Everyday Mathematics[®]

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The University of Chicago School Mathematics Project





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

Assessment	xvi
Differentiation	xviii
Educational Equity	v
Focus, Coherence, and Rigor	vi
Lesson Structure	xii
Mastery	xxx
Online Resources	xiv
Practice	viii
Rich Mathematics Instruction	xx

Content

Lesson Types	xxiii
Lesson Parts and Features	xxiv
Standards Correlations	xxxii
Grade 2 Lessons (Table of Contents)	xlvi
Sample Unit Organizer	138
Sample Lesson	156
Sample Open Response and Reengagement Lesson	186
Sample Exploration Lesson	194
Sample Progress Check Lesson	226



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.



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.

About Everyday Mathematicsiv

Everyday Mathematics in Your Classroomx

Lesson Overview and Components

Digital Resources and Instructional Support

Assessment and Differentiation

Your Classroom Resource Package

Pathway to Mastery xxx

Correlations and Mastery Expectations

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.

Overview Children write	and solve addition number stories.		Focus C
Before You Begin Select and sequence Quick Look Cards 102, 78, and 82 For the Encus portion of the lesson create a unit box for	2 for the Mental Math and Fluency activity. r display		identifies
Monthe rocus portion of the lesson, create a drift box ic	n display.	Standards	of each le
addition number story • unit box • label • number mo	odel	Focus Clusters • Represent and solve problems involving addition	understar
Warm Up 15–20 min	Materials	 Add and subtract within 20. 	is being to
Mental Math and Fluency Children solve addition facts using Quick Look C	Quick Look Cards 102, 78, and 82 ards.	2.OA.2	
Daily Routines Children complete daily routines	See pages 4–43.	See pages xiv–xvii.	

atics ers ocus part nelp you ntent that he 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

2.0A.B Add and subtract within 20. 2.NBT.B Use place value understanding and properties of operation

Supporting Clusters

2.0A.C Add and subtract within 20. 2.MD.C Use place value understanding and properties of operation:

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

2.0A.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

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 2.0A.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
2.0A.2	In Unit 1, children played <i>Fishing for 10</i> 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 there are been applied with a price and the other set.

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.

	Ple	anning for R	ich Math In:	struction	
		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
RIGOR	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 <i>Fishing for 10</i>, 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, a. 3, 5, a. 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	Mental Math and Fluency, p. 164	Math Boxes 2, B 6

Problem-based Instruction

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

Warm-up	Daily	Math	Focus	Summarize	Practice
Activity	Routines	Message	Activities		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.

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 for quantities and relationships and relationships arithmetic skills.	resentations, build t ental relat naster ele kills	ons their tions such ementary

About Everyday Mathematics ix

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.





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 researchbased 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.



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.

1-5 Open Response and Reengagemer	Overview Day prob	1: Children use patterns to solve an ope lem. Day 2: Children discuss selected explanations and revise their work.	en response d solutions
Day • Before Yoy Make sure th problem. Ha schedule tim tean. • Vocabular pattern • nu 1 Warm	1: Open Re Degin Number-Grid Poster is visibility e to review children's work an y mber grid Up 3-5 min	Exponse te during work on Problem 1 of the open response ge TA4 available for children who need I. II possible d plan for Day 2 of the lesson with your grade-level Materials	Standards Focus Cluster - Understand pice value. - understanding and properties of operations to add and - authorst.
Mental Mat Children co	th and Fluency unt by 5s and 10s.		2.NBT.2
2a Focus	56–60 min		
Math Mess	age	Math Journal 1, p. 3	SMP7
found the pa	end a coin pattern and disc attern.	cuss now they	

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

scottdunlap/iStockvectors/Getty Images

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.



Launch Presentation

Editable versions of digital lessons that help you lead instruction.

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.

Differentiation

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

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.



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.

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.



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.



Record

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

E	veryday Mathema	atics						۹ 🛓
esson 2-'	13 (Day 1): Assess: Ur	nit 2 Assessment						
Add N	otes	Anna Z.	Brian L.	Danny P.	Ellie C.	Janet G.	Jordan R.	Josephine Z.
	Score All -	Score -	Score -	Score -	Ścore -	Score +	Score -	Score -
	Problem 1	M	м	NM	A	NM	м	м
Score -	Problem 2 – Content	NM	м	M	м	м	A	PM
Score -	Problem 2 – Practices	м	PM	NM	РМ	м	NM	PM
Score -	Problem 3	м	м	NM	РМ	м	м	м
Score +	Problem 4	M	PM	M	M	м	м	м
Score -	Problem 5	м	м	M	M	M	м	м
Score -	Problem 6	NM	м	A	M	м	PM	NM

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.



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



Differentia	tion Op	otions				
Readiness	5–15 min	Enrichment	5–15 min	Extra Practi	Ce 5–15 r	nin
WHOLE CLASS SMALL GROUP PARTNE		WHOLE CLASS SMALL GROUP PARTI		WHOLE CLASS SMALL GROUP	PARTNER INDEPEN	IDENT
Putting Groups Together		Creating Addition Num	ber Stories	Writing an Additi	on Number Stor	y
2.0A.1, 2.0A.2, SMP2		2.0A.1, SMP2		2.0A.1, 2.0A.2, SMF		
slate, craft stick, 8 counters		Activity Card 21;		Math Journal 1, p. 1	English Laı	n guage Learner
For experience using a concr	ete model	Math Masters, p. TA7		TA7	Beginning ELL	To prepare children for writing number stories, have them look at the
to solve number stories, child counters to model addition n	lren use umber	Children further explore ad stories by creating their ow	dition number n. Stories	For additional prac number stories, ch	picture on journal Teaching Strategie	page 19 and respond to the following questions (based on the Visual es method):
stories on their slates. Show	children	can be collected and assen	nbled into a	different addition n	• What do you	think is going on in the picture?
how to use a craft stick to div	ide their	class book. Encourage child	dren to write	describe the pictur	• What do you	see in the picture that makes you say that?
slates into two sections. Ther number story. <i>For example:</i> I	i tell a have 5	both parts-and-total and ch number stories. GMP2.1	ange-to-more	Iell them to write the with the addition n	• What else do	you see in the picture?
white shells and 3 pink shells	. How many			Masters, page TA7	To provide everyd	ay vocabulary support, label the items in the picture to help beginning
					English language l	earners 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



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 v Common Misconception unit unit Use classroom objects to mode Differentiate Although this lesson (for example, 5 crayons + 4 cra focuses on addition number stories, aloud as you fill in the sentence some children may write subtraction complete sentence. 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

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.

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. Planning

Supporting Rich Mathematical Instruction

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

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

	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, B 3, S = 6 Home Link 2-2, p. 161 	Mental Math and Fluency, p. 164 Using Double Ten Frames, p. 164 Naming Doublet and Combinations of 10, p. 165 <i>Finhage trill</i> , p. 167 Math Boxes III, M. 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 Entrophysics, p. 169 Extra Practice, p. 169 Journal, p. 251, 8, 5, 6 Home Link 24, 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 <i>The Exchange Game</i> , 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 <i>The Exchange Game</i> , p. 155 Math Boxes 2-1 p. 155 Home Link 2-1, p. 155 Extra Practice, p. 151	Daily Routines Mentai 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 Mentai 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 <i>The Number-Grid Game</i> , 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

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 Second Grade Everyday Mathematics

Welcome to Second 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 2 has **107 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 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 44–55) 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 Letters** on *Math Masters*, pages 4–7 to distribute early in the school year.
- Review the **Beginning-of-the-Year Assessment** on pages 70–74 in the *Assessment Handbook* and consider when you will administer it.

Goonline 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.







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



Lesson Types

Second 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 in every 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 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.

Les Fea	son Parts and tures	Description	Tips
٦ D	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 Before You Begin for preparation tips. Follow the time allotments for each part of the lesson.
Plannir	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.

Par	t 1: Warm Up	Description	Tips
ction	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.
Instrue	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 <i>Teacher's Lesson Guide</i> .	 Establish the six Grade 2 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. Co Online to the VLC for information on establishing routines.

Par	t 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. Image: Construct the construction of th

Par	t 2: Focus, con't.	Description	Tips
truction	Focus Activities	Two to four main instructional activities, including games, in which children explore and engage in new content (skills, concepts, applications).	 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 Standards icons. GMPLT Use these to facilitate discussions about the standards. See also the <i>Implementation Guide</i> for information on Process and Practice Standards.
Ins	Assessment Check-In	A daily assessment opportunity to assess the focus 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 all standards. See also the Implementation Guide for assessment information.

Pai	rt 3: Practice	Description	Tips
uction	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 <i>Everyday Mathematics</i>. Plan for all children to play <i>Everyday Mathematics</i> games at least 60 minutes per week. Go online to the <i>Implementation Guide</i> for tips to ensure that all children have ample game time. See also the Virtual Learning Community (VLC) to observe many <i>Everyday Mathematics</i> games in action.
Insti	Math Boxes	A daily <i>Math Journal</i> page, beginning in Lesson 1-8, 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 1-11, 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.

Diffe Lang	rentiation and uage Features	Description and Purpose
c	Adjusting the Activity	Allows for differentiated instruction by offering modifications to lesson activities.
atio	Common Misconception	Offers point-of-use intervention tips that address common misconceptions.
e enti	Game Modifications	Provides suggestions for modifying games to support children who struggle and challenge children who are ready.
Diff	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.
uage tes	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.
Lang Noi	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 <i>Everyday Mathematics</i> 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 Misconceptions 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 2 eTools on page xxix
ePresentations	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
<i>Minute Math</i> + ✓ digital ✓ print	• Brief activities that require little or no materials; useful for transition times and for spare moments throughout the day
Classroom Posters	Posters that display grade-specific mathematical content

Planning, Instruction, and Assessment (con't)	
Resource	Description
Assessment Handbook	 Assessment masters for unit-based assessments and interim assessments Record sheets for tracking individual and class progress
✓ digital✓ print	
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
<i>Implementation Guide</i>	• 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 Communicati	Communications	
Resource	Description	
Home Connection Handbook	• A collection of tips and tools to help you communicate to families about <i>Everyday</i> <i>Mathematics</i>	
✓ digital○ print	 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 Provides 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 <i>Everyday Mathematics</i> games
Activity Cards ✓ digital ✓ print	 Directions for students for Explorations, Differentiation Options, and other small-group activities
Student Learning Center	 Combines Student Journal, <i>My Reference Book</i>, eToolkit, 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 <i>Everyday Mathematics</i> games that provide important practice in a fun and engaging setting
Facts Workshop Game ✓ digital	Games that build computational skill and fact fluency with <i>Everyday Mathematics</i> 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 *Second 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. The additional materials are listed in the Unit Organizers and in the lessons in which they are used.

Manipulative Kit Contents		eTools
Item	Quantity	Item
Base-10 Big Cube	1 big cube	 ✓
Base-10 Flats	8 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	 ✓
Clock Face Stamp	1 stamp	
Coin Stamp Set, Heads	1 set of 5	
Connectors	1 pack of 2,000	
Counters, Double-Sided	1 pack of 500	 ✓
Counters; translucent; multi-colored, 4 colors	1 pack of 200	 ✓
Counting Sticks	1 pack of 1,000	v
Dice, Blank	1 pack of 16	 ✓
Dice, Dot	2 packs of 12	 ✓
Dice, Polyhedral	3 packs of 6	~
Dominoes, Double-9	2 sets of 55	 ✓
Everything Math Decks	15 decks	V
Geoboards, Two-sided, 7" × 7"	4 boards	 ✓
Geosolids	1 set of 12	 ✓
Marker Boards	25 boards	
Metersticks	2 sets of 6	
Number Line, –35 to 180	1 number line (in 3 parts)	 ✓
Pattern Blocks	2 sets of 250	 ✓
Play Money Penny Set	1 set of 500	v
Play Money Dime Set	1 set of 250	 ✓
Play Money Nickel Set	1 set of 500	 ✓
Play Money Quarter Set	1 set of 100	 ✓
Quick Look Cards	1 pack each of ten-frames and double ten-frames	v
Rubber Bands	1 pack of 400	
Rulers, 6 in./15 cm	1 set of 25 rulers	
Stamp Pad	1 pad	
Straws	1 pack of 500	
Tape Measure, Retractable	15 tape measures	
Ten Frames	Not in kit	 ✓
Thermometer, Classroom	1 thermometer	 ✓
Yardsticks	2 sets of 6 yardsticks	

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

Strand Operations and Algebraic Thinking 2.OA	Everyday Mathematics Goals for Mathematical Content
Cluster Represent and solve problems involving addition and subtra	ction.
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 m	ultiplication.
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

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.

> Everyday Mathematics Goals for Mathematical Process

and Practice

Goals for Mathematical Practice

The authors created Goals for Mathematical Practice (GMP) that unpack the practice standards, operationalizating 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



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 decontextualize abstract a given situation and represent it symbolically decontextualize abstract a given situation and represent it symbolically decontextualize abstract a given situation and represent it symbolically decontextualize abstract a given situation and represent it symbolically decontextualize abstract a given situation and represent it symbolically decontextualize abstract a given situation and represent it symbolically decontextualize abstract a given situation and represent it symbolically decontextualize abstract a given situation and represent it symbolically decontextualize abstract a given situation and represent it symbolically decontextualize abstract a given situation and represent it symbolically decontextualize abstract a given situation and represent it symbolically decontextualize abstract a given situation and represent it symbolically decontextualize abstract a given situation and represent it symbolically decontextualize abstract a given situation and represent it symbolically decontextualize abstract a given situation and represent it symbolically decontextualize abstract abstract a given situation and represent it symbolically decontextualize abstract abstract

xxx Pathway to Mastery

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.

🜌 Spiral Towards Mastery	Everyday Mathematics	۹ ک
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.	SPIRAL TRACKER Operations and Algebraic Thinking : Represent and solve problems involving addi	tion and subtraction. Sting to, taking from, putting together, taking apart, and comparing, with represent the problem.
Operations and Algebraic Thinking		Routines
2.0A.1 Proces Warm Up View Up	Show Options General 11 Detailer 11 Detai	1 Ditale 11 Ditale 11 Ditale 12 24 24 23
Each unit organizer contains a view of the	Trans Frank Frank Frank Frank	Pasa Pasa Wimip
progression of the standards in the unit across	🏞 Go to First Exposure	Go to Last Exposure 🥐
recent and upcoming lessons.	2-2 Focus Exposure 3 of 185 Math Message	Materials Digital

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 2.0A.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
2.0A1	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 2	Everyday Mathematics Grade 2 Lessons*
Operations and Algebraic Thinking 2.0A	
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.	Routines 1, 2, 3, 5, 6; 2-2, 2-3, 2-5, 2-7, 2-8, 2-9, 2-11, 2-12, 3-2, 3-5, 3-7, 3-8, 3-9, 3-11, 4-4, 4-11, 5-1, 5-3, 5-7, 5-8, 5-9, 5-10, 6-1, 6-2, 6-3, 6-4, 6-5, 6-7, 6-9, 7-1, 7-2, 8-8, 8-9, 9-9, 9-10, 9-11
	(2-4, 3-1, 3-3, 4-1, 4-3, 4-5, 4-7, 4-8, 4-12, 5-6, 5-12, 6-8, 6-10, 6-11, 7-3, 7-4, 7-5, 7-7, 7-8, 7-9, 8-1, 8-2, 8-3, 8-4, 8-6, 8-10)
Add and subtract within 20.	
2.OA.2 Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.	Routines 1, 2; 1-2, 1-6, 1-7, 1-8, 1-10, 1-9, 1-11, 1-12, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9, 2-10, 2-11, 2-12, 3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11, 4-1, 4-2, 4-3, 4-4, 4-6, 4-9, 4-11, 5-1, 5-3, 5-5, 5-7, 5-9, 6-2, 6-7, 6-8, 6-10, 7-1, 7-2, 7-5, 7-8, 8-1, 8-2, 8-5, 8-7, 8-8, 8-10, 8-11, 9-2, 9-7, 9-10, 9-11
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.	Routines 1, 2, 3, 5; 1-9, 2-6, 2-8, 2-9, 2-10, 3-11, 4-2, 4-4, 9-10 (3-2, 3-4, 4-1, 4-3)
2.OA.4 Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.	4-11, 5-5, 6-10, 8-8, 8-9, 8-10, 8-11, 9-1, 9-10 (7-6, 7-10, 8-12, 9-5, 9-6, 9-7, 9-8)

Content Standards for Mathematics for Grade 2

Everyday Mathematics Grade 2 Lessons*

Number and Operations in Base Ten 2.NBT	
Understand place value.	
2.NBT.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:	Routines 1, 2; 2-1, 4-4, 4-5, 4-6, 4-7, 4-8, 4-10, 5-4, 5-5, 5-10, 6-4, 6-6, 6-7, 6-8, 6-9, 7-1, 8-3, 8-6, 9-1, 9-5, 9-6, 9-7
	(2-5, 2-7, 3-8, 3-12, 4-9, 4-11, 5-1, 5-2, 5-3, 5-6, 5-7, 5-8, 5-9, 5-11, 5-12, 6-2, 6-5, 6-10, 7-7, 7-9, 8-8, 8-10, 8-12, 9-3, 9-9, 9-11)
2.NBT.1a 100 can be thought of as a bundle of ten tens—called a "hundred."	Routine 1; 2-1, 2-5, 2-8, 3-10, 4-4, 4-6, 4-7, 4-8, 4-10, 6-6, 6-9, 7-1, 8-3, 8-6, 9-5, 9-6, 9-7
2.NBT.1b The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).	Routine 1; 4-4, 4-10, 6-6, 8-3, 8-6, 9-6
	(4-9, 4-11, 5-5, 5-7, 6-2, 6-9)
2.NBT.2 Count within 1000; skip-count by 5s, 10s, and 100s.	Routines 1, 2, 3, 5; 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8, 1-10, 1-11, 1-12, 2-1, 2-2, 2-4, 2-8, 2-11, 2-12, 4-1, 4-2, 4-5, 5-2, 5-3, 5-4, 5-6, 5-10, 6-1, 6-10, 8-8, 8-9, 8-10, 8-11, 9-1, 9-8, 9-11
	(1-9, 2-3, 2-5, 2-6, 2-7, 2-9, 2-10, 2-13, 3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11, 4-6, 4-7, 5-1, 5-9, 5-11, 7-1, 7-3, 7-6, 7-10)
2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	Routines 1, 2, 5; 1-1, 1-2, 1-3, 1-4, 1-7, 1-11, 1-12, 2-1, 2-5, 2-8, 2-10, 2-11, 2-12, 3-4, 3-6, 3-10, 4-4, 4-5, 4-6, 4-7, 4-8, 5-1, 5-4, 5-5, 5-10, 6-4, 6-6, 6-8, 7-8, 8-3, 9-1, 9-5, 9-6, 9-7 (1-9, 1-10, 1-13, 2-3, 3-1, 3-2, 3-3, 3-5, 3-7, 3-8, 3-9, 3-11, 3-12, 4-1, 4-2, 4-3, 4-9, 4-10, 4-11, 5-2, 5-3, 5-6, 5-8, 5-12, 6-2, 6-5, 6-9, 6-10
	5-2, 5-3, 5-6, 5-8, 5-12, 6-2, 6-5, 6-9, 6-10, 7-7, 7-9, 8-6, 8-8, 8-10, 8-12, 9-3)
2.NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, =, and $<$ symbols to record the results of comparisons.	Routine 5; 1-1, 1-2, 1-11, 1-12, 3-4, 3-6, 4-3, 4-5, 4-7, 5-1, 5-5, 5-10, 6-4, 6-8, 7-3, 7-6, 7-7, 9-5
	(2-2, 2-4, 2-6, 2-11, 3-2, 3-5, 3-7, 3-8, 3-12, 4-1, 4-2, 4-4, 4-9, 4-11, 5-2, 5-3, 5-4, 5-7, 6-2, 9-2, 9-4, 9-9, 9-11)

Content Standards for Mathematics for Grade 2	Everyday Mathematics Grade 2 Lessons*
Use place value understanding and properties of operations to add and subtract.	
2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	Routines 1, 3, 5, 6; 1-6, 1-10, 2-10, 2-11, 2-12, 3-2, 3-3, 3-4, 3-6, 3-8, 3-9, 4-11, 5-3, 5-6, 5-7, 5-8, 5-9, 5-10, 5-11, 6-1, 6-2, 6-3, 6-4, 6-5, 6-6, 6-7, 6-8, 6-9, 7-1, 7-3, 7-4, 7-6, 7-7, 7-8, 7-9, 8-3, 8-4, 8-6, 8-7, 8-9, 8-10, 9-6, 9-7, 9-8, 9-9, 9-11 (1-9, 1-11, 2-5, 2-7, 3-1, 4-2, 4-4, 4-5, 4-7, 5-12, 6-10, 6-11, 7-2, 7-5, 8-1, 8-2, 8-5, 8-8, 8-11, 8-12, 9-1, 9-2, 9-3, 9-4, 9-5, 9-10)
2.NBT.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.	Routine 6; 6-1, 6-7, 7-2, 7-3, 7-4, 7-5, 7-9, 8-9, 9-2, 9-3, 9-4, 9-9
	(6-11, 7-7, 7-8, 8-1, 8-2, 8-3, 8-4, 8-11)
2.NBT.7 Add and subtract within 1000, 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. Understand that in adding or subtracting three digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.	Routine 5; 1-2, 1-12, 2-1, 2-8, 3-7, 3-9, 4-3, 4-7, 5-3, 5-4, 5-6, 5-7, 5-8, 5-9, 5-10, 6-1, 6-2, 6-3, 6-4, 6-5, 6-6, 6-7, 6-8, 6-9, 7-1, 7-3, 7-7, 7-9, 8-3, 8-6, 8-7, 8-10, 9-1, 9-6, 9-7, 9-8, 9-11
	(3-6, 3-10, 4-2, 4-4, 4-5, 4-8, 4-12, 5-11, 5-12, 8-1, 8-9, 8-11, 9-3, 9-9)
2.NBT.8 Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.	Routines 1, 2, 5; 1-4, 1-5, 1-11, 1-12, 2-2, 2-4, 4-5, 4-8, 4-11, 5-1, 5-6, 5-7, 5-9, 5-11, 6-3, 7-6, 7-8, 7-9, 9-9
	(2-6, 2-8, 2-11, 3-6, 3-9, 3-10, 3-11, 4-6, 4-10, 4-12, 5-8, 5-12, 6-2, 6-4, 6-5, 6-6, 6-8, 6-9, 6-10, 7-1, 9-1, 9-3)
2.NBT.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.	1-5, 1-12, 2-1, 2-4, 2-5, 2-6, 2-7, 3-2, 3-6, 3-7, 5-6, 5-11, 6-6, 6-7, 6-8, 7-1, 7-3 , 7-4, 8-9, 9-6, 9-7
	(7-5, 8-7)
Measurement and Data 2.MD	
Measure and estimate lengths in standard units.	
2.MD.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	4-8, 4-9, 4-10, 4-11, 5-8, 6-10, 7-4, 7-5, 7-6, 7-9, 9-4
	(3-8, 3-12, 5-1, 5-2, 5-3, 5-4, 5-6, 5-10, 6-1, 6-3, 7-8, 8-2, 8-4, 8-5, 8-7, 8-8, 8-12, 9-1, 9-3)
2.MD.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.	4-8, 4-10, 4-11, 6-4, 7-4, 7-5, 7-6, 7-8, 7-9
	(5-3, 8-5)
2.MD.3 Estimate lengths using units of inches, feet, centimeters, and meters.	4-8 , 5-8, 7-4 , 7-5 , 7-6 , 7-9
2.MD.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.	6-10, 7-4, 7-5, 7-6, 9-4

Content Standards for Mathematics for Grade 2	Everyday Mathematics Grade 2 Lessons*		
Relate addition and subtraction to length.			
2.MD.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations	6-2, 6-3, 6-4, 7-1		
with a symbol for the unknown number to represent the problem.	(5-12, 6-5, 6-7, 6-8, 6-10, 6-11, 7-7, 7-9, 8-1, 8-3, 9-9, 9-11)		
2.MD.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2,, and represent whole-number sums and differences within 100 on a number line diagram.	Routines 1, 3, 4; 1-1, 1-2, 1-7, 2-8, 2-11, 3-9, 3-10, 4-3, 5-7, 6-1, 6-4, 7-7, 7-8, 9-2, 9-4		
	(1-8, 1-10, 1-12, 1-13, 2-5, 2-7, 6-3, 6-8, 6-10, 8-6, 8-10)		
Work with time and money.			
2.MD.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	Routine 6; 4-1, 4-2, 4-3, 5-5		
- ·	(3-8, 3-12, 4-5, 4-6, 4-7, 4-10, 5-2, 5-4, 5-6, 5-10, 6-1, 6-3)		
2.MD.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. <i>Example: If you have 2 dimes and 3 pennies, how many cents do you have?</i>	Routine 1; 1-3, 1-8, 1-11, 2-1, 2-5, 2-8, 3-10, 3-11, 5-2, 5-3, 5-4, 5-11, 9-8		
	(1-9, 1-12, 2-2, 2-4, 2-6, 2-7, 2-11, 3-2, 3-4, 3-5, 3-7, 4-2, 4-4, 4-8, 4-12, 5-5, 5-6, 5-7, 5-9, 5-10, 6-1, 6-3, 6-8, 9-10, 9-12)		
Represent and interpret data.			
2.MD.9 Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the	4-8, 4-9, 7-6, 7-7, 7-8, 7-9, 8-5, 9-6		
measurements by making a line plot, where the horizontal scale is marked off in whole-number			
units.	(8-1, 8-3)		
units. 2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using	(8-1, 8-3) Routines 3, 4, 6; 6-1, 6-4, 7-3, 7-9		
 2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph. 	(8-1, 8-3) Routines 3, 4, 6; 6-1, 6-4, 7-3, 7-9 (5-8, 5-12, 6-5, 6-7, 6-8, 6-10, 6-11, 7-2, 7-4, 8-9, 8-11, 9-5, 9-7)		
 2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph. Geometry 2.G 	(8-1, 8-3) Routines 3, 4, 6; 6-1, 6-4, 7-3, 7-9 (5-8, 5-12, 6-5, 6-7, 6-8, 6-10, 6-11, 7-2, 7-4, 8-9, 8-11, 9-5, 9-7)		
2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph. Geometry 2.G Reason with shapes and their attributes.	(8-1, 8-3) Routines 3, 4, 6; 6-1, 6-4, 7-3, 7-9 (5-8, 5-12, 6-5, 6-7, 6-8, 6-10, 6-11, 7-2, 7-4, 8-9, 8-11, 9-5, 9-7)		
 units. 2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph. Geometry 2.G Reason with shapes and their attributes. 2.G1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. 	(8-1, 8-3) Routines 3, 4, 6; 6-1, 6-4, 7-3, 7-9 (5-8, 5-12, 6-5, 6-7, 6-8, 6-10, 6-11, 7-2, 7-4, 8-9, 8-11, 9-5, 9-7) 1-3, 2-8, 5-5, 6-10, 7-9, 8-1, 8-2, 8-3, 8-4, 8-5, 8-11, 9-5		
 2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph. Geometry 2.G Reason with shapes and their attributes. 2.G.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. 	(8-1, 8-3) Routines 3, 4, 6; 6-1, 6-4, 7-3, 7-9 (5-8, 5-12, 6-5, 6-7, 6-8, 6-10, 6-11, 7-2, 7-4, 8-9, 8-11, 9-5, 9-7) 1-3, 2-8, 5-5, 6-10, 7-9, 8-1, 8-2, 8-3, 8-4, 8-5, 8-11, 9-5 (6-6, 6-9, 7-6, 7-10, 8-6, 8-9, 8-10, 9-1, 9-2, 9-3, 9-4, 9-10, 9-12)		
 2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph. Geometry 2.G Reason with shapes and their attributes. 2.G.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. 2.G.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. 	(8-1, 8-3) Routines 3, 4, 6; 6-1, 6-4, 7-3, 7-9 (5-8, 5-12, 6-5, 6-7, 6-8, 6-10, 6-11, 7-2, 7-4, 8-9, 8-11, 9-5, 9-7) 1-3, 2-8, 5-5, 6-10, 7-9, 8-1, 8-2, 8-3, 8-4, 8-5, 8-11, 9-5 (6-6, 6-9, 7-6, 7-10, 8-6, 8-9, 8-10, 9-1, 9-2, 9-3, 9-4, 9-10, 9-12) 1-12, 3-11, 8-6, 8-7, 9-11		
 2.MD.10 Draw a picture graph and a bar graph (with single-unit scale is marked on in whole-fullible units. 2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph. Geometry 2.G Reason with shapes and their attributes. 2.G.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. 2.G.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. 	(8-1, 8-3) Routines 3, 4, 6; 6-1, 6-4, 7-3, 7-9 (5-8, 5-12, 6-5, 6-7, 6-8, 6-10, 6-11, 7-2, 7-4, 8-9, 8-11, 9-5, 9-7) 1-3, 2-8, 5-5, 6-10, 7-9, 8-1, 8-2, 8-3, 8-4, 8-5, 8-11, 9-5 (6-6, 6-9, 7-6, 7-10, 8-6, 8-9, 8-10, 9-1, 9-2, 9-3, 9-4, 9-10, 9-12) 1-12, 3-11, 8-6, 8-7, 9-11 (7-6, 7-10, 9-1, 9-3, 9-6, 9-8)		
 2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph. Geometry 2.G Reason with shapes and their attributes. 2.G.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. 2.G.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. 2.G.3 Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words <i>halves, thirds, half of, a third of,</i> etc., and describe the whole as two halves, 	(8-1, 8-3) Routines 3, 4, 6; 6-1, 6-4, 7-3, 7-9 (5-8, 5-12, 6-5, 6-7, 6-8, 6-10, 6-11, 7-2, 7-4, 8-9, 8-11, 9-5, 9-7) 1-3, 2-8, 5-5, 6-10, 7-9, 8-1, 8-2, 8-3, 8-4, 8-5, 8-11, 9-5 (6-6, 6-9, 7-6, 7-10, 8-6, 8-9, 8-10, 9-1, 9-2, 9-3, 9-4, 9-10, 9-12) 1-12, 3-11, 8-6, 8-7, 9-11 (7-6, 7-10, 9-1, 9-3, 9-6, 9-8) 2-8, 8-11, 9-1, 9-2, 9-3, 9-4, 9-10		

Mathematical Processes and Practices

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.

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 69, 84, 85, 87, 151, 178, 188, 189, 190, 192, 193, 207, 210, 214, 245, 246, 247, 248, 249, 251, 267, 269, 270, 275, 276, 279, 308, 313, 368, 371, 373, 401, 453, 454, 459, 469, 477, 484, 490, 492, 497, 503, 507, 508, 509, 510, 512, 513, 539, 547, 553, 559, 560, 561, 563, 565, 566, 567, 569, 571, 575, 577, 578, 579, 583, 584, 587, 588, 618, 621, 622, 623, 625, 627, 633, 634, 638, 641, 711, 712, 713, 715, 716, 727, 734, 743, 747, 779, 791, 794, 796, 815, 819, 824, 827, 830, 831, 833, 834, 835, 836, 838, 839
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 <i>decontextualize</i> —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 <i>contextualize</i> , 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 5, 6, 7, 19, 20, 21, 22, 40, 69, 91, 93, 95, 97, 109, 123, 124, 129, 153, 157, 159, 160, 163, 169, 171, 172, 176, 197, 201, 203, 207, 209, 210, 213, 215, 216, 224, 255, 267, 273, 283, 286, 301, 305, 355, 357, 358, 359, 361, 367, 368, 369, 371, 372, 375, 376, 377, 378, 399, 402, 454, 464, 465, 467, 471, 483, 491, 497, 498, 536, 539, 557, 569, 575, 576, 577, 581, 582, 583, 584, 585, 587, 588, 592, 593, 615, 664, 676, 677, 706, 720, 721, 732, 733, 737, 738, 739, 740, 743, 744, 745, 746, 747, 749, 750, 753, 755, 757, 758, 759, 779, 780, 781, 782, 783, 785, 787, 788, 806, 808, 809, 811, 813, 815, 819, 820, 821, 822, 829, 841

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Pathway to Mastery
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 27, 63, 65, 67, 111, 165, 171, 176, 177, 181, 183, 201, 269, 270, 281, 301, 302, 307, 321, 359, 375, 379, 390, 452, 518, 535, 565, 569, 571, 615, 617, 618, 633, 649, 709, 710, 711, 713, 715, 716, 717, 727, 731, 831, 851, 858

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 19, 20, 21, 22, 26, 27, 39, 40, 41, 187, 188, 190, 192, 193, 257, 351, 352, 487, 490, 491, 495, 497, 498, 501, 503, 504, 507, 508, 509, 510, 512, 533, 534, 535, 536, 540, 541, 542, 545, 546, 547, 548, 557, 559, 573, 623, 624, 625, 627, 655, 657, 658, 661, 663, 664, 665, 667, 668, 670, 691, 738, 739, 740, 741, 743, 750, 791, 793, 794, 796, 797, 830, 841, 842, 843, 844

Mathematical Processes and Practices	<i>Everyday Mathematics</i> 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 11, 12, 14, 15, 31, 32, 34, 35, 59, 72, 105, 130, 151, 153, 154, 155, 163, 197, 199, 261, 264, 267, 305, 307, 309, 311, 335, 339, 343, 345, 346, 381, 383, 384, 393, 396, 399, 447, 451, 455, 459, 460, 465, 481, 507, 508, 509, 510, 512, 542, 554, 569, 571, 572, 575, 582, 583, 584, 585, 587, 588, 589, 593, 631, 637, 638, 639, 640, 641, 643, 646, 647, 650, 651, 652, 653, 670, 727, 735, 753, 800, 802, 803, 848, 849
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 6, 13, 32, 34, 35, 92, 123, 124, 129, 152, 153, 165, 175, 245, 246, 247, 248, 249, 251, 252, 253, 267, 269, 270, 275, 276, 277, 279, 293, 296, 299, 313, 335, 337, 343, 351, 352, 364, 376, 377, 383, 384, 389, 396, 447, 460, 541, 543, 553, 577, 578, 579, 639, 646, 647, 650, 651, 652, 720, 721, 722, 751, 753, 759, 781, 782, 783, 799, 801, 802, 803, 805, 808, 833, 834, 835, 836, 838, 839, 847, 851

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 <i>x</i> and <i>y</i> .	Pages 5, 6, 7, 12, 13, 15, 16, 17, 72, 75, 76, 77, 78, 79, 81, 82, 83, 85, 87, 88, 89, 98, 105, 109, 110, 112, 113, 115, 116, 117, 118, 166, 169, 183, 184, 195, 197, 201, 203, 204, 205, 211, 219, 220, 222, 223, 245, 246, 247, 249, 251, 252, 255, 257, 258, 263, 281, 285, 287, 288, 289, 295, 299, 315, 347, 355, 359, 363, 365, 401, 469, 473, 475, 477, 481, 505, 616, 622, 623, 624, 625, 627, 628, 631, 632, 633, 634, 641, 668, 669, 692, 693, 694, 697, 698, 699, 703, 704, 705, 709, 710, 711, 713, 715, 716, 719, 747, 749, 757, 785, 805, 809, 841, 843, 844, 847, 849, 850
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 112, 184, 188, 189, 190, 192, 193, 220, 222, 223, 276, 280, 281, 285, 287, 288, 289, 313, 396, 477, 479, 671, 843, 844, 850

Mastery Expectations

In Second Grade, Everyday Mathematics focuses on procedures, concepts, and applications in four critical areas:

- Understanding of base-10 notation.
- Building fluency with addition and subtraction.
- Using standard units of measure.
- Describing and analyzing shapes.

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 or equations to represent the problem.	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 drawings or equations to represent the problem.	Vse 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.
2.OA.2	Know doubles and combinations-of-10 facts.	Know doubles and combinations-of-10 facts; know +/- 0 and +/- 1 facts.	Know doubles and combinations-of- ten facts, and apply strategies to solve all addition and subtraction facts.	★ Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.
2.OA.3	Determine whether a group of objects (up to 20) has an even or odd number of members with the aid of manipulatives.	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.	Ongoing practice and application.	
2.0A.4	No expectations for mastery at this point.	No expectations for mastery at this point.	No expectations for mastery at this point.	★ Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

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.NBT.1	Understand that the 2-digits of a 2-digit number represent amounts of tens and ones.	Understand that three nonzero digits of a 3-digit number represent amounts of hundreds, tens, and ones.	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:	Ongoing practice and application.
2.NBT.1a	Demonstrate an understanding of exchanging 10 and 1s using manipulatives.	Represent 3-digit numbers that are multiples of 100 using base-10 blocks.	★ Understand that 100 can be thought of as a bundle of ten tens— called a "hundred."	Ongoing practice and application.
2.NBT.1b	Understand that the numbers 10, 20 90 refer to some tens and no ones.	Represent 3-digit numbers that are multiples of 100 using base-10 blocks.	Vinderstand that the numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).	Ongoing practice and application.
2.NBT.2	Count by 1s to at least 120; skip count by 5s using a calculator; and skip count by 10s to at least 200.	Count by 1s within 500; skip count by 5s and 10s past 200; count by 100 to 900.	★ Count within 1000; skip-count by 5s, 10s, and 100s.	Ongoing practice and application.
2.NBT.3	Read and write numbers to at least 120 using base-10 numerals and numbers to 10 using number names.	Read and write numbers to at least 600 using base-10 numerals. Read and write numbers to 20 using number names. Read and write numbers in expanded form to 99 without manipulatives. Read and write numbers in expanded form to 999 using base-10 blocks.	★ Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	Ongoing practice and application.
2.NBT.4	No expectations for mastery at this point.	Compare two 3-digit numbers with nonzero digits based on meanings of the hundreds, tens, and ones digits, using <, >, and = symbols to record the results of comparisons.	Compare two three- digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.	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.

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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.NBT.5	Add and subtract within 100 using a number grid, a number line, or counters.	Add within 100 using a number grid, number line, or counters, and use the inverse relationship between addition and subtraction to write fact families and solve addition and subtraction facts.	Add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction, with or without tools.	★ Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
2.NBT.6	No expectations for mastery at this point.	No expectations for mastery at this point.	No expectations for mastery at this point.	★ Add up to four two-digit numbers using strategies based on place value and properties of operations.
2.NBT.7	Add and subtract within 100 using base-10 blocks, number grids and number lines.	Add and subtract within 100 using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; understand that in adding or subtracting 2-digit numbers, one adds or subtracts tens and tens, ones and ones; understand that sometimes it is necessary to compose and decompose tens.	Add and subtract within 100 using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; understand that in adding or subtracting 3-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; understand that sometimes it is necessary to compose and decompose hundreds.	Add and subtract within 1000, 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. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
2.NBT.8	Mentally add 10 and subtract 10 from a 2-digit number.	Mentally add 10 to and subtract 10 from a given number 100-900. Mentally add and subtract 100 to a given number that is a multiple of 100 to 900.	★ Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.	Ongoing practice and application.
2.NBT.9	Understand addition as putting together and subtraction as taking apart.	Explain addition and subtraction fact strategies such as Making-10, Near Doubles, Turn-Around Rule for Addition, Think Addition, Counting Up, and Counting Back.	Explain why addition and subtraction strategies work using place value.	★ Explain why addition and subtraction strategies work, using place value and the properties of operations.

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.MD.1	No expectations for mastery at this point.	Select an appropriate tool to measure inches and centimeters.	Measure the length of an object by selecting and using appropriate tools to measure inches and centimeters.	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
2.MD.2	No expectations for mastery at this point.	Measure the length of an object twice, using inches and centimeters for the two measurements.	Measure the length of an object twice, using inches and centimeters for the two measurements and describe how the two measurements relate to the size of the unit.	Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
2.MD.3	No expectations for mastery at this point.	No expectations for mastery at this point.	No expectations for mastery at this point.	★ Estimate lengths using units of inches, feet, centimeters, and meters.
2.MD.4	No expectations for mastery at this point.	No expectations for mastery at this point.	Measure to determine how much longer one object is than another by lining up both objects and measuring the part that does not overlap in inches and centimeters.	Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.
2.MD.5	No expectations for mastery at this point.	No expectations for mastery at this point.	Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units using drawings.	★ Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.
2.MD.6	Represent numbers from 1 through 10 as lengths from 0 on a number line.	Represent numbers from 0 to 20 as lengths on a number line. Represent whole-number sums and differences within 20 on a number line.	Represent whole numbers as lengths from 0 on a number line. Represent sums within 100 on an number line.	Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2,, and represent whole-number sums and differences within 100 on a number line diagram.

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).



PATHWAY TO MASTERY

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.MD.7	No expectations for mastery at this point.	Tell and write time using analog and digital clocks to the nearest half hour.	Draw events that typically occur in the a.m. and p.m. hours.	★ Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
2.MD.8	Solve word problems involving dimes and pennies.	Solve word problems involving a single type of coin (either quarters, dimes, nickels, or pennies); use ¢ symbol appropriately.	Solve word problems involving quarters, dimes, nickels, and pennies to show exact change up to \$1; use ¢ symbol appropriately.	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?
2.MD.9	No expectations for mastery at this point.	No expectations for mastery at this point.	Generate measurements by measuring lengths of objects to the nearest inch, centimeter, or foot.	Cenerate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole- number units.
2.MD.10	No expectations for mastery at this point.	No expectations for mastery at this point.	Draw a picture graph to represent data from a tally chart.	Traw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put- together, take-apart, and compare problems using information presented in a bar graph.
2.G.1	Recognize 3- and 4-sided shapes.	Recognize 3- and 4-sided shapes.	Draw 3-, 4-, 5-, and 6-sided shapes; sort shapes and identify common attributes.	★ Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

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.G.2	No expectations for mastery at this point.	Use same-size square tiles to partition a rectangle into rows and columns and count to find the total number of them.	Use same-size square tiles to partition a rectangle into rows and columns and count to find the total number of them.	★ Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
2.G.3	No expectations for mastery at this point.	Partition shapes into two equal parts and describe the shares using the words <i>halves</i> and <i>half of</i> .	Partition shapes into two equal parts and describe the shares using the words <i>halves</i> and <i>half of</i> .	★ Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

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).



Contents



Getting Ready to Teach Second Grade Everyday Mathematics

Routines Overview	
Routine 1: Number of the Day Routine	
Routine 2: Calendar Routine	
Routine 3: Attendance Routine	
Routine 4: Weather Routine	
Routine 5: Temperature Routine	
Routine 6: Math Any Time Routine	

Focus Unit 1 44 **Establishing Routines** 1-1 Numbers All Around. 56 In Unit 1, children explore number patterns, number names, comparisons of numbers, and 1-2 mathematical tools. 1-3 Math Tools. 68 **Major Clusters** Class Number Scroll. 74 1-4 2.0A.B Add and subtract within 20. 2.NBT.A Understand place value. 1-5 Open Response Number-Grid Puzzles 80 **Supporting Clusters** 1-6 90 2.MD.C Work with time and money. 1-7 1 1 1-

1-8	My Reference Book, Quarters, and Math Boxes	102
1-9	Even and Odd Number Patterns	108
1-10	Skip-Counting Patterns	. 114
1-11	Comparing Numbers and Home Links	120
1-12	Explorations Exploring Base-10 Blocks, Area, and Dominoes	126
1-13	Assessment Unit 1 Progress Check	132



Contents

Unit 2 Fact Strategies

232

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

Major Clusters

2.0A.B Add and subtract within 20.

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

2-1	Grouping by 10s	150
2-2	Addition Number Stories	156
2-3	Doubles and Combinations of 10	162
2-4	The Making-10 Strategy	168
2-5	The Near-Doubles Strategy	174
2-6	The Turn-Around Rule for Addition.	180
2-7	Open Response Subtraction and the Turn-Around Rule	186
2-8	ExplorationsExploring Addition Tools, Odd and EvenPatterns, and Shapes	194
2-9	Even Numbers and Equal Addends	200
2-10	Name-Collection Boxes	206
2-11	Playing Name That Number	212
2-12	Frames and Arrows	218
2-13	Assessment Unit 2 Progress Check.	226

FocusUnit 3More Fact StrategiesIn Unit 3, children focus on
strategies for solving subtraction
facts.3-1Open ResponseUsing Addition Strategies3-2Subtraction from Addition: Think Addition3-2Subtraction from Addition: Think Addition2.0A.BAdd and subtract within 20.3-4Plaving Sqlutel

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

3-1	Open Response Using Addition Strategies	244
3-2	Subtraction from Addition: Think Addition	254
3-3	Fact Families	260
3-4	Playing Salute!	266
3-5	Subtraction Strategies: Counting Up and Counting Back	272
3-6	- 0 and - 1 Fact Strategies and Subtraction Top-It	278
3-7	"What's My Rule?"	284
3-8	Using Doubles to Subtract	292
3-9	Going-Back-Through-10 Strategy for Subtraction	298
3-10	Going-Up-Through-10 Strategy for Subtraction	304
3-11	Explorations Exploring Rectangles, Fact Wheels, and Coins	310
3-12	Assessment Unit 3 Progress Check.	316

Unit 4 **Place Value and Measurement**

506

514

In Unit 4, children extend their			
understanding of place value. They			
also explore standard tools and			
units for measuring length and time.			

Major Clusters

2.NBT.A Understand place value.

2.MD.A Measure and estimate lengths in standard units.

Supporting Clusters

2.MD.C Work with time and money.

4-1	Clocks and Telling Time	334
4-2	Telling Time to the Nearest 5 Minutes	342
4-3	a.m. and p.m.	348
4-4	Numeration and Place Value	354
4-5	Using Place Value to Compare Numbers	360
4-6	Open Response Using Base-10 Blocks to Show a Number	366
4-7	Playing <i>Target</i>	374
4-8	How Big Is a Foot?	380
4-9	The Inch	386
4-10	The Centimeter.	392
4-11	Explorations Matching Facts with Strategies, Measuring a Path, Exploring Arrays	398
4-12	Assessment Unit 4 Progress Check.	404

Assessment Unit 5 Progress Check.

Focus **Addition and Subtraction** Unit 5 432 In Unit 5, children review addition 5-1 Playing Beat the Calculator 444 and subtraction problems in the context of money and number 5-2 Using Coins to Buy Things. 450 stories. They learn strategies for mentally adding and subtracting 10 5-3 Counting Up with Money.... 456 and 100. 5-4 Coin Calculations. 462 **Major Clusters** 5-5 468 2.0A.A Represent and solve problems involving addition and 5-6 474 subtraction. 2.NBT.B Use place value 5-7 480 Open Number Lines. understanding and properties of operations to add and subtract. 5-8 Change-to-More Number Stories 486 **Supporting Clusters** 5-9 Parts-and-Total Number Stories 494 2.MD.C Work with time and money. 5-10 Change Number Stories 500

5-11

5-12

Unit 6 **Whole Number Operations and Number Stories**

In Unit 6, children collect and display data on two different types of graphs. They are also introduced to comparison number stories and two-step number stories.

Major Clusters

2.0A.A Represent and solve problems involving addition and subtraction.

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

2.MD.B Relate addition and subtraction to length.

6-1	Representing Data: Pockets	532
6-2	Comparison Number Stories.	538
6-3	Interpreting Number Stories	544
6-4	Animal Number Stories	550
6-5	Two-Step Number Stories	556
6-6	Recording Addition Strategies.	562
6-7	Partial-Sums Addition, Part 1	568
6-8	Partial-Sums Addition, Part 2	574
6-9	Open Response Subtracting with Base-10 Blocks.	580
6-10	Explorations Exploring Arrays, Length, and Shapes	590
6-11	Assessment Unit 6 Progress Check.	596

Focus	Unit 7	Whole Number Operations and Measurement and Data	602
In Unit 7, children further explore	7-1	Playing <i>Hit the Target</i>	. 614
and use them to add three or more numbers. They use units of yards	7-2	Open Response Four or More Addends	620
and meters to measure distances. At the end of the unit, children	7-3	Playing Basketball Addition	630
will collect data and display it in a frequency table and a line plot.	7-4	Measuring with Yards	. 636
Major Clusters	7-5	Measuring with Meters	. 642
2.NBT.B Use place value understanding and properties of	7-6	Generating Data: Standing Jumps and Arm Spans	. 648
operations to add and subtract.	7-7	Representing Data: Standing Jumps	654

understa operations to add and subtract.

2.MD.A Measure and estimate lengths in standard units.

7-8

Supporting Clusters

2.MD.D Represent and interpret data.

7-9	Explorations	Exploring Shape Attributes, Graphs, and Measurements	666
7-10	Assessment	Unit 7 Progress Check.	672

660

520

In Unit 8, children explore 2and 3-dimensional shapes and their attributes. At the end of the unit, they explore strategies for determining the total number of objects in equal groups and rectangular arrays.

Supporting Clusters

2.0A.C Work with equal groups of objects to gain foundations for multiplication.

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

Unit 8 Geometry and Arrays

8-1	Attributes of 2-Dimensional Shapes	690
8-2	Playing Shape Capture	696
8-3	Comparing Triangles, Pentagons, and Hexagons	702
8-4	Open Response Drawing and Reasoning About Quadrilaterals	708
8-5	Attributes of 3-Dimensional Shapes	718
8-6	Partitioning Rectangles, Part 1	724
8-7	Partitioning Rectangles, Part 2	730
8-8	Equal-Groups and Array Number Stories	736
8-9	More Equal Groups and Arrays	742
8-10	Playing Array Concentration.	748
8-11	Explorations Exploring Mystery Shapes, Polygons, and Equal Parts.	754
8-12	Assessment Unit 8 Progress Check.	760

678

766

Focus

Unit 9 Equal Shares and Whole Number Operations

9-1	Creating and Naming Equal Parts	778
9-2	Explorations Exploring Equal Shares, Pattern-Block Fractions, and Number Lines	784
9-3	Open Response Sharing Muffins	790
9-4	Fractional Units of Length	798
9-5	Reviewing Place Value	804
9-6	Expand-and-Trade Subtraction, Part 1	810
9-7	Expand-and-Trade Subtraction, Part 2	818
9-8	Equivalent Money Amounts	826
9-9	Open Response Estimating Costs	832
9-10	Connecting Doubles Facts, Even Numbers, and Equal Groups	840
9-11	Multiples of 10 and 5	846
9-12	Assessment Unit 9 Progress Check.	852

In Unit 9, children partition shapes into equal shares and apply these ideas to further explore length measurement. They also learn a new subtraction strategy based on place value and continue working with equal groups.

Major Clusters

2.NBT.A Understand place value.

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

Supporting Clusters

2.0A.C Work with equal groups of objects to gain foundations for multiplication.

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

Glossary
Unpacking the Mathematics Standards
Content Standards
Process and Practice Standards
K-2 Games Correlation
Children Work Samples
Evaluated Children Work Samples
Index

Unit 2 Organizer

Fact Strategies

Contents

L	Lesson and Overview	Page	Content Standards [*]	Processes and Practices [*]
	2-1 Grouping by 10s Children explore place-value concepts as they play <i>The Exchange</i> <i>Game</i> with money and practice grouping by 10s using \$1, \$10, and \$100 bills.	150	2.NBT.1, 2.NBT.1a, 2.NBT.3, 2.NBT.7, 2.NBT.9, 2.MD.8	SMP2, SMP5, SMP6
	2-2 Addition Number Stories Children write and solve addition number stories.	156	2.0A.1, 2.0A.2	SMP2
	2-3 Doubles and Combinations of 10 Children explore doubles and combinations of 10 to build fact fluency.	162	2.OA.2	SMP3, SMP6, SMP7
	2-4 The Making-10 Strategy Children use a strategy based on place value to add within 20.	168	2.0A.2, 2.NBT.9	SMP2, SMP3
	2-5 The Near-Doubles Strategy Children use the near-doubles strategy to solve addition facts.	174	2.OA.2, 2.NBT.9	SMP1, SMP2, SMP3
	2-6 The Turn-Around Rule for Addition Children use dominoes to explore the turn-around rule for addition.	180	2.OA.2, 2.NBT.9	SMP3, SMP7, SMP8
2-Day Lesson	 2-7 Open Response Subtraction and the Turn-Around Rule Day 1: Children solve an open response problem by writing number stories and models. Day 2: Children discuss solutions and revise their work. 	186	2.0A.1, 2.0A.2, 2.NBT.9	SMP1, SMP4, SMP8
	2-8 Explorations Exploring Addition Tools, Odd and Even Patterns, and Shapes Children explore counting up, odd and even numbers, and shapes.	194	2.0A.2, 2.0A.3, 2.NBT.2, 2.NBT.7, 2.MD.6, 2.G.1, 2.G.3	SMP2, SMP5, SMP7
	2-9 Even Numbers and Equal Addends Children identify even and odd numbers, and they write number models to express even and odd numbers as sums.	200	2.0A.2, 2.0A.3	SMP2, SMP7
	2-10 Name-Collection Boxes Children generate equivalent names for numbers and write them in name-collection boxes.	206	2.OA.2, 2.NBT.3, 2.NBT.5	SMP1, SMP2
	2-11 Playing Name That Number Children find many ways to name numbers.	212	2.OA.2, 2.NBT.3, 2.NBT.5	SMP1, SMP2
	2-12 Frames and Arrows Children skip count, add, and subtract to solve Frames-and-Arrows problems.	218	2.NBT.2, 2.NBT.5	SMP7, SMP8
2-Day Lesson	 2-13 Assessment Unit 2 Progress Check Day 1: Administer the Unit Assessments. Day 2: Administer the Cumulative Assessment. 	226		

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

+7=16

9=16

Focus

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

Major Clusters

2.0A.B Add and subtract within 20.

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

Supporting Clusters

2.0A.C Add and subtract within 20.

2.MD.C Use place value understanding and properties of operations to add and subtract.

Process and Practice Standards

SMP7 Look for and make use of structure.

SMP8 Look for and express regularity in repeated reasoning.

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 <i>Fishing for 10</i> 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 patterns, such as observing that 4 times a number is always even, and will explain why 4 times a number can be decomposed into two equal addends.
2.NBT.5	In Unit 1, children used addition and subtraction to write equivalent names for numbers. In Grade 1, children used concrete models or drawings and strategies based on place value to add within 100 using a 2-digit number and a 1-digit number, and added a 2-digit number and a multiple of 10. They subtracted multiples of 10 in the range of 10–90 from multiples of 10 in the range of 10–90.	Throughout Grade 2, children will represent and solve problems involving addition and subtraction within 100. In Unit 6, children will be introduced to partial-sums addition and in Unit 9 they will be introduced to expand-and-trade subtraction. In Grade 3, children will add and subtract within 1,000 using strategies and algorithms.
2.NBT.7	In Unit 1, children used number lines to add teen numbers to 1-digit numbers and base-10 blocks to add 100s, 10s, and 1s. In Grade 1, children used concrete models or drawings and strategies based on place value to add within 100 using a 2-digit number and a 1-digit number, and added a 2-digit number and a multiple of 10. They subtracted multiples of 10 in the range of 10–90 from multiples of 10 in the range of 10–90.	Throughout Grade 2, children will represent and solve problems within 1,000 using concrete models or drawings and strategies based on place value. In Unit 5, children will be introduced to open number lines and diagrams for solving problems. In Unit 6, children will use base-10 blocks to solve problems. In Grade 3, children will add and subtract within 1,000 using strategies and algorithms.
2.NBT.9	In Unit 1, children found four missing numbers on a number grid and explained how the patterns they noticed helped them solve the problem. In Grade 1, children related strategies used to solve addition and subtraction problems to a written method and explained the reasoning used.	Throughout Grade 2, children will make written records of their thinking, which will help them understand and explain why the strategies work. In Grade 3, children will look for arithmetic patterns and explain them using properties of operations.

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
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 <i>Fishing for 10</i>, 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, a 3, 5, a 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, E 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 <i>The Exchange Game</i>, 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 <i>The Exchange Game</i> , 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 <i>Fishing for 10</i> , 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 <i>The Number-Grid Game</i>, 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

The Near-Doubles Strategy	The Turn-Around Rule for Addition	2-7 Open Response Subtraction and the Turn-Around Rule 2-Day Lesson	2-8 Explorations Addition Strategies	
 Near-double fact strategy Sharing Quick-Looks Strategies, p. 176 Discussing the Near-Doubles Strategy, p. 177 	Commutative Property Finding Two-Facts on a Domino, p. 183 Exploring the Turn-Around Rule for Addition, p. 183	Understanding the Commutative Property Solve the Open Response Problem, p. 192 Reengaging in the Problem, p. 192	Using number line and number grids to add Explorations A, ■ B, & C, pp. 197–198	Conceptual Understanding
 Mental Math and Fluency, p. 176 Math Message, p. 176 Sharing Quick-Looks Strategies, p. 176 Discussing the Near-Doubles Strategy, p. 177 Identifying Helper Doubles Facts, p. 178 Math Boxes 3, 4 Home Link 2-5, p. 179 	 Mental Math and Fluency, p. 182 Math Message, p. 182 Finding Two Facts on a Domino, p. 183 Exploring the Turn-Around Rule for Addition, p. 183 Home Link 2-6, p. 185 	 Mental Math and Fluency, p. 187 Math Message, p. 187 Writing Number Stories and Number Models, p. 187 Solving the Open Response Problem, p. 188 Reengaging in the Problem, p. 192 Revising Work, p. 192 Home Link 2-7, p. 193 	 Mental Math and Fluency, p. 196 Math Message, p. 196 Exploration B, p. 197 	Procedural Skill and Fluency 모 아이
 Mental Math and Fluency, p. 176 <i>The Exchange Game</i>, p. 179 Math Boxes 1, 4 	Math Boxes 4	 Mental Math and Fluency, p. 187 Math Message, p. 187 Writing Number Stories and Number Models, p. 187 Solving the Open Response Problem, p. 188 Math Boxes 1, 4 	 Mental Math and Fluency, p. 196 <i>The Exchange Game</i>, p. 199 Math Boxes 4, 5 	Applications
 Sharing Quick-Looks Strategies, p. 176 Discussing the Near-Doubles Strategy, p. 177 Identifying Helper Doubles Facts, p. 178 	 Exploring the Turn-Around Rule for Addition, p. 183 Math Boxes 5 	 Solving the Open Response Problem, p. 188 Reengaging in the Problem, p. 192 Revising Work, p. 192 	Math Message, p. 196 Sharing Strategies for Counts, p. 196 Explorations A, B , & C, pp. 197–198 Math Boxes 5	Rich Tasks and Mathematical Reasoning
 Sharing Quick-Looks Strategies p. 176 Discussing the Near-Doubles Strategy, p. 177 	Exploring the Turn-Around Rule for Addition, p. 183 Summarize, p. 184	 Math Message, p. 187 Writing Number Stories and Number Models, p. 187 Setting Expectations, p. 192 Reengaging in the Problem, p. 192 	Sharing Strategies for Counts, p. 196 Summarize, p. 198	Mathematical Discourse
 Daily Routines Mental Math and Fluency, p. 176 <i>The Exchange Game</i>, p. 179 Math Boxes 2-5, p. 179 Home Link 2-5, p. 179 Extra Practice, p. 175 	Daily Routines Mental Math and Fluency, p. 182 Identifying Odd and Even Numbers, p. 185 Math Boxes 2-6, p. 185 Home Link 2-6, p. 185 Extra Practice, p. 181	Daily Routines Mental Math and Fluency, p. 187 Math Boxes 2-7, p. 193 Home Link 2-7, p. 193	Daily Routines Mental Math and Fluency, p. 196 <i>The Exchange Game</i> , p. 199 Math Boxes 2-8, p. 199 Home Link 2-8, p. 199 Extra Practice, p. 195	Distributed Practice
Differentiation Options, p. 179 Online Differentiation Support 2-5 Adjusting the Activity, pp. 177, 178	Differentiation Options, p. 181 Online Differentiation Support 2-6 Adjusting the Activity, p. 182	ELL Support, p. 188 Adjusting the Activity, p. 188 Common Misconception, p. 189	Differentiation Options, p. 195 Online Differentiation Support 2-8 Adjusting the Activity, p. 197	Differentiation Support

Planning for Rich Math Instruction

	2-9 Even Numbers and Equal Addends	2-10 Name-Collection Boxes	2-11 Playing <i>Name That Number</i>	2-12 Frames and Arrows
Conceptual Understanding	Even and Odd Numbers Examining Sums of Doubles, p. 202	Equivalence Introducing Name-Collection Boxes, p. 208	Equivalence Writing Number Sentences for <i>Name</i> <i>That Number</i> , p. 213 <i>Name that Number</i> , p. 216	Understanding the relationship between addition and subtraction through patterns and sequences Solving Frames-and-Arrows Problems, p. 221
Procedural Skill and Fluency	 Mental Math and Fluency, p. 202 Math Message, p. 202 <i>Evens and Odds</i>, p. 203 Home Link 2-9, p. 205 	 Mental Math and Fluency, p. 208 Math Message, p. 208 Practicing with Name-Collection Boxes, p. 210 <i>Evens and Odds</i>, p. 211 Math Boxes 1, 2, 3 Home Link 2-10, p. 211 	 Mental Math and Fluency, p. 214 Math Message, p. 214 Name That Number, p. 216 Home Link 2-11, p. 217 Solving Number Stories on a Number Line, p. 217 	 Mental Math and Fluency, p. 220 Solving Frames-and-Arrows Problems, pp. 221–222 Completing Frames-and-Arrows Diagrams, p. 223 <i>Name That Number</i>, p. 224 Math Boxes 1, 2, 3 Home Link 2-12, p. 225
Applications	Mental Math and Fluency, p. 202		 Solving Number Stories on a Number Line, p. 217 Math Boxes 4 	Mental Math and Fluency, p. 220
Rich Tasks and Mathematical Reasoning	Evens and Odds, p. 203	 Practicing with Name-Collection Boxes, p. 210 Math Boxes 5 	■ <i>Name That Number</i> , p. 216 Math Boxes 5	 Solving Frames-and-Arrows Problems, p. 221 <i>Name That Number</i>, p. 224 Math Boxes 5
Mathematical Discourse	Examining Sums of Doubles, p. 203 <i>Evens and Odds</i> , p. 203 Summarize, p. 205	 Practicing with Name-Collection Boxes, p. 210 Evens and Odds, p. 211 	Name That Number, p. 216 Summarize, p. 216	 Solving Frames-and-Arrows Problems, pp. 221–222 Completing Frames-and-Arrows Diagrams, p. 223
Distributed Practice	Daily Routines Mental Math and Fluency, p. 202 <i>Evens and Odds</i> , p. 205 Home Link 2-9, p. 205 Extra Practice, p. 201	Daily Routines Mental Math and Fluency, p. 208 <i>Evens and Odds</i> , p. 211 Math Boxes 2-10, p. 211 Home Link 2-10, p. 211 Extra Practice, p. 207	Daily Routines Mental Math and Fluency, p. 214 Solving Number Stories on a Number Line, p. 217 Math Boxes 2-11, p. 217 Home Link 2-11, p. 217 Extra Practice, p. 213	Daily Routines Mental Math and Fluency, p. 220 <i>Name That Number</i> , p. 224 Math Boxes 2-12, p. 225 Home Link 2-12, p. 225 Extra Practice, p. 219
Differentiation Support	Differentiation Options, p. 204 Online Differentiation Support 2-9 Adjusting the Activity, p. 204 Game Modifications, p. 204	Differentiation Options, p. 207 Online Differentiation Support 2-10 Adjusting the Activity, p. 210	Differentiation Options, p. 213 Online Differentiation Support 2-11 Game Modifications, p. 216	Differentiation Options, p. 219 Online Differentiation Support 2-12 Adjusting the Activity, pp. 221, 223

Notes

2-13 Assessment Unit 2 Progress Check

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Lesson 2-13 is an assessment lesson. It includes:

- Self Assessment
- Unit Assessment
- Optional Challenge assessment
- Cumulative Assessment
- Suggestions for adjusting the assessments.

Go Online:

Evaluation Quick Entry



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

Unit 2 Materials

Lesson	Math Masters	Activity Cards	Manipulative Kit	Other Materials
2-1	pp. 27; TA3; G9–G14	20	toolkit bills; per partnership: one 6-sided die	scissors; envelope, paper clip, or rubber band; per partnership: 20 pennies, 10 nickels; crayons or markers; per group: large paper clip, one \$1 bill, one sheet of paper labeled "Bank"; per player: 7 pennies, 5 nickels, 5 dimes, 4 quarters
2-2	pp. 28; TA7	21	Quick Look Cards 78, 82, and 102; 8 counters	slate; craft stick
2-3	pp. 29; TA6; G5; Assessment Handbook, pp. 98–99	22–23	Quick Look Cards 79, 84, 86, 90, 92, 102, and 121; per partnership: 4 each of number cards 0–10	Class Data Pad chart labeled "Doubles" and "Combinations of 10"; 20 pennies; calculator
2-4	pp. 30–33; TA6; G3	6	Quick Look Cards 87, 88, 91, 95, 98, 99, and 116; counters (optional); per group: one 6-sided die	slate; game markers (such as counters or pennies); per partnership: 10 pennies or counters; green and blue crayons
2-5	pp. 34–35; G14; per partnership: p. G15	24	Quick Look Cards 79, 81, 100, and 102; toolkit bills; one 6-sided die; 1 each of number cards 1–9	slate; Class Data Pad; crayons or markers
2-6	pp. 36–37; TA8	25	Quick Look Cards 76, 88, and 119; calculator; per partnership: 20 toolkit pennies; 1 each of number cards 1–9	slate; 1 domino
2-7	pp. 38–40; TA5			Standards for Mathematical Process and Practice Poster; Guidelines for Discussions Poster; selected samples of children's work; children's work from Day 1
2-8	pp. 41–43; 44 (2 copies); 45; TA2 (3 copies); TA9 or TA10; G14	26–29	Class Number Line; geoboard; rubber bands; toolkit bills; 10 counters; per partnership: 1 set of double-9 dominoes, one 6-sided die; per group: 1 each of number cards 1–10	completed <i>Math Masters,</i> pp. 42–44 from Exploration B
2-9	pp. 41; 46; TA6	30	per partnership: 1 each of number cards 1–20; 20 counters	slate
2-10	pp. 47–49; TA6 (optional); TA11–TA12	6; 31–32	20 counters (optional); Quick Look Cards 86, 99, and 103; per partnership: 1 each of number cards 1–20	per partnership: 10 pennies or counters
2-11	pp. 50–52; G16	19	per group: 4 each of number cards 0–10, 1 each of number cards 11–20, 1 or more sets of double-9 dominoes	
2-12	pp. 53–56; TA13–TA14; G16	33–34	per group: 4 each of number cards 0–10, 1 each of number cards 11–20	picture frame and eyeglasses (or pictures of them); Pattern-Block Template (optional)
2-13	pp. 57–60; Assessment Handbook, pp. 11–16			
Lit	erature Link Optional E	Books: 🔼	Two of Everything: A Chinese Folktale 2-9	One Odd Day; My Even Day
Go Onli	ne for a complete literature lie	t for Grado 2	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	Content Standards	Processes and Practices
2-1	Count combinations of \$1, \$10, and \$100 bills.	2.NBT.1, 2.NBT.7, 2.MD.8	SMP5
2-2	Write an addition number story and a number model to solve.	2.OA.1	SMP2
2-3	Demonstrate automaticity with doubles addition facts and combinations of 10.	2.0A.2	
2-4	Use double ten frames and the making-10 strategy to solve addition facts.	2.0A.2	SMP2
2-5	Use doubles to help solve nearby facts.	2.0A.2	
2-6	Recall and understand turn-around facts.	2.0A.2	SMP7
2-7	Write a number story to explain a number model.	2.OA.1	SMP8
2-9	Identify odd and even numbers.	2.0A.2, 2.0A.3	
2-10	Identify and write equivalent names for numbers.	2.0A.2, 2.NBT.3	SMP2
2-11	Generate equivalent names for a given number.	2.0A.2, 2.NBT.3	
2-12	Solve Frames-and-Arrows problems.	2.NBT.2, 2.NBT.5	SMP7, SMP8

<mark>🕎</mark> 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:



EM4: Grade 2 Unit 2 Planning Webinar

This webinar provides a preview of the lessons and content in this unit. Watch this video with your grade-level colleagues and plan together under the guidance of an *Everyday Mathematics* author.

Subtraction and the Turn-Around Rule: An Open Response and Reengagement Lesson

Watch one classroom work through an Open Response and Reengagement lesson. Explore the introduction and reengagement in practice.

Discovering Turn-Around Facts with Dominoes

Second grade children use dominoes to explore and discuss addition facts.

For more resources, go to the VLC Resources page and search for Grade 2.

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



Full Mastery of 2.0A.3 expected by the end of Unit 4.

144









Professional Development

Mathematical Background: Content

Place Value (Lesson 2-1)

In the base-10 number system the value of a digit in a given place-value position is 10 times as great as the value of the same digit in the place to its right. For example, the value of 2 in 72 is 2 ones, or 2. But the value of 2 in 25 is 2 tens, or 20 (which is 10 times as much as 2). Similarly, the value of 2 in 231 is 2 hundreds, or 200 (which is 10 times as much as 20). In Grade 1 children began exploring these relationships by bundling objects into groups of 10 and making exchanges, such as trading 1 ten for 10 ones. In Grade 2 children extend their understanding of place value to the hundreds place.

In Lesson 2-1 children count collections of \$100, \$10, and \$1 bills. **2.MD.8** They make exchanges among bills to illustrate that a \$10 bill has the same value as ten \$1 bills, and a \$100 bill has the same value as ten \$10 bills. **2.NBT.1a** *The Exchange Game* is introduced as a way to practice counting and making exchanges with money. Later in the year children will apply their understanding of place value to develop and explain strategies for multidigit addition and subtraction. **2.NBT.7**, **2.NBT.9**

Number Stories (Lesson 2-2)

Number stories involve numbers and one or more explicit or implicit questions. For example: *Peter had 5 marbles. Sammie gave him 6 more. How many does he have now? Peter now has 11 marbles.* Addition number stories illustrate the different uses of addition in everyday life. Most instances of addition can be categorized as parts-and-total, change-to-more, or comparison situations. Parts-and-total situations involving addition are also known as "putting together" situations. Change-to-more is also known as "adding to." In Lesson 2-2 children write and solve their own number stories and represent the stories with drawings and number models. **2.OA.1** Children are not expected to categorize number stories at this time. Later lessons will include practice with all types of situations that involve addition.

Number stories also provide contextual practice with facts and multidigit computation. 2.OA.2, 2.NBT.5 *Everyday Mathematics* uses number stories as a way to expand children's problem-solving skills. When they solve number stories, children are required to make sense of the situation, decide which operation to use, and then carry out the computation.



Standards and Goals for Mathematical Content

Because the standards within each strand can be broad, *Everyday Mathematics* has unpacked each standard into Goals for Mathematical Content GMC. For a complete list of Standards and Goals, see page EM1.



147

Unit 2 Vocabulary

addend

addition number story arrow; arrow rule combinations of 10 divide doubles; doubles fact equal addends equivalent fourths frame Frames-and-Arrows diagram half; halves helper fact label making 10 name-collection box near-doubles strategy number model number sentence number story sum; total trade turn-around rule unit box

Helper Facts (Lessons 2-3 through 2-5)

An important part of fluency with addition facts is the ability to derive an unknown fact from a known fact. Every unknown addition fact can be derived using either doubles facts or combinations of 10. Automaticity with doubles and combinations of 10 is therefore essential before children can become fluent with all of their facts. Children began building fluency with these key groups of facts in Unit 1. In Lesson 2-3 the Quick Looks routine is used to help children solidify their knowledge of these facts. **2.OA.2** Quick Look Cards showing identical dot patterns in each frame of a double ten frame are used to help children think about doubles, and cards that show the dots aligned to suggest combining into a single ten frame are used to help children recognize combinations of 10.

In Lessons 2-4 and 2-5 children use doubles and combinations of 10 as "helper facts" to help them solve other facts. Quick Look Cards showing near-identical patterns of dots on the two frames are used to help children think of facts as near doubles. For example, the first card shown in the margin can help children think of 4 + 5 as one more than the easier double 4 + 4. Similarly, Quick Look Cards showing the dots aligned to suggest combining into a single ten frame are used to help children think about making 10 to solve an unknown fact. The second card shown in the margin can help children think of 8 + 3 as 10 plus one more. Children are encouraged to explain their thinking as they use helper facts to solve unknown facts. **2.NBT.9**

The Commutative Property of Addition (Lesson 2-6)

According to the Commutative Property of Addition, for any two numbers *a* and *b*, a + b = b + a. In Second Grade Everyday Mathematics, a more child-friendly name—the *turn-around rule for addition*—is used with children. In Lesson 2-6 children discover this rule by examining related pairs of addition facts that are shown on double-9 dominoes. They restate the rule in their own words. Children apply their knowledge of this rule in several ways later in the year. They use it to help them develop automatic recall of all the addition facts, using the reasoning that if they already know one fact, they also know its turn-around fact. **2.OA.2** They also apply the rule to larger numbers to help them develop strategies for multidigit addition and explain why the strategies work. **2.NBT.5**, **2.NBT.7**, **2.NBT.9**





Quick Look Card 94





Unit Organizer

Professional Development

Even and Odd Numbers (Lessons 2-8 and 2-9)

Children explored even and odd numbers in Unit 1. In Lessons 2-8 and 2-9 they build on their understanding of these numbers and connect even numbers to doubles facts. In Lesson 2-8 children sort dominoes according to whether the dominoes show two even numbers, two odd numbers, or one even and one odd number. They record the total number of dots on each domino and note that the sum of two even numbers or two odd numbers is always even. In Lesson 2-9 children connect this idea to doubles facts, noting that a doubles fact always has an even sum. They are introduced to a new game, *Evens and Odds,* in which they write even numbers as the sum of two equal addends and odd numbers as the sum of two equal addends and odd numbers are related, they build new strategies for solving facts into their repertoire. **2.OA.2**

Equivalent Names for Numbers (Lessons 2-10 and 2-11)

Children's work with equivalent names for numbers continues in Unit 2 with name-collection boxes, a program routine introduced in *First Grade Everyday Mathematics*, and the introduction of a new game. In Lesson 2-10 children use name-collection boxes to collect equivalent names for numbers. A *name-collection box* is an open box with a tag at the top identifying the number whose names are collected in the box. In Lesson 2-11 children play *Name That Number* by using number cards to create equivalent names for a target number. Creating and identifying equivalent names for numbers provides practice with basic facts and helps children see numbers flexibly, which provides a foundation for later development of addition and subtraction strategies. **2.OA.2, 2.NBT.5**

Frames and Arrows (Lesson 2-12)

Lesson 2-12 introduces another program routine: Frames and Arrows. *Frames-and-Arrows diagrams* consist of a sequence of frames connected by arrows. Each frame contains a number; each arrow represents a rule that determines which number goes in the next frame. The numbers in a Frames-and-Arrows diagram form a sequence; the arrow rule(s) represent the mathematical structure that generates the sequence. Children solve several types of Frames-and-Arrows problems. In some cases they use a given rule to fill in empty frames, which provides practice with skip counting and the relationship between addition and subtraction. **2.NBT.2**, **2.NBT.5** In other cases they use completed frames to derive the rule (see discussion of Mathematical Process and Practice 8 on page 149). Because Frames-and-Arrows problems come in several types, children must first decide what needs to be done and then perform the operations, which provides valuable practice with problem solving.







Mathematical Background:

Process and Practice



See below for some of the ways that children engage in SMP7 Look for and make use of structure and SMP8 Look for and express regularity in repeated reasoning through the mathematical content of Operations and Algebraic Thinking and Number and Operations in Base-Ten.

Standard for Mathematical Process and Practice 7

To develop strategies for solving addition facts in Unit 2, children first examine addition facts and "look closely to discern a pattern or structure," as described in Standard for Mathematical Process and Practice 7.

In Lesson 2-3 children look for patterns in a list of facts and sort the facts into two categories: combinations of 10 and doubles facts. In several other lessons in this unit, children use the facts in these categories as "helper facts" to help them solve other facts.

In Lesson 2-6 children note that two facts with the same addends always have the same sum, even when the order of the addends is reversed. They generalize this pattern into a rule (see discussion of Mathematical Process and Practice 8 below) and then discuss how the rule can be used to help them solve facts later.

In Lesson 2-9 children discover that the ones digits of consecutive even numbers and consecutive odd numbers occur in repeating patterns. They use these patterns to help them determine whether numbers are even or odd. These examples illustrate how children "look for structures such as categories, patterns, and properties" and then "use structures to solve problems and answer questions" throughout Unit 2. GMP7.1, GMP7.2

Standard for Mathematical Process and Practice 8

Mathematical Process and Practice 8 states that mathematically proficient students "notice if calculations are repeated, and look both for general methods and for shortcuts." In Lesson 2-6 children look at pairs of related addition facts and note that two facts with the same addends always have the same sum, regardless of the order of the addends (see discussion of Mathematical Process and Practice 7 above). They make arguments for why this pattern will hold for any two whole numbers and generalize the pattern into the turn-around rule for addition. (*Everyday Mathematics* uses this child-friendly name until children are ready for the more formal Commutative Property of Addition later on.) They discuss how the general rule can be used to help them solve addition facts.

In Lesson 2-12 children explore the Frames-and-Arrows program routine. In one variation of this routine they examine a sequence of numbers and look for regularity in how the numbers are changing. Children learn to express this regularity as an *arrow rule* and use the rule to complete and extend the sequence. The Frames-and-Arrows routine provides ongoing practice that allows children to "create and justify rules, shortcuts, and generalizations."

Standards and Goals for Mathematical Process and Practice

SMP7 Look for and make use of structure.

GMP7.1 Look for mathematical structures such as categories, patterns, and properties.

GMP7.2 Use structures to solve problems and answer questions.

SMP8 Look for and express regularity in repeated reasoning.

GMP8.1 Create and justify rules, shortcuts, and generalizations.

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.

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

2

Lesson

2-2

Standards

	addition number story • unit box • label • number model	 Focus Clusters Represent and solve problems involving addition 	
)	Warm Up 15–20 min	Materials	and subtraction.Add and subtract within 20.
	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.

Focus 20–30 min

Math Message Children solve an addition number story.		2.0A.1, 2.0A.2
Representing Number Stories Children are introduced to unit boxes and number models.	2.0A.1, 2.0A.2	
Creating and Solving Addition Number Stories Children create addition number stories and represent them with unit boxes and number models.		2.0A.1, 2.0A.2 SMP2
Writing Number Stories A Children write and solve number stories about a picture.	Math Journal 1, p. 19	2.0A.1, 2.0A.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	2.0A.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.	<i>Math Journal 1,</i> pp. 21 and inside back cover	See page 161.
Home Link 2-2 Homework Children write an addition number story.	Math Masters, p. 28	2.0A.1, 2.0A.2

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

Differentiation Options



Repeat with different number stories as needed, varying parts-and-total and change-to-more situations. Some children may benefit from modeling with the actual objects from the story, such as shells or marbles. GMP2.1

Have children retell the number story and

answer to a partner.



A Numper Story	NAME	
		Unit

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.

222 Addition Number Stories	
Meeting Language Demands	Vocabulary
For Beginning ELLs, use - Vousi aids to support understanding of written and oral content.	Everyday Terms children sitting
 Pictorial vocabulary displays to build children's English language vocabulary. 	blayang swataunang
Simple one-word-response questions to encourage English language production	Content Terms addition number story
For Intermediate and Advanced ELLs, or for Children Who Need More Scaffolding, use	label number model
Sentence frames of varying complexity to scatteld for content ferms and encourage their use.	unit box
+ Highlighted terms on journal pages to promote independent work.	

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

Standards and Goals for Mathematical Process and Practice

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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.

Academic Language Development

Discuss the term *label*. Explain that numbers almost always occur in context—that is, they refer to real-world things—and labels make this context clear. Labels can name a thing (for example, books) or a measurement unit (for example, hours). The word *label* can be used to tell us to do something, as in "Label your answers." It can also refer to a tag or an identifier, as in "a label on a can."

NOTE Display a "unit box for the day" in a prominent place so that children will have a context for the abstract numbers used in the day's activities, including facts practice. You can select the unit yourself or appoint a child each day to supply the day's unit. Children might choose topics of current interest or fanciful or silly labels. Throughout the day, individuals can use the "unit for the day" or pick their own.

1 Warm Up 15-20 min

Mental Math and Fluency

Flash the following Quick Look Cards in sequence: 102, 78, and 82. Always allow a second look and follow up by asking both *what* children saw and *how* they saw it. Asking such questions allows a variety of strategies to emerge.

- Quick Look Card 102 Sample answer: I see 6 in the first one and 6 in the second one, and 6 and 6 makes 12.
- Quick Look Card 78 Sample answer: I thought of 4 and 4, which is 8, but 1 is missing so there are 7.
- Quick Look Card 82 Sample answer: I moved them together into one frame and saw 1 was missing, so there are 9.

Daily Routines

Have children complete daily routines.

2) Focus

20-30 min

Math Message

There are 5 children skating.

There are 8 children playing ball.

How many children are there in all? 13

Representing Number Stories

WHOLE CLASS SMALL GROUP PARTNER INDEPENDENT

Math Message Follow Up Have children share with a partner their strategies for solving the Math Message problem. Then have some volunteers share their strategies with the class.

Children might count on their fingers, make tallies for 5 and 8 and count them, count 5 more from 8, or add 5 and 8 using a strategy such as making 10 (for example, 8 + 5 = 8 + 2 + 3).

Display "5 children + 8 children = 13 children" under the Math Message and point out that this is one way to represent an **addition number story.**

Introduce the **unit box** as a tool for establishing a real-world context for numbers. Unit boxes may appear beside individual problems or at the top of a page of problems. Unit boxes contain the **labels** or units of measure used in the problem(s). Explain that filling in a unit box with a label for the numbers in the story means you won't have to repeat the label.

Using a unit box, the Math Message story can be shown this way:



Emphasize that 5 + 8 = 13 is called a **number model.**

Creating and Solving Addition Number Stories

WHOLE CLASS SMALL GROUP PARTNER INDEPENDENT

Explain to the class that today they will make up and solve number stories. Do the following for several stories:

- **1.**Display the story or draw a picture that illustrates the story but doesn't suggest a solution strategy.
- 2. Draw an empty unit box below the story.
- **3.** Have children write a label in the unit box and share how they would answer the question in the story.
- **4.** Ask a volunteer to write a number model for the story. **GMP2.1**
- **5.** Ask another volunteer to explain how the numbers in the number model connect to the story. **GMP2.2**

Most of the stories will probably fit in one of these two categories:

Parts-and-Total

Two or more separate parts are known. Find the total. *For example:* Beth has 7 dollars. Joe has 6 dollars. How many dollars do they have in all?

Change-to-More

Start with a given number of items. Increase that number. How many are there now? *For example:* Beth has 7 dollars. Joe gave her 6 dollars. How many dollars does Beth have now?

NOTE *Everyday Mathematics* uses the terms *parts-and-total, change,* and *comparison* to describe situations that lead to addition and subtraction problems. Parts-and-total can also be referred to as "putting together," and change-to-more is sometimes called "adding to."

Writing Number Stories

Math Journal 1, p. 19

WHOLE CLASS SMALL GROUP PARTNER INDEPENDENT

Have partners describe to each other what they see in the picture at the top of journal page 19. Then read the directions with the class and have children complete the page.

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



Math Journal 1, p. 20



Children's stories may include the following:

Parts-and-Total Stories

- There are 7 ducks swimming. There are 3 ducks in the grass. How many ducks are there in all? 10 ducks; 7 + 3 = 10
- There are 6 children sitting. There are 3 children walking. How many children are there in all? 9 children; 6 + 3 = 9

Change-to-More Stories

- There are 7 ducks swimming. Then 3 ducks get in the pond. How many ducks are swimming now? 10 ducks; 7 + 3 = 10
- There are 6 children sitting. Then 3 more children come and sit down. How many children are sitting now? 9 children; 6 + 3 = 9

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 writing number models. For example:
 + = =

·		
unit	unit	unit

 Use classroom objects to model writing an addition number model (for example, 5 crayons + 4 crayons = 9 crayons). GMP2.1 Think aloud as you fill in the sentence frame and model by reading the complete sentence.

Go Online Main Support



Assessment Check-In 2.0A.1

Math Journal 1, p. 19

Expect most children to succeed at writing an addition number story that matches the picture on journal page 19, writing a number model to represent their number story, and solving their number story. For those who struggle with one or more of these tasks, suggest that they model their stories with manipulatives or tallies as described in the Adjusting the Activity note or have them complete the Extra Practice activity on page 157. **GMP2.1**



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

Summarize Volunteers share their stories and number models and explain the meanings of the numbers in their number models. GMP2.1, GMP2.2



Completing Number-Grid Puzzles

Math Journal 1, p. 20

WHOLE CLASS SMALL GROUP PARTNER INDEPENDENT

Have children complete journal page 20. Number-grid puzzles were introduced in Lesson 1-5.

If children are able to complete the first grid but not the second, tell them to ignore the digits in the hundreds place for the numbers in the second grid. Guide children with the following suggestions and questions:

- Ignore the hundreds. Which number comes after 32? Write it in the grid. Children should write 33 in the next space on the grid, leaving a bit of room to the left of the tens place.
- Now remember the hundreds place and write 3 in front of 33.
- The number that comes after 332 is 333.

Differentiate Adjusting the Activity

- Provide additional clues for completing the number-grid puzzles by filling in several of the blue cells.
- Have children use their calculators or a filled-out number grid to find 1 more, 1 less, 10 more, and 10 less. Differentiation Support 8/18

Go Online

Math Boxes 2-2

Math Journal 1, p. 21

WHOLE CLASS SMALL GROUP PARTNER INDEPENDENT

Mixed Practice Math Boxes 2-2 are paired with Math Boxes 2-4.

Home Link 2-2

Math Masters, p. 28

Homework Children write an addition number story.

		in the				
	Math Jouri	าส	<i>1,</i> p. 21			
	Math Boxes		Lesso	in 2-2		
	● Use a number grid. How many spaces from 18 to 28? 10 49 to 59? 10 ■ • • • • • • • • • • • • •	0	Show \$1. Use (P), (W), (W), (W), (W), (W), (W), (W), (W	nd ©. swer: are larger that cles next to s. up. pencils uny pencils cup? pencils	U 146	「「「「「「「」」」」」「「「」」」」」」」」「「「」」」」」」」」」」」
	① 2.NBT.2, 2.NBT.8 ② 2.MD.8 ③ ④ 2.NBT.4 ③ 2.NBT.2 ④ 2.OA.1, ;	2.N 2.O <i>F</i>	<u>sample an</u> 6 + 3 = ?; BT.4	swers: 6 + 3 = 0	21	C. S. S. S. S. S.
	Math Mast	er	s, p. 28			いため していていていたい ひろうえいたい からい
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Story:Answers vary. Number model: Practice (2) $2 + 2 = 4$ (3) $4 + 4 = 8$ (4) 5 (5) $\frac{7}{2}$						いたいとうないというないというないという
28	<u>+ ∋</u> 10 twenty-eight 2.OA.1, 2.OA.2	14				



Subtraction and the Turn-Around Rule

Overview Day 1: Children solve an open response problem by writing number stories and models. **Day 2:** Children discuss solutions and revise their work.

Day 1: Open Response

Before You Begin

If possible, schedule time to review children's work and plan for Day 2 of this lesson with your grade-level team.

Vocabulary

turn-around rule • number story

Standards Focus Clusters

• Represent and solve

Warm Up 15-20 min Materials	 problems involving addition and subtraction. Add and subtract within 20. Use place value understanding and properties of operations to add and subtract.
Mental Math and Fluency	2.0A.1, 2.0A.2
Children solve number stories using addition and subtraction facts.	
Daily RoutinesSee pages 4–43.Children complete daily routines.	See pages xiv–xvii.

Focus

20

Math Message Children write a number model to represent a number story and discuss what makes a story a number story.	Math Journal 1, p. 31	2.0A.1, 2.0A.2 SMP4
Writing Number Stories and Number Models Children discuss their number models, the turn-around rule for addition, and what makes a story a number story.	Math Journal 1, p. 31	2.0A.1, 2.0A.2 SMP4, SMP8
Solving the Open Response Problem Children create a subtraction number story and write a number model to represent it. They use this work to explore whether the turn-around rule works for subtraction.	<i>Math Masters</i> , pp. 38–39; <i>My</i> <i>Reference Book</i> , p. 22; Standards for Mathematical Process and Practice Poster	2.OA.1, 2.OA.2, 2.NBT.9 SMP1, SMP4, SMP8

45–55 min

Review children's work and plan discussion for reengagement.

Math Masters, p. TA5; children's work from Day 1



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


Mental Math and Fluency

Pose number stories and have children share their solutions and strategies.

- CO Logan has 4 red tomatoes and 8 yellow tomatoes. How many tomatoes does he have in all? 12 tomatoes
- Gavin has 8 red grapes and 13 green grapes. How many more green grapes than red grapes does he have? 5 more green grapes
- Johan has 7 raisins in his hand and some in a baggie. He has
 16 raisins in all. How many raisins are in Johan's baggie? 9 raisins

Daily Routines

Have children complete daily routines.



Math Message

Math Journal 1, p. 31

Turn to journal page 31. Do Problem 1, then talk with your partner. GMP4.1

Writing Number Stories and Number Models

Math Journal 1, p. 31

WHOLE CLASS SMALL GROUP PARTNER INDEPENDENT

Math Message Follow-Up Ask children to share their number models. Most will have 2 + 8 = 10 because that is the order of the addends in the story. Look for a child who wrote 8 + 2 = 10 and focus attention on that solution. Ask: *Can we write the number model this way?* Yes. *Why?* GMP4.1 Sample answer: Because the turn-around rule says both number models have the same sum.

Standards and Goals for

Mathematical Process and Practice

SMP1 Make sense of problems and persevere in solving them.

GMP1.2 Reflect on your thinking as you solve your problem.

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SMP4 Model with mathematics.

GMP4.1 Model real-world situations using graphs, drawings, tables, symbols, numbers, diagrams, and other representations.

SMP8 Look for and express regularity in repeated reasoning.

GMP8.1 Create and justify rules, shortcuts, and generalizations.

Professional Development

The focus of this lesson is **GMP8.1**. In this lesson, children sharpen their understanding of the turn-around rule as they discuss others' number stories and realize that the rule does not apply to subtraction.

Math Journal 1, p. 31



Write a number model for this number story. Jessica has 2 dogs and 8 goldfish. How many pets does she have in all? <u>Sample answer: 2 + 8 = 10 pets</u> Talk with a partner about what makes a story a number story.

2.OA.1, 2.OA.2, SMP4

ELL Support

If children have trouble writing a number story, ask them to explain their story to you using manipulatives, drawings, or other models. If the difficulties appear to be language-based, scaffold the task by using sentence frames based on the child's story. For example: "Marco had _____ carrots. He gave _____ carrots to Alma. He had ______ carrots left."

Math Masters, p. 38

Subtraction and the Turn-Around Rule

 Make up a simple subtraction number story. Write it below. Draw a picture that matches your story. Answers vary.
 See sample children's work on page 193 of the Teacher's Lesson Guide.

Write a number model for your number story.

38 thirty-eight 2.OA.1, 2.OA.2, SMP1, SMP4

To model the **turn-around rule** in an addition **number story**, present a new version of the Math Message with the order of the addends reversed. Say: Jessica has 8 goldfish and 2 dogs. How many pets does she have in all? Ask: Does this number story still make sense? Yes. Why? Because Jessica still has 8 goldfish and 2 dogs. Is the total number of pets the same or different? **GMP8.1** The same

Ask children to share their thoughts on what makes a story a number story. Ask: *How is a number story different from other types of stories*? Sample answers: Number stories include both words and numbers. They often end with a question or something you have to figure out.

Tell children that they are each going to write a number story and use it to think more about the turn-around rule. **GMP8.1**

Solving the Open Response Problem

Math Masters, pp. 38–39

WHOLE CLASS SMALL GROUP PARTNER INDEPENDENT

Distribute *Math Masters*, page 38 and read Problem 1 as a class. Point out that children can use the blank space to illustrate their number stories. Tell children to use numbers up to 20 in their number stories, and remind them to include a number model. **GMP4.1**

Differentiate

Adjusting the Activity

If children have difficulty writing a subtraction number story, explain that a subtraction number story might involve taking away a number of things from some starting amount. Help struggling children develop their own approach by providing several examples of addition and subtraction number stories. Have children who continue to struggle name something they can share. Recommend the sentence frames as described in the English Language Learners note to help them write their number stories.

After most children have finished their number stories, number models, and pictures, distribute *Math Masters*, page 39. Partners should share ideas about this task, but each child should complete a solution. Read Problem 2 as a class. Tell partners to think about the turn-around rule using the subtraction fact from their number model in Problem 1. Prompt partners to discuss how the turn-around rule would affect their subtraction number stories. **GMP1.2** Remind children how the turn-around rule was applied to the addition number story in the Math Message.

For children who have trouble getting started with Problem 2, ask whether the number story would still make sense if they switched the order of the numbers. Expect some children to know that the turn-around rule does not work for subtraction—but to have difficulty explaining why. **GMP1.2** Some children may know how to do subtraction on a number line or number grid and see that the turn-around fact gives a negative result, for example, 3 - 5 = -2. Other children may assume (incorrectly) that the turn-around fact results in 0 and report that 3 - 5 = 0. However, what is most important for children to recognize is that with a subtraction fact, the answer is not the same as the original fact when switching the order of the two numbers in the problem. Encourage children to make a new illustration showing how the turn-around rule does not work when applied to their subtraction number story. **GMP8.1**

NOTE If a child writes a story in which the result is 0, such as 5 - 5 = 0, then switching the order of the 5s will not change the result. Discussing this example could be an interesting conversation.

Summarize Have children read *My Reference Book*, page 22 on GMP8.1. Ask: *How did Rosa explain how she used doubles to help her figure out other facts?* Answers vary. Ask: *How did you explain that the turnaround rule does not work for subtraction?* Answers vary. Refer children to GMP8.1 on the Standards for Mathematical Process and Practice Poster.

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

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Getting Ready for Day 2

Math Masters, p. TA5

Planning a Follow-Up Discussion

Review children's work. Use the Reengagement Planning Form (*Math Masters*, page TA5) and the rubric on page 191 to plan ways to help children meet expectations for both the content and process/practice standards. Look for common misconceptions as well as drawings or explanations that clearly illustrate that the turn-around rule does not work for subtraction.



Common Misconception

Differentiate For a number model such as 9 - 2 = 7, some children apply the turn-around rule by writing 9 - 7 = 2. This is an effort to switch the order of the numbers in a way that makes sense and creates a true equation, but it misapplies the turnaround rule. Direct children back to the Math Message and point out how the turn-around rule works for addition facts. When addends are reversed, the sum remains the same. Return their attention to the subtraction example, noting that the two numbers in the problem (the minuend and subtrahend) should be switched to check whether the turn-around rule works.

Sample child's work, Child A
① Make up a simple subtraction number story. Write it below. Draw a picture that matches your story.
Satrah got 6 Cootjes she eats 4 how meany are left.
Write a number model for your story. <u>6-4= 2</u>
Use your number model or number story to help explain your thinking.
4 - 0 = 0
Becos 4 - 0 13 Tower then 2
Its not thue
Sample child's work, Child B
① Make up a simple subtraction number story. Write it below.
these are 10 Pins
Frin donw. How thany now?
Write a number model for your story. $10^{-1} U = 4$
② Do you believe the turn-around rule works for subtraction?
I his is not going to make serve. You can not konck to when there are bein.

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.

- Show a response that includes an explanation focused on the number model. Child A switches the appropriate numbers in the model and knows the result is a number that is smaller than 2. This is evidence that the child understands why the turnaround rule does not work for subtraction. GMP8.1 Ask:
 - *Is this a subtraction number story?* Yes. *How do you know?* Sample answer: There are words and numbers; it talks about taking something away; there is something to figure out.
 - Does the number model match the number story? GMP4.1 Yes. How? Sample answer: She started with 6 cookies, then she ate 4, and 2 are left.
 - Why do you think this child wrote 4 6 in Problem 2? GMP1.2 Sample answer: The child was trying the turn-around rule with 6 - 4.
 - Do you agree with this child's answer to Problem 2? Why? GMP8.1 Answers vary.
- 2. Show a response that includes an explanation focused on the effects of reversing the numbers in the number story. Child B switches the appropriate numbers in the story and shows understanding that changing the order produces a different and nonsensical result. As you display this type of response, ask:
 - What do you think this child is trying to tell us in Problem 2? Do you think this child believes the turn-around rule works for subtraction? GMP1.2, GMP8.1 Sample answer: This child is saying the turn-around rule doesn't work for subtraction.
 When the child switched the numbers 10 and 6 in the number story, it didn't make sense because you can't knock down 10 pins when there are only 6 to start with.
 - How can this child complete the response to Problem 1? Sample answer: Draw a picture.

Planning for Revisions

Have copies of *Math Masters*, pages 38–39 or extra paper available for children to use in revisions. You might want to ask students to use colored pencils so you can see what they revised.

Subtraction and the Turn-Around Rule

Overview Day 2: Children discuss solutions and revise their work.

vy z. Reenyuyement		Standards
Before You Begin Have extra copies available of <i>Math Masters</i> , pages 38–39 for childre	n to revise their work.	 Focus Clusters Represent and solve problems involving addition and subtracti Add and subtract within Use place value understanding and properties of operation
Setting Expectations	Guidelines for Discussions Poster	to add and subtract.
Children revisit guidelines for a cooperative learning environment and discuss what needs to be included in a full response.		
Reengaging in the Problem Children view examples of others' subtraction number stories and discuss how number stories and number models helped them decide whether the turn-around rule applies to subtraction.	selected samples of children's work	2.OA.1, 2.OA.2, 2.NB SMP1, SMP4, SMP8
Revising Work Children improve the clarity and completeness of their number stories and explanations.	<i>Math Masters</i> , pp. 38–39 (optional); children's work from Day 1; colored pencils (optional)	2.0A.1, 2.0A.2, 2.NB SMP1, SMP4, SMP8
Assessment Check-In See page 193 and the rubric b	pelow.	2.OA.1 SMP8

Goal for	Not Meeting	Partially Meeting	Meeting	Exceeding
Mathematical	Expectations	Expectations	Expectations	Expectations
Practice GMP8.1 Create and justify rules, shortcuts, and generalizations.	Shows no evidence of making a decision or reasoning about whether the turn- around rule is valid for subtraction.	Indicates that the turn-around rule does not work for subtraction but provides no justification. OR Describes how applying the turn- around rule results in a different answer, is impossible, or does not make sense for the number model or number story.	Justifies a decision that the turn-around rule does not work for subtraction by describing how it results in a different answer, is impossible, or does not make sense when applied to the number model or number story.	Meets expectations and describes the results of the turn-around fact in both the number model and number story.

3 Practice 10-15 min

Math Boxes 2-7	Math Journal 1, p. 32	See page 192.
Children practice and maintain skills.		
Home Link 2-7	Math Masters, p. 40	2.0A.1, 2.0A.2
Homework Children write number models for a number st	ory	SMP1, SMP4
and use the turn-around rule to write number sentences.		

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

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NOTE These Day 2 activities will ideally take place within a few days of Day 1. Prior to beginning Day 2, see Planning a Follow-Up Discussion from Day 1.

Guidelines for Discussions

During our class discussions, we can:

- ✓ Make mistakes and learn from them
- ✓ Change our minds
- V Ask questions
- ✓ Listen closely to others' ideas
- ✓ Share ideas and strategies respectfully
- ✓ Feel confused

Math Journal 1, p. 32





2b) Focus 50–55 min

Setting Expectations

WHOLE CLASS SMALL GROUP PARTNER INDEPENDENT

Revisiting Guidelines for Reengagement

To promote a cooperative environment, consider revisiting the class guidelines for discussion that you developed in Unit 1. Review the guidelines and have children reflect on how well they are following them. Solicit additional guidelines from the class. Your revised list might look like the one in the margin.

Model or have children role-play situations based on one or more of the class guidelines. Add sentence frames to the ones you introduced in Unit 1 and encourage children to use them when discussing other children's work:

- I noticed ______
- I don't understand ______.
- I like how you ____ ____·
- I wonder why _____
- Could you explain _____? I think this could be improved if _____.

Reviewing the Problem

Review the open response problem from Day 1. Ask: What do you think a full answer to this problem needs to include? Sample answer: a number story, a drawing, a number model, and an explanation about the turn-around rule and subtraction

Tell children that they are going to look at other children's work and think about those explanations.

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 in partners before sharing with the whole group. Guide this discussion based on the decisions you made in Getting Ready for Day 2. GMP1.2, GMP4.1, GMP8.1

Revising Work

WHOLE CLASS SMALL GROUP PARTNER INDEPENDENT

Pass back children's work from Day 1. Before children revise anything, ask them to examine their number story, drawing, number model, and explanation and decide how to improve them. Ask the questions below one at a time. Have partners discuss their responses and give a thumbs-up or thumbs-down based on their own work.

- Did you write a subtraction number story? Did you include a drawing? **GMP1.2**
- Does your number model match your number story? GMP4.1

• Did you decide whether the turn-around rule works for subtraction? Does your explanation connect to your number story or number model? GMP8.1

Tell children they will now revise their work. Help them see that the explanations shown in the reengagement discussion are not the only correct ones. Tell children to add to their earlier work using colored pencils or to use another sheet of paper, instead of erasing their original work.

Summarize Have children reflect on their work. Ask: *What did you do to improve your work?* **GMP1.2** Answers vary.



Assessment Check-In 2.0A.1

Collect and review children's revised work. Expect children to improve their number stories, drawings, number models, and explanations based on the class discussion. For the content standard, expect most children to show in Problem 1 that they can use subtraction to solve a one-step word problem. You can use the rubric on page 191 to evaluate children's revised work for **GMP8.1**.



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 created a subtraction number story and wrote a correct related number model. With revision, the work for Problem 2 meets expectations for the mathematical process and practice standard because the child gives a justification of the claim that the turn-around rule does not work for subtraction and an explanation of why it does not make sense. **GMP8.1**



Math Boxes 2-7

Math Journal 1, p. 32

 WHOLE CLASS
 SMALL GROUP
 PARTNER
 INDEPENDENT

Mixed Practice Math Boxes 2-7 are paired with Math Boxes 2-5.

Home Link 2-7

Math Masters, p. 40

Homework Children write number models for a number story and use the turn-around rule to write number sentences. **GMP1.2, GMP4.1**

Sample child's work, "Meeting Expectations"
) Make up a simple subtraction number story. Write it below.
The When 7 Socker baals In chiet 3 up on the roof How Meney Sockr daals are left?
* *
2) Do you believe the turn-around rule works for subtraction?
Use your number model or number story to help explain your thinking. If WIIL NOT Work Because IF I Hade 3-socker balls and I kICKT 7 on The roof it is in posibal Because I onley Have 3 Socker bols.
Go Online for other samples of
evaluated children's work.
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Exploring Addition Tools, Odd and Even Patterns, and Shapes

Overview Children explore counting up, odd and even numbers, and shapes.

Materials

See pages 4-43.

Standards

Focus Clusters

for multiplication.

add and subtract.

attributes.

• Work with equal groups of objects to gain foundations

• Use place value understanding and properties of operations to

• Reason with shapes and their

2.0A.1, 2.0A.2

See pages xiv-xvii.

Before You Begin

Make 3 copies of *Math Masters*, page TA2 per child for Exploration A and 2 copies of *Math Masters*, page 44 per child for Exploration B. For Exploration C you may want to have extra geoboard dot paper available. Use *Math Masters*, page TA9 for 5-by-5 geoboards and *Math Masters*, page TA10 for 7-by-7 geoboards.

Vocabulary

divide • half • halves • fourths

Warm Up 15-20 min

Mental Math and Fluency Children solve number stories.

Daily Routines

Focus

Children complete daily routines.

30–40 min

Math Message Children count up.		2.NBT.2
Sharing Strategies for Counts Children share their strategies for counting.	Class Number Line	2.NBT.2
Exploration A: Using Tools to Add Children find sums using number lines and number grids.	Activity Card 26; <i>Math Journal 1,</i> p. 33; 3 copies of <i>Math Masters,</i> p. TA2	2.NBT.7, 2.MD.6 SMP2, SMP5
Exploration B: Sorting Dominoes Children sort dominoes based on whether the dots on the two sides are both even, both odd, or one even and one odd.	Activity Card 27; <i>Math Masters,</i> pp. 42–43; 2 copies of <i>Math</i> <i>Masters,</i> p. 44; per partnership: 1 set of double-9 dominoes	2.0A.2, 2.0A.3 SMP7
Exploration C: Making Geoboard Shapes Children make shapes, designs, or pictures on geoboards and record them on geoboard dot paper.	Activity Card 28; <i>Math Journal 1</i> , p. 34; <i>Math Masters</i> , pp. TA9–TA10 (optional); geoboard; rubber bands	2.G.1, 2.G.3

3) Practice 10-15 min

Playing The Exchange Game Game Children play <i>The Exchange Game</i> with \$1, \$10, and \$100 bills.	<i>My Reference Book,</i> pp. 146–148; <i>Math Masters,</i> p. G14; toolkit bills; per partnership: 1 die	2.NBT.1a, 2.NBT.3, 2.MD.8 SMP5
Math Boxes 2-8 Children practice and maintain skills.	Math Journal 1, p. 35	See page 199.
Home Link 2-8 Homework Children count up using a number line and a number grid.	Math Masters, p. 45	2.NBT.7, 2.MD.6

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

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Differentiation Options



English Language Learner

Beginning ELL Help children connect the words in a number story to the symbols in a number model. Use teacher think-alouds and demonstrations with objects to roleplay a number story once through. Then recount the same number story, representing it with a number model. Read other number stories and ask children to select the correct corresponding number model from a list of examples.



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

Standards and Goals for Mathematical Process and Practice

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SMP2 Reason abstractly and quantitatively.

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

GMP2.3 Make connections between representations.

SMP5 Use appropriate tools strategically.

GMP5.2 Use tools effectively and make sense of your results.

SMP7 Look for and make use of structure. GMP7.1 Look for mathematical structures such as categories, patterns, and properties.

1) Warm Up 15-20 min

Mental Math and Fluency

Pose number stories for children to solve. Have children share their strategies. *Leveled exercises:*

- Olivia's soccer team has 6 soccer balls. Carson's soccer team has 7 soccer balls. How many soccer balls do the two teams have all together? 13 soccer balls
- Ruth has 11 books in her library bag. Five of the books are for her brother Jason. How many books are not for Jason? 6 books
- Meredith is 17 years old. She is 8 years older than her sister Maddie. How old is Maddie? 9 years old

Daily Routines

Have children complete daily routines.



Math Message

Start at 0 and count up to 46. You may count by any combination of 1s, 5s, and 10s or any other way you want. Be prepared to share your strategy.

Sharing Strategies for Counts

WHOLE CLASS SMALL GROUP PARTNER INDEPENDENT

Math Message Follow-Up Use a pointer with the Class Number Line to help children demonstrate their counts. Look for the following strategies:

- Count by 10s to 40 and then by 1s: 10, 20, 30, 40, 41, 42, 43, 44, 45, 46. Model four jumps of 10 and six jumps of 1.
- Count by 20s to 40 and then make 1 count of 6: 20, 40, 46. Model two jumps of 20 and one jump of 6.

Explain that children will explore how to use number grids and number lines to show counting and addition strategies.

Exploration A: Using Tools to Add

Activity Card 26; *Math Journal 1*, p. 33; *Math Masters*, p. TA2
WHOLE CLASS SMALL GROUP PARTNER INDEPENDENT

Partners follow the instructions on journal page 33 to represent sums on number grids and number lines and record their work. GMP2.1, GMP2.3, GMP5.2



Activity Card 26

Exploration B: Sorting Dominoes

Activity Card 27; *Math Masters*, pp. 42–44
WHOLE CLASS **SMALL GROUP PARTNER** INDEPENDENT

Children work in partnerships to sort dominoes into three groups: those with two even-numbered groups of dots, those with two oddnumbered groups of dots, and those with one even- and one oddnumbered group. **GMP7.1** Encourage children to use the terms *odd* and *even* as they sort. Children should find 15 dominoes that show two even numbers, 15 dominoes that show two odd numbers, and 25 dominoes that show one even number and one odd number.

Differentiate Adjusting the Assessment

Some children might benefit from a guide for each of the three sorts. Display an enlarged copy of each of the example dominoes from *Math Masters*, pages 42–44 for children to reference when sorting.

Go Online Differentiation Support





Exploration C: Making Geoboard Shapes

Activity Card 28; Math Journal 1, p. 34

WHOLE CLASS SMALL GROUP PARTNER INDEPENDENT

Children make shapes, designs, or pictures with rubber bands on their geoboards and record them on geoboard dot paper on journal page 34. If children need additional dot paper, distribute copies of *Math Masters*, page TA9 or TA10.

Children work independently and as partners to make several geoboard shapes with three and four sides. You may wish to demonstrate this activity and model the vocabulary **divide, half, halves,** and **fourths.**

Academic Language Development Children may not be familiar with the plural form of the word *half* and may not be aware when they hear the term *halves* that it refers to more than one half. Model the word *half* by showing both the singular and plural forms of the word in writing and with numbers (for example, 1 half and 2 halves). Refer to other words that may be more familiar to children, such as *knife* and *knives* and *calf* and *calves*. This helps them generalize that the plural form of some words ending in *f* is formed with *-ves* and to use the term *halves* more readily.



Activity Card 28

Summarize Children share and discuss the mathematics they engaged in for each exploration.



Playing The Exchange Game

My Reference Book, pp. 146-148; Math Masters, p. G14

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Partners play the game as introduced in Lesson 2-1. See *My Reference Book*, pages 146–148 for directions.

Observe

- Which children are making appropriate exchanges? GMP5.2
- Which children need additional support to understand and play the game?

Discuss

- How did you and your partner or group work together?
- What mathematics did you use in this game?

🕨 Math Boxes 2-8 🧩

Math Journal 1, p. 35

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Mixed Practice Math Boxes 2-8 are paired with Math Boxes 2-6 and 2-11.

Home Link 2-8

Math Masters, p. 45

Homework Children count up using a number line and a number grid.





Unit 2 Progress Check

Overview Day 1: Administer the Unit Assessments. Day 2: Administer the Cumulative Assessment.





- **Quick Entry Evaluation** Record results and track progress toward mastery.

1)	Warm Up 5–10 min	Materials
	Self Assessment Children complete the Self Assessment.	Assessment Handbook, p. 11
2a)	Assess 35–50 min	
*	Unit 2 Assessment These items reflect mastery expectations to this point.	Assessment Handbook, pp. 12–13
	Unit 2 Challenge (Optional) Children may demonstrate progress beyond expectations.	Assessment Handbook, p. 14

Standards	Goals for Mathematical Content (GMC)	Lessons	Self Assessment	Unit 2 Assessment	Unit 2 Challenge
2.OA.2	Add within 20 fluently.	2-2 to 2-12	1–3, 5, 6	1a–1f, 2, 3a–3b, 4a–4b, 5	2
	Subtract within 20 fluently.	2-7, 2-10 to 2-12		5	
	Know all sums of two 1-digit numbers automatically.	2-2 to 2-12	1–3, 5, 6	1a–1f, 2, 3a–3b, 4a–4b, 5	2
2.OA.3	Determine whether the number of objects in a group is odd or even.	2-6, 2-8 to 2-10	4	6	
	Express an even number as a sum of two equal addends.	2-9, 2-10		6	
2.NBT.7	Add multidigit numbers using models or strategies.	2-5, 2-7, 2-8			1
2.NBT.9	Explain why addition and subtraction strategies work.	2-5, 2-7			1
	Goals for Mathematical Practice (GMP)				
SMP2	Create mathematical representations using numbers, words, pictures, symbols, gestures, tables, graphs, and concrete objects.	2-1, 2-2, 2-8 to 2-11			2
	Make sense of the representations you and others use. GMP2.2	2-2, 2-4, 2-5 to 2-9			2
SMP3	Make sense of others' mathematical thinking. GMP3.2	2-3 to 2-5		2	1

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

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Children complete the Self Assessment to reflect on their progress in Unit 2.

Put a check in the box that tells he you do each skill.	** ki i			Jnit 2
Skills	I can do this. I can explain how to do this.	I can do this by myself.	I can do this with help.	Self
 Tell what I saw in a Quick Look. 				Asse
(2) Know doubles facts.	12			ssme
③ Know combinations of 10.	M21 32			int
Use counters to figure out if a number is odd or even.	9427 1963			
Say two different names for a number.	M21			
6 Use the turn-around rule.	ina -			

Assessment Handbook, p. 11



Unit 2 Assessment

Assessment Handbook, pp. 12–13

	WHOLE CLASS	SMALL GROUP	PARTNER	INDEPENDENT
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Children complete the Unit 2 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.





Assessme

Unit 2 Challenge

NAME

(1) Katie knew that 70 + 70double to solve 70 + 80Answers vary but fact that 70 + 70 = 140. Sample answer: She knew that 80 is 10 more than 70, so 70 + 80 has to be 10 more than 70 + 70, or 150 (2) In the first frame, draw 7 counters one way. In the second ten frame, draw 7 counters a different way. Below each ten frame, explain how the counters show the number 7. Use numbers or words. Names for 7.

Sample answers:	Sample answer
5 + 2;	4 + 3;
2 more than 5	3 + 3 + 1

Assessment Handbool

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nt Handbook, p	o. 14		
DATE Lesso	on 2-13		► U
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) = 140. Explain how she can).	use this	ŝ	W
it should include us	e of the		

Differentiate Adjusting the Assessment Item(s) Adjustments To scaffold item 1, provide children with counters and a double ten 1 frame. 2 To scaffold Item 2, have children use a double ten frame to model and verbally explain Mallory's thinking. 3 To extend Item 3, have children explain how the helper fact helps them solve the fact. To scaffold item 4, provide children with the actual domino. 4 5 To extend item 5, have children use a variety of representations, including more than one operation, tallies, and the number name. 6 To scaffold item 6, provide children with a double ten frame.

vice for Differentiation

ecause this is the beginning of the school year, all of the content cluded on the Unit 2 Assessment was recently introduced and will revisited in subsequent units.

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 144–145 or the online Spiral Tracker for details on Unit 2 focus topics and the spiral.

nit 2 Challenge (Optional)

sessment Handbook, p. 14

HOLE CLASS SMALL GROUP PARTNER INDEPENDENT

Children can complete the Unit 2 Challenge after they complete the Unit 2 Assessment.



Overview Day 2: Administer the Cumulative Assessment.

Day 2: Cumulative Assessment

30–45 min

Cumulative Assessment

Assess

imes These items reflect mastery expectations to this point.

Standards	Goals for Mathematical Content (GMC)	Cumulative Assessment
2.OA.2	Add within 20 fluently.	4, 5
	Know all sums of two 1-digit numbers automatically.	4, 5
2.NBT.2	Count by 1s.	1
	Count by 5s, 10s, and 100s.	2, 3
2.MD.8	Solve problems involving coins and bills.	6
	Read and write monetary amounts.	6

Materials

Assessment Handbook, pp. 15-16

3) Look Ahead 10-15 min

	Materials
Math Boxes 2-13	Math Journal 1, p. 44
Children preview skills and concepts for Unit 3.	
Home Link 2-13	Math Masters, pp. 57–60
Children take home the Family Letter that introduces Unit 3.	



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

Assessment Handbook, p. 15

	, p
NAME -	DATE Lesson 2-13
Unit 2 Cumulative As	ssessment
 Fill in the missing numbers. 	
	17 118 119 120
(2) Count by 5s. 5 10 15 20	(3) Count by 10s. 80 90 100 110
25 30 35	120 130 140
40 45 50	150 160 170
55	180
(4) Write all the double facts. \bigcirc 1 \pm 1 $-$ 2	rder varies. $2 \pm 2 = 11$
$\frac{1+1-2}{3+3=6}$	$\frac{2+2-4}{4+4=8}$
5 + 5 = 10	6 + 6 = 12
7 + 7 = 14	8 + 8 = 16
9 + 9 = 18	10 + 10 = 20
	Assessment Masters 15
	E States States
Constant States	
	10.000
Carl Contraction and	
Construction (Construction)	
Assessment Ha	ndbook, p. 16
наме з	CATT Lesson 2-13
nit 2 Cumulative Assessment (cont	tinued)



2b Assess 30–45 min

Cumulative Assessment

Assessment Handbook, pp. 15–16

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Children complete the Cumulative Assessment. The problems in the Cumulative Assessment address content from Unit 1. This assessment can help you monitor learning and retention of some (but not all) of the content and process/practice standards that were the focus of that unit, as detailed in the Cumulative Assessment table on page 229. Successful responses to these problems indicate adequate progress at this point in the year.

Monitor children's progress on the standards using the online assessment and reporting tools.

Generic rubrics in the Assessment Handbook appendix can be used to evaluate children's progress on the Mathematical Process and Practice Standards.

Written assessments are one way children can demonstrate what they know. The table below shows adjustments you can make to the Cumulative Assessment to maximize opportunities for individual children and for your entire class.

D	Differentiate Adjusting the Assessment				
	ltem(s)	Adjustments			
	1, 2, 3	To scaffold items 1, 2, and 3, direct children to the Class Number Line or Number-Grid Poster.			
	4, 5	To scaffold Items 4 and 5, provide children with a double ten frame and counters.			
	6	To extend item 6, have children count a collection of coins that include pennies, nickels, dimes, and quarters.			

Advice for Differentiation

Because this is the beginning of the school year, all of the content included in the Unit 2 Cumulative Assessment was recently introduced and will be revisited in subsequent units.

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.



Math Boxes 2–13: Preview for Unit 3

Math Journal 1, pp. 44

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Mixed Practice Math Boxes 2-13 are paired with Math Boxes 2-9. These problems focus on skills and understandings that are prerequisite for Unit 3. You may want to use information from these Math Boxes to plan instruction and grouping in Unit 3.

Home Link 2–13: Unit 3 Family Letter

Math Masters, pp. 57-60

Home Connection The Unit 3 Family Letter provides information and activities related to Unit 3 content.



44 forty-four (1) 2.0A.2 (2) 2.0A.2 (3) 2.0A.2 (4) 2.0A.2 (5) 2.NBT.2

Math Masters, pp. 57-60



In Unit 3 your child will explore additional strategies for solving basic facts, focusing o strategies for solving subtraction facts. Children solve subtraction number stories and practice facts using games and routines.

practice facts using games and routines. In *Servigoly Mathematics* children larm several strategies for solving subtraction facts. By becoming familiar with a variety of strategies, children have the opportunity to choose a strategy that works best to solve a particular fact. The goal is not for every child to master every strategy: the goal is for children to find the strategies they best understand and can most successfull yapply. By encouraging discovery and practice, working with multiple strategies helps children develop fluency with subtraction facts, which will be important for computation with multidigit numbers later in the year.

Math Tools

MCTEN LOOIS Your child will use Fact Triangles, the Everyday Mathematics version of flash cards, to practice and review addition and subtraction facts. Each Fact Triangle shows realered addition and subtraction facts made from the same three numbers, which helps your child understand the relationships among the facts. Home Link 33 provides a more detailed description of Fact Triangles and includes as et of Fact Triangles through your child can use to practice addition and subtraction facts at home.

Vocabulary Important terms in Unit 3:

related facts Addition and subtraction facts that use the same three numbers. For example, 2 + 3 = 5 is related to 5 - 2 = 3, and 9 + 8 = 17 is related to 5 - 2 = 3. And 9 + 8 = 17 is related to 4 + 9 = 17. All the facts in a fact family are related facts.

Taminy are related tacts. addition/subtraction fact family. A collection of related addition and subtraction facts involving the same numbers. Most addition and subtraction fact families include two addition and two subtraction facts. For example, the addition/ subtraction fact family for the numbers 2, 4, and 6 consists of the following:

```
2 + 4 = 6 4 + 2 = 6
      6-4=2 6-2=4
Fact families involving doubles facts consis
of only two facts. For example, the addition
subtraction fact family for the numbers 7, 7
and 14 consists of the following:
         7 + 7 = 14 14 - 7 = 7
- 0 facts Subtraction facts in which the number 0 is subtracted from another number, such as 7 - 0 = 7 and 10 - 0 = 10.
```

11 +, -

A Fact Triangle showing the fact family for 3, 8, and 11

/3

fifty-seven 57

The dot designates the largest number.

8





Everyday Mathematics. How Children Learn.

- Fully digital options that adapt to your classroom
- Gives each student the opportunity to achieve
- Connects math to the world outside the classroom



