduces Unit 6.

Math Masters, pp. 152–155

⫘   ⟨ Go Online ⟩   to see how mastery develops for all standards within the grade.

▶ # Solving the Open Response Problem

Assessment Handbook, p. 36

| WHOLE CLASS | SMALL GROUP | **PARTNER** | **INDEPENDENT** |

The open response problem requires children to apply skills and concepts from Unit 5 to create the largest 2-digit number possible from a set of three digits. The focus of this task is **GMP3.1:** Make mathematical conjectures and arguments.

Distribute *Assessment Handbook,* page 36. Read the directions aloud. Tell children they should make the largest 2-digit number they can with the three cards they circle. Then their job is to write an argument in a note to convince a friend that they made the largest number. This reflects an emphasis on **GMP3.1**.

As children complete this problem, they are using place-value understanding to make the largest 2-digit number with the given digits. Children must first choose which two digits to use in the number, then decide in which order to write the digits. For example, if a child circles the number cards 3, 5, and 6, that child would first choose two number cards to use. If the child chooses 5 and 6, he or she must then decide whether 56 or 65 is the larger number.

Circulate and observe. You may wish to take notes about children's performance on the task. Many children may struggle to describe their thinking. Questions such as the following may help children to explain how they know their number is the largest number possible: *Could you make a larger number with your number cards? How do you know? Why did you use the number _____ in this place in your number?*

Sentences frames such as the following may help children get started on their written explanations in Problem 3.

"I know _____ is the largest possible number because _____."

"I used _____ and _____ to make the largest number because _____."

Differentiate   **Adjusting the Assessment**

Children who have trouble explaining their arguments in writing should be given the opportunity to describe their thinking orally. Encourage children to use base-10 blocks or drawings to model their numbers as appropriate.

▶ Discussing the Problem

Assessment Handbook, p. 36

| WHOLE CLASS | SMALL GROUP | PARTNER | INDEPENDENT |

After children have had a chance to complete the page, invite individual children to explain how they know they found the largest possible number. Encourage children to talk about whether they are convinced by what they hear other children saying and to help each other create better arguments.

Evaluating Children's Responses

1.NBT.2, 1.NBT.3

Collect children's work. For the content standards, expect most children to create a number with a larger digit in the tens place and a smaller digit in the ones place. However, some children may not create the largest possible number. You can use the rubric on page 473 to evaluate children's work for **GMP3.1**.

See the sample in the margin. This work meets expectations for the content standards because this child used the number cards 7, 8, and 9 to make a number with the larger digit in the tens place. In this case, the child made the largest possible number (98). The work meets expectations for the mathematical process and practice standard because the child argued that 98 is the largest number because the two largest digits were used. This is a partial argument because it does not explain why 9 had to be the first (tens) digit and 8 had to be the second (ones) digit. **GMP3.1** If the child had explained why 9 was used as the tens digit, this paper would exceed expectations.

✔ **Evaluation Quick Entry** Go online to record children's progress and to see trajectories toward mastery for these standards.

Sample child's work, "Meeting Expectations"

NOTE Additional samples of evaluated children's work can be found in the *Assessment Handbook* appendix.

Math Journal 1, p. 93

Home Link 5-13

NAME   DATE

Unit 6: Family Letter

Addition Fact Strategies

In Unit 6, children continue to work with addition facts and develop strategies for solving more difficult facts. For example, many children quickly learn the doubles addition facts: 1 + 1 = 2; 2 + 2 = 4; 3 + 3 = 6; and so on. Using doubles facts, they learn to solve nearby facts using the *near doubles* strategy. A child who knows 4 + 4 can use it to solve 5 + 4 by thinking of it as a double plus 1, or 3 + 4 by thinking of it as a double minus 1. These "helper facts" are a useful tool for solving other addition facts.

Children also gain experience with an important strategy for mentally adding numbers. *Making 10* is a strategy that involves breaking apart one addend, making a ten, and then adding what remains to 10. For example, children learn to add 8 + 6 by breaking apart the 6: 8 + **6** = 8 + **2 + 4** = 10 + 4 = 14. This strategy takes advantage of properties of addition that can help children add more efficiently.

Also in Unit 6, children apply their skills with number stories and place value to continue building strategies for solving 2-digit addition problems.

Children also begin telling time to the hour on analog clocks. Digital clocks and time to the half hour will be introduced in the next unit.

Please keep this Family Letter for reference as your child works through Unit 6.

152   one hundred fifty-two

NAME   DATE

Mid-Year Assessment

① Count by 10s.

30, 40, __50__, __60__, __70__, __80__

② Count by 1s.

76, 77, __78__, __79__, __80__, __81__

③ Count the stars.

There are exactly __48__ stars.

④ Circle the winning card in each game of *Top-It.*

34 (43)   56 (86)   (17) 16

Mid-Year Assessment   **79**

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3 **Look Ahead**   10–15 min

▶ **Math Boxes 5-13:** Preview for Unit 6

| WHOLE CLASS | SMALL GROUP | **PARTNER** | **INDEPENDENT** |

Math Journal 1, p. 93

Mixed Practice Math Boxes 5-13 are paired with Math Boxes 5-9. These problems focus on skills and understandings that are prerequisite for Unit 6. You may want to use information from these Math Boxes to plan instruction and grouping in Unit 6.

▶ **Home Link 5-13:** Unit 6 Family Letter

Math Masters, pp. 152–155

Home Connection The Unit 6 Family Letter provides information and activities related to Unit 6 content.

Mid-Year Assessment

Assessment Handbook, pp. 79–85

You may want to administer the Mid-Year Assessment after Unit 5 to check children's mastery of some of the concepts and skills in *First Grade Everyday Mathematics.* See the *Assessment Handbook.*

GRADE

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