



# Everyday Mathematics®

The University of Chicago School Mathematics Project

GRADE

# K

**Mc  
Graw  
Hill**

## 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 xxxiv for more information.

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## 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 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 Mathematics*..... iv

*Everyday Mathematics* in Your Classroom..... x

- Lesson Overview and Components
- Digital Resources and Instructional Support
- Assessment and Differentiation
- Your Classroom Resource Package

Pathway to Mastery..... xxxiv

- 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.

Lesson  
**1-5**

## Getting to Know Numbers

**Overview** Children explore the numbers 0–9 to practice and reinforce early counting and numeration skills and principles.

56

**Standards**

**Focus Clusters**

- Know number names and the count sequence.
- Count to tell the number of objects.

► **Before You Begin** Choose a puppet or stuffed animal to be a “math mascot” for the class throughout the year. Fold index cards and label them 0–9, one number per card, to use for the Focus activity in this lesson (numbers 0 and 1) and the Practice activities in Lessons 1-6 through 1-13 (numbers 2–9).

► **Terms to Use** count • none • number • number words • one • set • zero

► **Materials** Focus: *Emily’s First 100 Days of School* by Rosemary Wells (Hyperion, 2005) or another number picture book; “Over in the Meadow” from *Sing Everyday!* in ConnectED; index cards labeled 0 and 1; puppet

## Focus Clusters

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

## Major Clusters

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

**Focus**

In this section, children learn and apply basic counting principles and explore a range of other mathematical topics, such as graphing, measurement and shapes.

**Major Clusters**

**K.CC.A** Know number names and the count sequence.

**K.CC.B** Count to tell the number of objects.

**Supporting Clusters**

**K.G.A** Identify and describe shapes.

**K.MD.B** Classify objects and count the number of objects in

**Process and Practice Standards**

**SMP2** Reason abstractly

**SMP6** Attend to precision

## Focus

In **Section 1**, children learn and apply basic counting principles and explore a range of other mathematical topics, such as graphing, measurement and shapes.

### Major Clusters

- K.CC.A** Know number names and the count sequence.
- K.CC.B** Count to tell the number of objects.

### Supporting Clusters

- K.G.A** Identify and describe shapes.

# Coherence Within and Across Grades

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
K.CC.1	In PreK, children learned and practiced the count sequence through 10 (and beyond as ready) through playful counting games, songs, and movement activities.	Children will continue to extend the count sequence across the year through activities and as they count objects of various sizes. They will learn to count by ones.


## Linking Prior and Future Knowledge

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

# Rigorous Content


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

Planning for Rich Math Instruction							
RIGOR				■ = Fact Work    Red text = Game			
	Conceptual Understanding	Procedural Skill and Fluency	Applications	Rich Tasks and Mathematical Reasoning	Mathematical Discourse	Distributed Practice	Differentiation Support
1-1 Partner Match	Length as a measurable attribute, p. 41	Daily Routines	Daily Routines Thinking of real-life situations for comparing lengths, p. 41 Blocks Connection, p. 42 Enrichment, p. 43	Reasoning about misaligned strips, p. 41 Thinking of real-life situations for comparing lengths, p. 41 Blocks Connection, p. 42	Discussing how to compare lengths and why, p. 41 Blocks Connection, p. 42	Daily Routines Establishing Daily Routines, p. 42	Common Misconception, p. 41 Differentiation Options, p. 43 Online Differentiation Support 1-1
1-2 Introduction to Pattern Blocks	Side as a geometric attribute, p. 45	Daily Routines	Daily Routines Literacy and Art Connection, p. 46	Exploring different ways to combine pattern blocks to create pictures, designs, and new shapes, p. 45	Discussing pattern-block shape similarities and differences, p. 45 Literacy and Art	Daily Routines Establishing Daily Routines, p. 46	ELL Support, p. 44 Academic Language Development, p. 45 Differentiation


 **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](http://my.mheducation.com) to use the Spiral Tracker.

★ **Spiral Towards Mastery Progress** The Spiral Trace outlines instructional trajectories for key standards in Section 1. For each standard, it highlights opportunities for Focus instruction, Practice activities, and assessment and describes the **degree of mastery**—as measured against the entire standard—expected at this point in the year.



**Counting and Cardinality**



★ **Progress Towards Mastery** By the end of Section 1, expect children to orally count accurately and efficiently from 1 to at least 10.

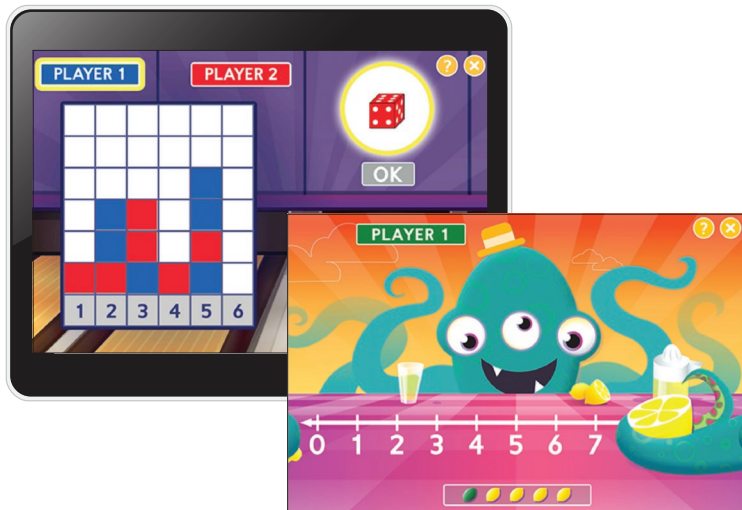
**Full Mastery of K.CC.1** expected by the end of Section 8.

## 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.

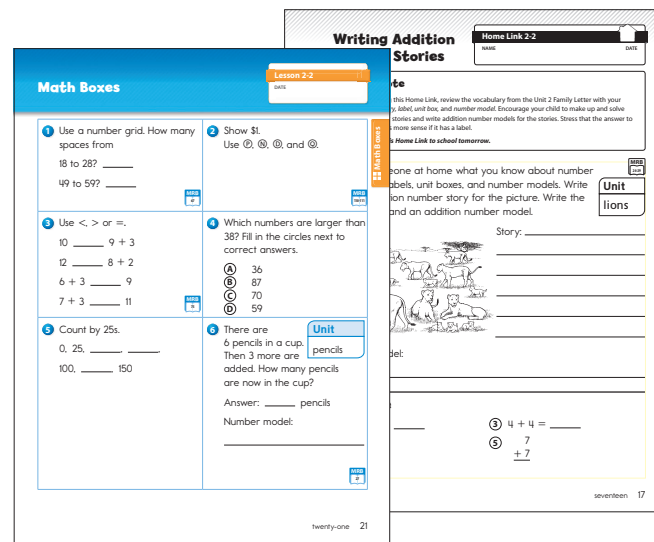
## Practice Embedded in Every Lesson

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



### Games

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



### Math Boxes

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

### Home Links

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



# Mathematical Literacy Sets The Stage for Algebra

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



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

# Be the Teacher They Will Always Remember

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



## Math Talk

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



**"I can share my solution!"**

## Collaboration

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



## 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 help teachers facilitate instruction and engineered to accommodate flexible grouping models.

## 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.

### Daily Routines

**Daily Routines** are a cornerstone of the Kindergarten curriculum. They provide children with security and predictability, helping build classroom community and collaboration, while providing meaningful opportunities to integrate mathematics into everyday activities.

### Core Activities

**Focus Activities** introduce new content, skills, concepts, and games and often involve group problem solving or class discussions.

**Practice Activities** provide spiraled practice by revisiting an earlier Focus activity, often with variations to make it more advanced or to encourage children to approach the activity in a new way.

**Lesson**  
**1-5**

## Getting to Know Numbers

**Overview** Children explore the numbers 0–9 to practice and reinforce early counting and numeration skills and principles.

► **Before You Begin** Choose a puppet or stuffed animal to be a “math mascot” for the class throughout the year. Fold index cards and label them 0–9, one number per card, to use for the Focus activity in this lesson (numbers 0 and 1) and the Practice activities in Lessons 1–6 through 1–13 (numbers 2–9).

► **Terms to Use** count • none • number • number words • one • set • zero

► **Materials** Focus: *Emily’s First 100 Days of School* by Rosemary Wells (Hyperion, 2005) or another number picture book; “Over in the Meadow” from *Sing Everyday!* in ConnectED; index cards labeled 0 and 1; puppet or stuffed animal “math mascot”; connecting cube; resealable plastic bags; small objects for counting (counters, buttons, beads, coins, etc.) Practice: pattern blocks; paper, placemats, or cookie sheets

**Assessment Check-In** See page 58. Expect that most children will be able to create small sets (1, 2, and 3), but may not be able to count out bigger sets yet.

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

### Daily Routines

⌚ 10–15 min | Children practice mathematics as they perform the Daily Routines. See pages 4–29 for related Mathematical Process and Practice Standards.

### Core Activities

**Focus: Exploring 0 and 1** **K.CC.3, K.CC.4a, K.CC.4b, K.CC.4c, K.CC.5**

⌚ 20–30 min **WHOLE CLASS** **SMALL GROUP** **PARTNER** **INDEPENDENT**

**Standards**

**Focus Clusters**

- Know number
- count sequen
- Count to tell

**ELL Support**

Use touch com  
children practic  
number repres  
of objects. For  
set that shows  
no questions ar  
require one-w  
example: Does  
How many butt

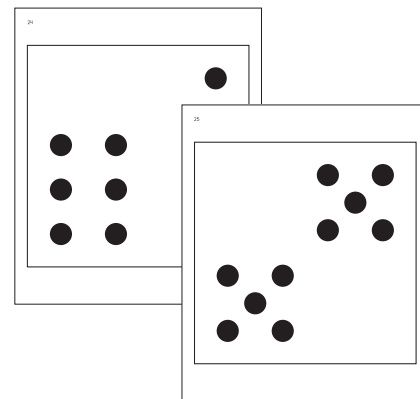
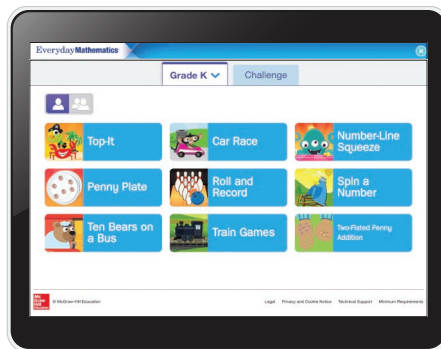
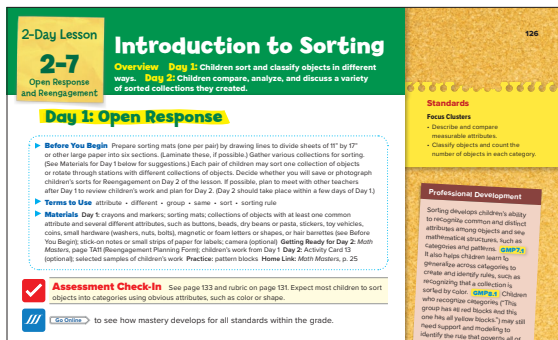
**Readiness**

You may wish to  
activity on page  
or all children to  
to count out set



# 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.



## Quick Looks

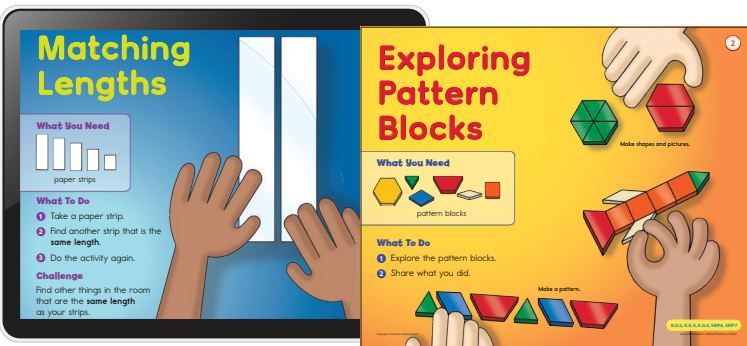
Quick Look activities are routines that help your children develop the ability to recognize a quantity without counting and to decompose numbers in various ways. As they encounter various combinations of numbers, they also develop strategies for basic facts.

## Open Response and Reengagement Lessons

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

## Games

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



## Activity Cards

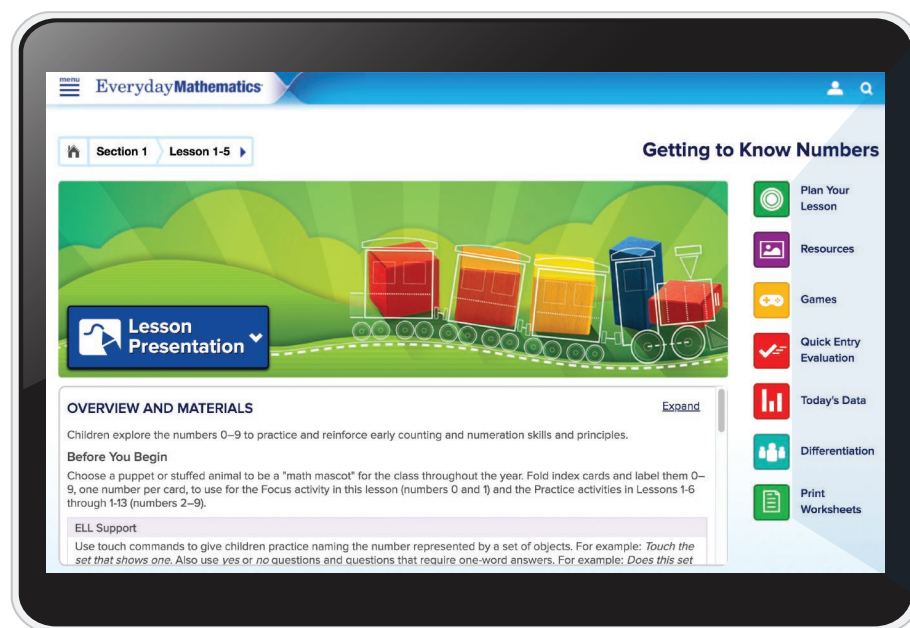
Activity Cards provide structured exploration of content tied to the focus of the lesson independently, in partnerships, and in small groups, especially in centers, where children are expected to complete the activity with minimal teacher guidance.

# Online Resources

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

## The Teacher Center

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



### Plan Your Lesson

Review all of the activities for the lesson.

### Resources

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

### Games

Open online games for fluency practice.

### Quick Entry

Easily record evaluations of your children's progress.

### Today's Data

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

### Differentiation

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

### Launch Presentation

Editable versions of digital lessons that help you lead instruction.

# 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 First Math Book

Contains lesson-specific pages for several lessons in each section, including blank Journaling pages for more open-ended mathematical writing and record keeping

## eToolkit

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

## Math at Home Books

Highlight and suggest informal mathematics activities that children can do outside of school, allowing them to see and capitalize on the mathematics in their everyday environment.


## EM at Home

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

# Data Driven Instruction


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

## Evaluate



**Assessment Check-In** K.CC.5

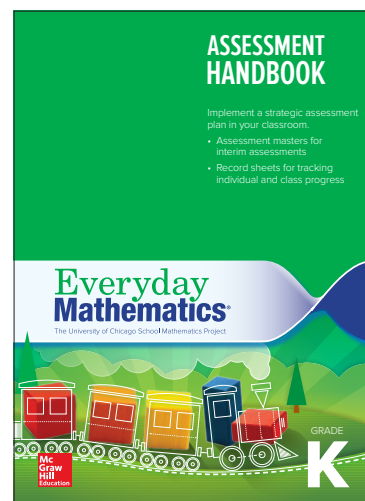
As children create their number collections, note whether they are able to count out sets to represent the numbers 1–9. Expect that most children will be able to create small sets (1, 2, and 3), but may not be able to count out bigger sets yet. Children will practice this skill in future lessons. Use *Math Masters*, page TA3 to support children who struggle with counting out objects to create sets. GMP2.1



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

## Assessments

**Assessment Check-In** Daily opportunities to gather performance data on specific content and practices in the Focus activities, while providing information on expectations for particular standards at that point in the curriculum.



## Interim Assessments

Administered at the beginning, middle, and end of the school year. Most are administered in a one-on-one or small group format, but some can be done as whole-class activities.

### Beginning-of-Year

**Assessment** Provides information about children's knowledge and skills upon Kindergarten.

**Mid-Year Assessment** Assess children's performance on the content from the first five sections of Kindergarten.

**End-of-Year Assessment** Assess children's performance on all of the Kindergarten standards.



# Record

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

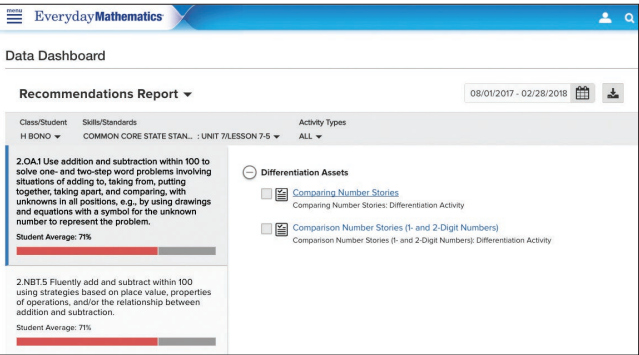
EverydayMathematics							
Lesson 2-13 (Day 1): Assess: Unit 2 Assessment							
Add Notes Anna Z. Brian L. Danny P. Ellie C. Janet G. Jordan R.							
Score All	Score	Score	Score	Score	Score	Score	Score
Problem 1	M	M	NM	A	NM	M	
Problem 2 – Content	NM	M	M	M	M	A	
Problem 2 – Practices	M	PM	NM	PM	M	NM	
Problem 3	M	M	NM	PM	M	M	
Problem 4	M	PM	M	M	M	M	
Problem 5	M	M	M	M	M	M	
Problem 6	NM	M	A	M	M	PM	

## Quick Entry Evaluation Tool

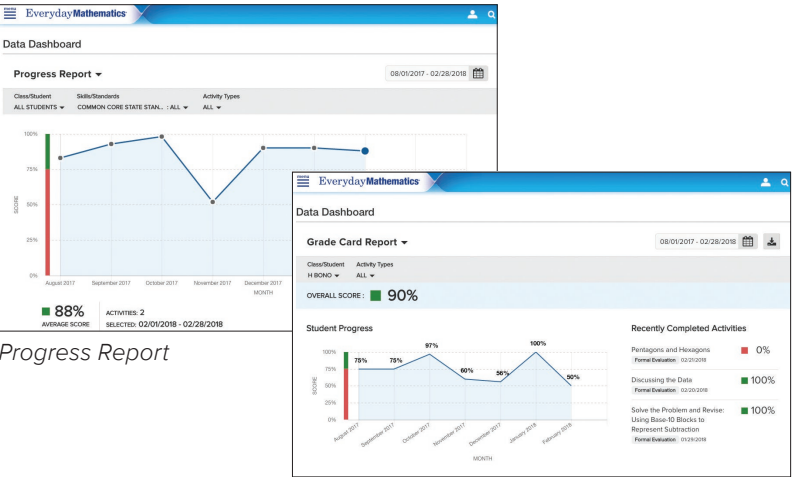
You can quickly and efficiently record evaluations of your children's performance as well as add notes.

# 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

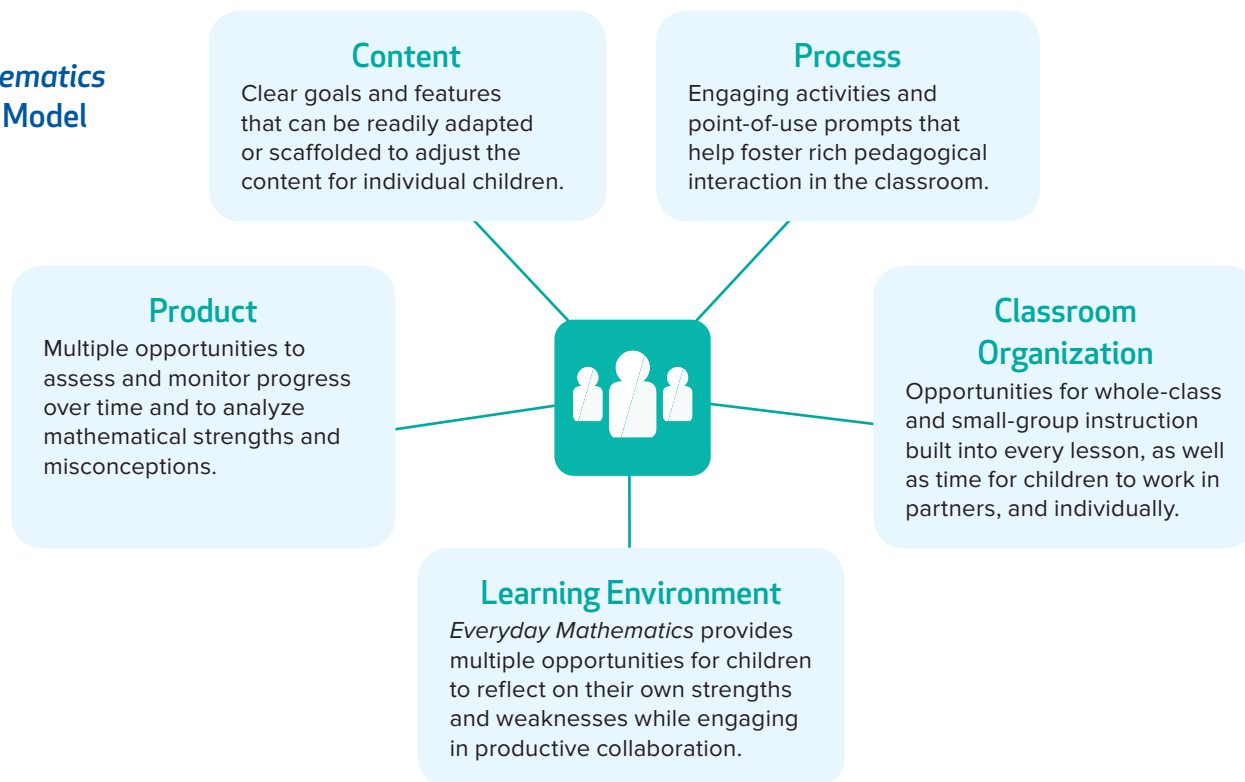


Grade Card Report

# 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



*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





## Differentiation Options

Readiness		5–15 min		Enrichment		5–15 min		Extra Practice		5–15 min	
WHOLE CLASS	SMALL GROUP	PARTNER	INDEPENDENT	WHOLE CLASS	SMALL GROUP	PARTNER	INDEPENDENT	WHOLE CLASS	SMALL GROUP	PARTNER	INDEPENDENT
<h3 style="margin: 0;">Putting Groups Together</h3> <p style="background-color: #ffff00; padding: 2px; display: inline-block;">2.OA.1, 2.OA.2, SMP2</p> <p>slate, craft stick, 8 counters</p> <p>For experience using a concrete model to solve number stories, children use counters to model addition number stories on their slates. Show children how to use a craft stick to divide their slates into two sections. Then tell a number story. <i>For example:</i> I have 5 white shells and 3 pink shells. How many</p>				<h3 style="margin: 0;">Creating Addition Number Stories</h3> <p style="background-color: #ffff00; padding: 2px; display: inline-block;">2.OA.1, SMP2</p> <p>Activity Card 21; <i>Math Masters</i>, p. TA7</p> <p>Children further explore number stories by creating their own. These can be collected and added to a class book. Encourage children to write both parts-and-total and number stories. <span style="background-color: #ffff00; padding: 2px; display: inline-block;">GMP2.1</span></p>				<h3 style="margin: 0;">Writing an Addition Number Story</h3> <p style="background-color: #ffff00; padding: 2px; display: inline-block;">2.OA.1, 2.OA.2, SMP2</p>			

### English Language Learner

**Beginning ELL** To prepare children for writing number stories, show them a picture on journal page 19 and respond to the following questions (using the 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?

- 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 a number model (for example, 5 crayons + 4 crayons = 9 crayons). **GMP2.1** This could be as you fill in the sentence frame and model by reading the complete sentence.

**Adjusting the Activity**

**Differentiate** Counting out objects, or creating a set of a given number, is often more difficult than counting an already-created set. Provide the number strip on *Math Masters*, page TA3 for children who struggle to count out objects.

(See Readiness, page 59.) Counting out sets will become more difficult as the featured number increases on subsequent days.

**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.

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.

Lesson

DIFFERENTIATING LEARNING ACTIVITIES

# 1-5 Getting to Know Numbers

English  
Language  
Learners

English  
Language  
Learners

## Meeting Language Demands

### For Beginning ELLs, use . . .

- Visuals to scaffold understanding of language.
- Demonstrations and think-alouds to teach word meanings.

### For Intermediate ELLs, use . . .

- Demonstrations, restatements, and think-alouds to explain word meanings.
- Modeling and opportunities for repetition to support oral language development and use of academic and content terms.

### For Advanced ELLs, or for Children Who Need More Scaffolding, use . . .

- Restatements to help children construct understanding of word meanings.
- Sentence frames to support academic language use.

## Language Assessment

- **Beginning ELLs** Assess children's understanding of terms by watching their nonverbal responses to show-me directions, such as *Show me the empty bag*.
- **Intermediate ELLs** Assess children's understanding of terms by asking them to name items, such as *collections*, *sets*, **number words**, etc., as you point to examples of the items.
- **Advanced ELLs** Assess children's use of academic and content terms as you listen to partnership discussions or explanations during large-group discussions.

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

## Focus: Exploring 0 and 1

### Read

**1.1 Children Who Need More Scaffolding** Provide copies of the numbers **0** and **1** written in large font, and encourage children to trace the numbers first on the paper, then write them in the air. Say, and have children repeat, the number names in both instances.

**1.2 Beginning ELLs** Use show-me directions to help children respond nonverbally. For example, say, *This bag has 1 cube. Show me your bag with 1 cube. Show me your bag with no, or zero, cubes.*

### Vocabulary

#### Everyday Terms

bag	part
card	show
empty	small/inner
guard	split
name	stack

#### Academic Terms

collection	object
display	represent
explore	

#### Content Terms

connecting cube	one
count	one more
name	zero
number words	zero

Differentiation Support Unit 1.5 | page 1

# Supporting Rich Mathematical Instruction

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

## Planning

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

## Preparing

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

Planning for Rich Math Instruction 33A							
	RIGOR			Rich Tasks and Mathematical Reasoning	Mathematical Discourse	Distributed Practice	Differentiation Support
	Conceptual Understanding	Procedural Skill and Fluency	Applications				
<b>1-1 Partner Match</b>	Length as a measurable attribute, p. 41	Daily Routines	Daily Routines Thinking of real-life situations for comparing lengths, p. 41 Blocks Connection, p. 42 Enrichment, p. 43	Reasoning about misaligned strips, p. 41 Thinking of real-life situations for comparing lengths, p. 41 Blocks Connection, p. 42	Discussing how to compare lengths and why, p. 41 Blocks Connection, p. 42	Daily Routines Establishing Daily Routines, p. 42	Common Misconception, p. 41 Differentiation Options, p. 43 Online Differentiation Support 1-1
<b>1-2 Introduction to Pattern Blocks</b>	Side as a geometric attribute, p. 45	Daily Routines	Daily Routines Literacy and Art Connection, p. 46	Exploring different ways to combine pattern blocks to create pictures, designs, and new shapes, p. 45 Literacy and Art Connection, p. 46 Using Pattern-Block Clues, p. 47	Discussing pattern-block shape similarities and differences, p. 45 Literacy and Art Connection, p. 46 Readiness, p. 47	Daily Routines Establishing Daily Routines, p. 46	ELL Support, p. 44 Academic Language Development, p. 45 Differentiation Options, p. 47 Online Differentiation Support 1-2
<b>1-3 Gotcha: A Counting Game</b>	Cardinality/ cardinal principle, p. 49	Daily Routines Playing Gotcha, p. 49 Home Link 1-3, p. 50 Readiness, p. 51	Daily Routines Thinking of real-life situations when it is important to count correctly, p. 49 Readiness, p. 51	Thinking of real-life situations when it is important to count correctly, p. 49 Discussing why changing the arrangement doesn't change the number of items in a set, p. 49	Discussing why changing the arrangement doesn't change the number of items in a set, p. 49	Daily Routines Establishing Daily Routines, p. 50	ELL Support, p. 48 Common Misconception, p. 49 Differentiation Options, p. 51 Online Differentiation Support 1-3
<b>1-4 Number Walk</b>	Different uses of numbers, p. 53	Daily Routines	Daily Routines Looking for numbers in the environment and	Considering why and where else they see particular numbers in their	Discussing uses of numbers, p. 53 Matching Strips, p. 54	Daily Routines Matching Strips, p. 54	ELL Support, p. 52 Adjusting the Activity, p. 53

**Professional Development**

### Mathematical Background: Content

**Oral (Rote) Counting** (Number of the Day Routine, Lesson 1-6, and Rational Counting Activities)

Throughout Section 1, children practice the sequence of number names as they count by 1s. **K.CC.1** Oral counting (especially for numbers to about 12) is a memory task, much like reciting the alphabet. Over time children discern patterns in the count sequence, which helps them make sense of the words they say. Typically, young children's oral counting skills are more advanced than their rational counting skills; they are able to count to a number orally before being able to count or count out that number of objects (see below).

**Rational Counting** (Lessons 1-3, 1-5 through 1-13)

Children who can count rote may still have difficulty counting sets of objects with accuracy and understanding. Beyond single number names many objects are in a counted tells the total group of objects, not the order in which the strategies to keep track. Section 1, children have objects in various containers. **K.CC.5** Provide explicit help them develop a

**Section 1 Terms to Use**  
Use these informally with children.

- above
- below
- corner
- count
- curve
- different
- dot
- pattern
- pattern block
- Quick Look
- count
- next to
- none
- number words
- on top
- pattern
- pattern block
- Quick Look
- count

### Mathematical Background: Process and Practice

See below for some of the ways that children engage in **SMF2 Reason abstractly and quantitatively** and **SMF6 Attend to precision**; for example, through Counting and Cardinality and the other mathematical content of Section 1.

**Standard for Mathematical Processes and Practices 2**

Children engage in quantitative reasoning as they relate number words and quantities and connect counting to cardinality. In Lessons 1-5, 1-9, 1-10, and 1-11, children use concrete objects and visual images to create mathematical representations of quantities and to compare, analyze, and make connections between these representations. **SMF2.1**, **SMF2.2**, **SMF2.3** In Lessons 1-7 and 1-8, they create and use graphical representations and consider how these are useful for quantitative reasoning. Throughout this section, children are prompted to "attend to the meaning of quantities" as they work to develop their early counting skills and their number sense for small quantities.

**Standard for Mathematical Processes and Practices 6**

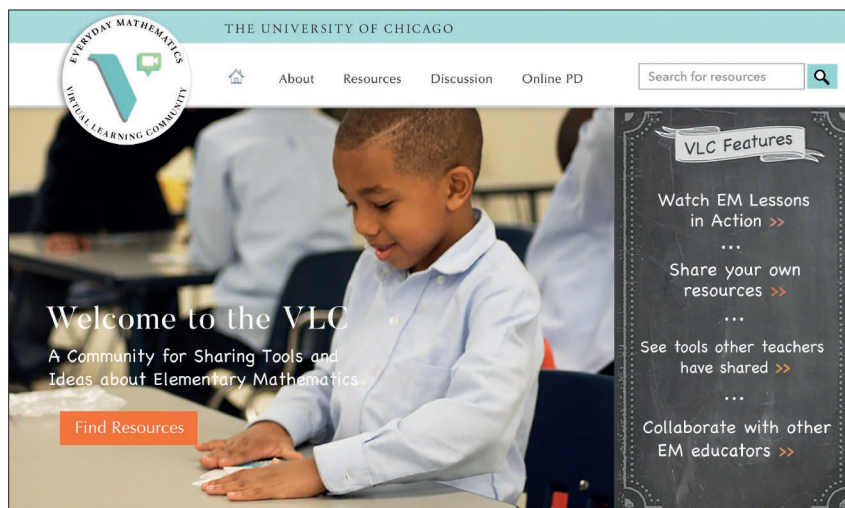
The Section 1 lessons provide many opportunities for children to practice clearly communicating their mathematical ideas, observations, and questions orally. For example, in Lesson 1-1 children explain how to compare the lengths of two strips. **SMF6.1** In Lessons 1-2, 1-12, and 1-13, they are prompted and supported to use clear and detailed language to describe shapes. **SMF6.2** In Lesson 1-10, children describe what they see in quantities on Quick Look dot cards and compare the different ways they figure out the total numbers of dots. **SMF6.3**, **SMF6.4** Be sure to capitalize on these and other chances for children to express their mathematical ideas verbally in Section 1 and throughout the year. Model clear, descriptive, and precise language, and have children model it for one another. Both are key ways to help children develop this process.

**On Online** to the implementation Guide for more information about the Mathematical Process and Practice Standards.

**Professional Development**

Section Organizer 39



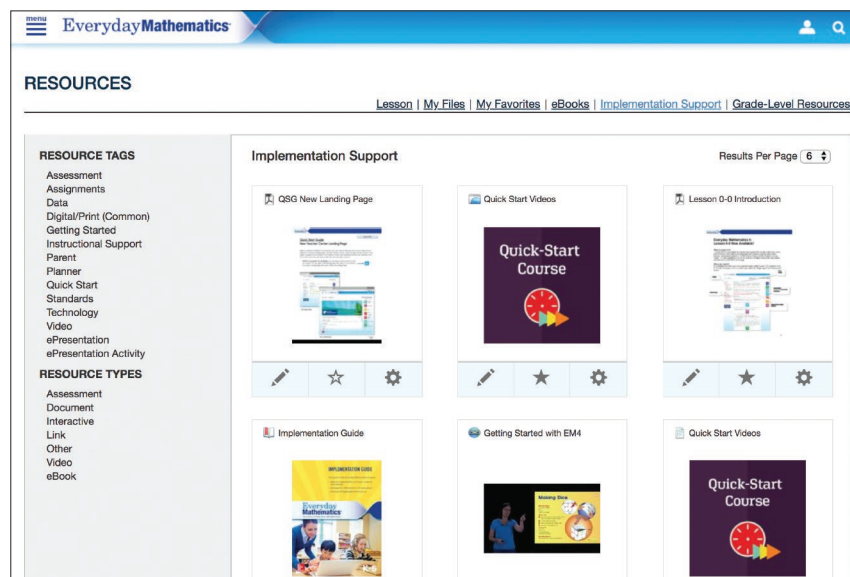


## Support

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 *Kindergarten Everyday Mathematics*

Welcome to *Kindergarten Everyday Mathematics*. This guide introduces the organization and pedagogy of the program and provides tips to help you begin planning and teaching right away.

Whether you teach in a half-day or a full-day program, plan to spend at least **45–60 minutes** on mathematics each day to cover the three required parts in each *Kindergarten Everyday Mathematics* lesson:

- **Daily Routines**
- **Core Activity: Focus**
- **Core Activity: Practice**

You may also choose to use any or all of the Connections and Differentiation Options as part of your daily math time or during other parts of the day or week. Teachers in full-day programs will have more time for Connections and Differentiation Options, but half-day teachers can find time for some of these activities by integrating them throughout the day. See pages xxiv- xxviii for more information on lesson parts and features.

Kindergarten contains **117 lessons**, grouped into **9 sections** with **13 lessons** in each section. Plan to teach 3–4 lessons per week (including all required parts), or roughly one section per month. This pacing is designed for flexibility and depth. You will have flexibility to extend a lesson if discussion is rich or if children’s understandings are incomplete. In addition, you can incorporate time each week for extra game time, Differentiation Options, and/or Connections activities. This also leaves time to accommodate outside mandates, district initiatives, and special projects. This pacing gives you time to go deep, to create a classroom culture that values and supports productive struggle. Rather than rushing to cover too much content in too little time, you can expect your children 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.

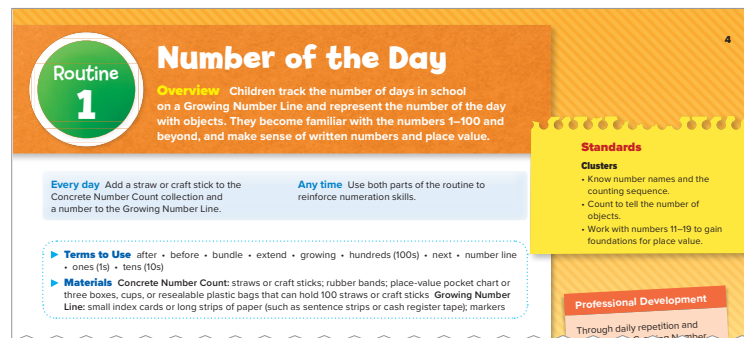
Section 1 Organizer				
Foundational Counting Principles and Skills				
Contents				
Lesson	Title, Focus, and Practice	Page	Content Standards*	Processes and Practices*
1.1	<b>Partner Match</b> <i>Send home the Section 1 Family Letter.</i> <b>Focus:</b> Children compare lengths and explain their mathematical thinking as they participate in a social activity. <b>Practice:</b> Establishing Daily Routines	40	K.MD.1, K.MD.2	SMP6
1.2	<b>Introduction to Pattern Blocks</b> <b>Focus:</b> Children use shape names as they explore pattern blocks. <b>Practice:</b> Establishing Daily Routines	44	K.G.2, K.G.4, K.G.6	SMP6, SMP7
1.3	<b>Getcho: A Counting Game</b> <b>Focus:</b> Children use one-to-one correspondence and the cardinal principle as they engage in a counting game. <b>Practice:</b> Establishing Daily Routines	48	K.CC.4a, K.CC.4b, K.CC.5	SMP1, SMP6

Section 1 begins on page 30.

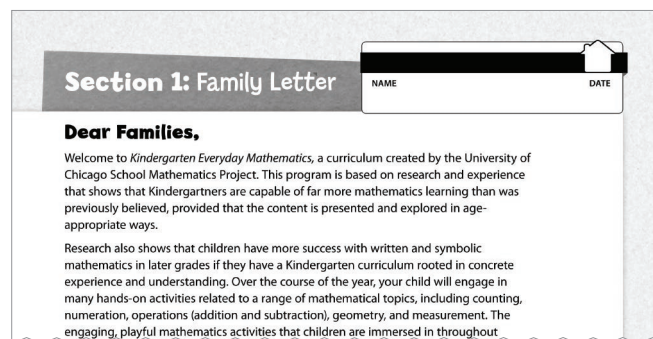
# Preparing for the Beginning of School Year

- Use the list beginning on page xxix to check that your **Classroom Resource Package** is complete.
- See page xxxii for **manipulatives and supplies** you will need.
- Set up the **Ongoing Daily Routines** so you can initiate them on the first day.
- Read the **Section 1 Organizer** (pages 30–39) and **the first several lessons in Section 1** to help you plan for the first week of school.
- Read the *Everyday Mathematics* in Kindergarten section of the online **Implementation Guide** for more information on getting started.
- Copy the **Section 1 Family Letter** from *Math Masters*, pages 10–11 to distribute early in the school year.
- Review the **Beginning-of-the-Year Assessment** tasks on pages 11–13 in the *Assessment Handbook* and consider how and when you will administer them.
- Find an easily accessible location for your **Kindergarten Minute Math** book that will enable you to use the book during spare moments throughout the day.
- Set up your **Math Center**. Organize a variety of manipulatives so they are easy for children to access and keep in order. Add and rotate materials frequently.
- Peruse the various sections in **Resources for the Kindergarten Classroom**. If you do an All About Me or Families theme early in the year, be sure to read the suggestions related to these themes on pages 21–25 and 41–45.

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



See pages 4–29 for more information on each of the Routines.



# Lesson Types

*Kindergarten Everyday Mathematics* includes two types of lessons, which share many of the same features.

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

**Open Response and Reengagement Lessons** extend over two days and occur once per section, beginning in Section 2. 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 by examining and discussing their own and other children's solutions.

Lesson  
4-9

## Exploring Weight

**Overview** Children compare the weights of objects through an exploration of the pan balance.

**Before You Begin** Level your pan balance(s). Collect two identical, opaque containers that will fit on your pan balance. Fill them with materials that differ noticeably in weight, such as cotton balls and rocks. Try to conduct this activity with one small group at a time to increase opportunities for hands-on participation.

**Terms to Use** balance • compare • equal • heavier • heavy • level • light • lighter

**Materials** Focus: *My First Math Book* Journaling Page (optional); pan balance; identical, opaque containers; objects to weigh Practice: *Math Masters*, p. TA17; counters Home Link: *Math Masters*, p. 69

**Assessment Check-In** See page 272. Observe whether children understand what weight refers to and whether they can compare weights.

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

**Daily Routines**

10–15 min | Children practice mathematics as they perform the Daily Routines. See pages 4–29 for related Mathematical Process and Practice Standards.

**Core Activities**

**Focus: Introducing the Pan Balance** K.MD.1, K.MD.2

20–25 min WHOLE CLASS SMALL GROUP PARTNER INDEPENDENT

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### Standards

**Focus Cluster**

- Describe and compare measurable attributes.

**ELL Support**

Introduce the terms *heavy* and *light*. Have children hold a light object and repeat: This is heavy. Repeat with several heavy objects, and then with a series of light objects to introduce and practice using the terms. Follow with one-word answer questions such as: Is this heavy or is it light?



Make sure that children put one object on the lighter object and one on the heavier object to show the arms of the pan balance.

2-7

## 2-Day Lesson

Open Response and Reengagement

## Introduction to Sorting

**Overview** Day 1: Children sort and classify objects in different ways. Day 2: Children compare, analyze, and discuss a variety of sorted collections they created.

**Day 1: Open Response**

**Before You Begin** Prepare sorting mats (one per pair) by drawing lines to divide sheets of 11" by 17" or other large paper into six sections. (Laminate these, if possible.) Gather various collections for sorting. (See Materials for Day 1 below for suggestions.) Each pair of children may sort one collection of objects or rotate through stations with different collections of objects. Decide whether you will save or photograph children's sorts for Reengagement on Day 2 of the lesson. If possible, plan to meet with other teachers after Day 1 to review children's work and plan for Day 2. (Day 2 should take place within a few days of Day 1.)

**Terms to Use** attribute • different • group • same • sort • sorting rule

**Materials** Day 1: crayons and markers; sorting mats; collections of objects with at least one common attribute and several different attributes, such as buttons, beads, dry beans or pasta, stickers, toy vehicles, coins, small hardware (washers, nuts, bolts), magnetic or foam letters or shapes, or hair barrettes (see Before You Begin); stick-on notes or small strips of paper for labels; camera (optional) Getting Ready for Day 2: *Math Masters*, page TA11 (Reengagement Planning Form); children's work from Day 1 Day 2: Activity Card 13 (optional); selected samples of children's work Practice: pattern blocks Home Link: *Math Masters*, p. 25

**Assessment Check-In** See page 133 and rubric on page 131. Expect most children to sort objects into categories using obvious attributes, such as color or shape.

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

**Daily Routines**

10–15 min | Children practice mathematics as they perform the Daily Routines. See pages 4–29 for related Mathematical Process and Practice Standards.

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### Standards

**Focus Clusters**

- Describe and compare measurable attributes.
- Classify objects and count the number of objects in each category.

**Professional Development**

Sorting develops children's ability to recognize common and distinct attributes among objects and see mathematical structures, such as categories and patterns. **OMP7.1** It also helps children learn to generalize across categories to create and identify rules, such as recognizing that a collection is sorted by color. **OMP8.1** Children who recognize categories ("This group has all red blocks" and this one has all yellow blocks") may still need support and modeling to identify the rule that governs all of the categories in a sort. Identifying and using rules is important for work with algebra, data, geometry, and other mathematical topics.

# Lesson Parts and Features

Every lesson includes planning information followed by Daily Routines, Focus, and Practice activities. Each lesson also includes optional Connections and Differentiation Options.

Lesson Parts and Features		Description	Tips
Planning	Lesson Opener	Important information about the Focus activity, including content and standards, preparation, and materials.	<ul style="list-style-type: none"><li>• See <b>Before You Begin</b> for preparation tips.</li><li>• See the Spiral Snapshot for information about previous and future experiences with the standard.</li></ul>
Routines	Routines	Daily activities that reinforce mathematical concepts and help children connect those concepts to their everyday lives. See pages 2–29 for more information about five Kindergarten Daily Routines.	<ul style="list-style-type: none"><li>• Establish the five Kindergarten Daily Routines early in the school year and let children grow into them at their own pace. Each routine includes suggestions for adding complexity as the year progresses.</li></ul> <p>Consider conducting routines as part of a morning meeting.</p> <p><a href="#">Go Online</a> to the <i>Implementation Guide</i> for more tips on the Daily Routines.</p>



Lesson Parts and Features		Description	Tips
Core Activities	Focus	The first core activity. Children explore, engage in, and discuss new content (skills, concepts, applications, and games) during the Focus activity.	<ul style="list-style-type: none"><li>• Consider teaching some Focus activities in small groups to promote discussion, facilitate materials preparation and sharing, and appropriately scaffold or stretch the new content for children.</li><li>• Encourage children to discuss and work together to solve problems during focus activities.</li><li>• Remember that focus skills, concepts, and games will be revisited in later practice. <a href="#">Go Online</a> to the Spiral Tracker to see the complete spiral.</li><li>• Look for Goals for Mathematical Process and Practice icons. <b>GMP1.1</b> Use these to highlight opportunities for children to engage in the Mathematical Process and Practice Standards and to facilitate discussion and reflection about the processes and practices. See also the <i>Implementation Guide</i> for information on the Mathematical Process and Practice Standards.</li></ul>
	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.	<ul style="list-style-type: none"><li>• Use Assessment Check-In results to inform instruction. Expectation statements in the Assessment Check-Ins help you decide which children would benefit from differentiation activities.</li><li>• You can use Assessment Check-Ins as one source of information for grading.</li><li>• <a href="#">Go Online</a> to record children’s progress and to see trajectories toward mastery for all standards.</li><li>• See also the <i>Implementation Guide</i> for assessment information.</li></ul>

Lesson Parts and Features		Description	Tips
Core Activities	Practice	The second core activity. Children revisit an earlier Focus activity, often with variations to make it more advanced or to encourage children to approach the activity in a new way.	<ul style="list-style-type: none"> <li>• Be sure to allow time for the Practice activity each day. These distributed practice activities are important for consolidating learning and are essential to the spiral in <i>Everyday Mathematics</i>.</li> <li>• You can conduct the Practice activity separate from the Focus activity—at a different time of day or using a different grouping structure.</li> </ul>
	Home Link	Informal mathematics activities for children to do at home. Home Links typically relate to the Focus activity.	<ul style="list-style-type: none"> <li>• Encourage children to do these activities with someone at home, such as a parent, caregiver, or sibling.</li> <li>• You will find Home Links in approximately five lessons per section. If your school requires additional mathematics homework, look for ideas in the <i>Math at Home</i> books or the <i>Home Connection Handbook</i>.</li> </ul>
Connections and Differentiation Options	Connections	Additional ways to explore the content of the Focus activity. Connections typically focus on a different curricular area (such as Science or Literature) or another area of the classroom (such as the Block or Dramatic Play Center).	<ul style="list-style-type: none"> <li>• Pick and choose Connections activities to integrate mathematics into all areas of the Kindergarten classroom and curriculum.</li> </ul>
	Differentiation Options	Optional <b>Readiness, Enrichment,</b> and <b>Extra Practice</b> activities related to the Focus Activity that allow you to differentiate instruction.	<ul style="list-style-type: none"> <li>• Some children may benefit from completing the <b>Readiness</b> activity prior to the lesson.</li> <li>• You can conduct most Differentiation Options with small groups or partners, with individual children, or even with the whole group, depending on the needs of your class. See the grouping suggestions that accompany each activity.</li> <li>• <a href="#">Go Online</a> to the <i>Implementation Guide</i> for information on differentiation.</li> </ul>

# Notes and Other Lesson Features

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

To find **embedded facts practice** throughout the lessons, look for activities and games labeled with **K.OA.5**, or search the online Spiral Tracker using **K.OA.5**.

# Getting to Know Your Classroom Resource Package

Log into [my.mheducation.com](https://my.mheducation.com) for all digital offerings.

## Planning, Instruction, and Assessment

Resource	Description
<b>Teacher's Lesson Guide (Volumes 1 and 2)</b> <input checked="" type="checkbox"/> digital <input checked="" type="checkbox"/> print	<ul style="list-style-type: none"> <li>• A complete guide to teaching each lesson in the <i>Everyday Mathematics</i> curriculum</li> <li>• Easy-to-follow lessons offering complete planning information, assessment opportunities, and point-of-use differentiation strategies</li> <li>• Lessons include Readiness, Enrichment, and Extra Practice activities to extend and support instruction</li> <li>• Lessons also include specific suggestions for supporting English Language Learners in accessing the mathematical content and process and practice standards</li> </ul>
<b>eToolkit</b> <input checked="" type="checkbox"/> digital <input type="checkbox"/> print	<ul style="list-style-type: none"> <li>• Online tools and virtual manipulatives for dynamic instruction</li> <li>• A complete list of Kindergarten eTools on page I</li> </ul>
<b>Resources for the Kindergarten Classroom</b> <input checked="" type="checkbox"/> digital <input checked="" type="checkbox"/> print	<ul style="list-style-type: none"> <li>• Optional theme-based mathematics activities and lists of mathematical songs, chants, children's books, and games</li> </ul>
<b>Math Masters</b> <input checked="" type="checkbox"/> digital <input checked="" type="checkbox"/> print	<ul style="list-style-type: none"> <li>• Reproducible masters for routines and lessons, Home Links, Family Letters, and games</li> </ul>
<b>Minute Math</b> <input checked="" type="checkbox"/> digital <input checked="" type="checkbox"/> print	<ul style="list-style-type: none"> <li>• Brief activities that require few or no materials; useful for integrating mathematics into transition times and spare moments throughout the day</li> <li>• Also available through ConnectED</li> </ul>

## Planning, Instruction, and Assessment (con't)

Resource	Description
<b>Classroom Posters</b> <input checked="" type="checkbox"/> digital <input checked="" type="checkbox"/> print	<ul style="list-style-type: none"> <li>• Posters that display grade-specific mathematical content</li> <li>• Posters that display the Process and Practice Standards for Mathematics</li> </ul>
<b>Sing Everyday!</b> <input checked="" type="checkbox"/> digital <input checked="" type="checkbox"/> print	<ul style="list-style-type: none"> <li>• A sing-along recording of songs and chants to reinforce and deepen children's understanding of many mathematical concepts</li> <li>• Available free online in MP3 format, or for purchase as a CD.</li> </ul>
<b>Assessment Handbook</b> <input checked="" type="checkbox"/> digital <input checked="" type="checkbox"/> print	<ul style="list-style-type: none"> <li>• Information and assessment masters for interim assessments</li> <li>• Record sheets for tracking individual and class progress</li> </ul>
<b>Assessment and Reporting Tools</b> <input checked="" type="checkbox"/> digital <input type="checkbox"/> print	<ul style="list-style-type: none"> <li>• Student, class, school, and district reports</li> <li>• Data available at point-of-use in the planning and teaching materials</li> <li>• Real-time data to inform instruction and differentiation</li> </ul>
<b>Spiral Tracker</b> <input checked="" type="checkbox"/> digital <input type="checkbox"/> print	<ul style="list-style-type: none"> <li>• Online tool that helps you understand how standards develop across the spiral curriculum</li> </ul>

## Professional Development

Resource	Description
<b>Implementation Guide</b> <input checked="" type="checkbox"/> digital <input type="checkbox"/> print	<ul style="list-style-type: none"> <li>• Online resource with information on implementing the curriculum</li> </ul>
<b>Virtual Learning Community</b> <input checked="" type="checkbox"/> digital <input type="checkbox"/> print	<ul style="list-style-type: none"> <li>• 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</li> <li>• A collection of resources including videos of teachers implementing lessons in real classrooms, photos, work samples, and planning tools</li> </ul>



## Family Communications

Resource	Description
<b>Home Connection Handbook</b> <input checked="" type="checkbox"/> digital <input type="checkbox"/> print	<ul style="list-style-type: none"> <li>• A collection of tips and tools to help you communicate to families about <i>Everyday Mathematics</i></li> <li>• Reproducible masters for home communication for use by both teachers and administrators</li> </ul>
<b>Math at Home Books (Books 1–3)</b> <input type="checkbox"/> digital <input checked="" type="checkbox"/> print	<ul style="list-style-type: none"> <li>• Engaging activities for children to do at home with their families.</li> <li>• Book 1 activities relate to Sections 1 through 3 of the Teacher’s Lesson Guide. Book 2 activities relate to Sections 4 through 6 of the Teacher’s Lesson Guide. Book 3 activities relate to Sections 7 through 9 of the Teacher’s Lesson Guide.</li> </ul>

## Student Materials

Resource	Description
<b>My First Math Book</b> <input checked="" type="checkbox"/> digital <input checked="" type="checkbox"/> print	<ul style="list-style-type: none"> <li>• Student work pages that provide support for classroom instruction</li> <li>• Provides a long-term record of each student’s mathematical development</li> </ul>
<b>Activity Cards</b> <input checked="" type="checkbox"/> digital <input checked="" type="checkbox"/> print	<ul style="list-style-type: none"> <li>• Directions for students for select Differentiation Options and other small group activities</li> </ul>
<b>Student Learning Center</b> <input checked="" type="checkbox"/> digital <input type="checkbox"/> print	<ul style="list-style-type: none"> <li>• Combines <i>My First Math Book</i>, etoolkit, and Activity Cards, and other resources for students in one location</li> <li>• Provides access to EM Games Online</li> </ul>
<b>EM Games Online</b> <input checked="" type="checkbox"/> digital <input type="checkbox"/> print	<ul style="list-style-type: none"> <li>• Digital versions of many of the <i>Everyday Mathematics</i> games that provide important practice in a fun and engaging setting</li> </ul>

## Manipulative Kits and eToolkit

The table below lists the materials that are used on a regular basis throughout *Kindergarten 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 Section Organizers and in the lessons in which they are used.

Manipulative Kit Contents		eTools
Item	Quantity	Item
Attribute Blocks	1 set of 60	✓
Beads, stringable	1 set	
Bear Counters	3 packs of 80	✓
Chenille Stems	1 pack of 100	
Connecting Cubes	2 packs of 100	✓
Counters	1 pack of 200 (red, yellow, blue, green)	✓
Counters, Double-Sided	1 pack of 500 (red/yellow)	✓
Counting Sticks	1 pack of 1,000	✓
Dice, Blank	eTools only	✓
Dice, Dot	4 packs of 12	✓
Dominoes, Double-9	2 sets of 55	✓
Geoboards, Two-sided, 7" x 7"	6	✓
Geosolids	1 set of 12	✓

Manipulative Kit Contents		eTools
Item	Quantity	Item
Inch Cubes	10 packs of 10	✓
Marker Boards	25 boards	
Number Line, —35 to 180	1 number line (in 3 parts)	✓
Pattern Blocks	2 sets of 250	✓
Quick Look Cards	1 pack each of all 4 types	✓
Rocker Balance	2	✓
Rubber Bands	1 pack of 400	
Spinners, Transparent	12	
Straws	1 pack of 500	
Ten Frames, background	eTools only	✓
Thermometer, Classroom	1	✓
Timer	1	✓
Toothpicks	1 pack of 250	

# 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

### 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.

Standards for Mathematical Content	
<b>Strand</b> Operations and Algebraic Thinking 2.OA	<b>Everyday Mathematics Goals for Mathematical Content</b>
<b>Cluster</b> Represent and solve problems involving addition and subtraction.	
<b>2.OA.1</b> 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.	<b>GMC</b> Model 1-step problems involving addition and subtraction. <b>GMC</b> Use addition and subtraction to solve 1-step number stories. <b>GMC</b> Model 2-step problems involving addition and subtraction. <b>GMC</b> Use addition and subtraction to solve 2-step number stories.
<b>Cluster</b> Add and subtract within 20.	
<b>2.OA.2</b> Fluently add and subtract within 20 using mental strategies. <sup>1</sup> By end of Grade 2, know from memory all sums of two one-digit numbers.	<b>GMC</b> Add within 20 fluently. <b>GMC</b> Subtract within 20 fluently. <b>GMC</b> Know all sums of two 1-digit numbers automatically.
<b>Cluster</b> Work with equal groups of objects to gain foundations for multiplication.	
<b>2.OA.3</b> 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.	<b>GMC</b> Determine whether the number of objects in a group is odd or even. <b>GMC</b> Express an even number as a sum of two equal addends.

### Goals for Mathematical Practice

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


Standards for Mathematical Process and Practice	Everyday Mathematics Goals for Mathematical Process and Practice
<b>1 Make sense of problems and persevere in solving them.</b>	
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.	<b>GMP1.1</b> Make sense of your problem. <b>GMP1.2</b> Reflect on your thinking as you solve your problem. <b>GMP1.3</b> Keep trying when your problem is hard. <b>GMP1.4</b> Check whether your answer makes sense. <b>GMP1.5</b> Solve problems in more than one way. <b>GMP1.6</b> Compare the strategies you and others use.
<b>2 Reason abstractly and quantitatively.</b>	
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	<b>GMP2.1</b> Create mathematical representations using numbers, words, pictures, symbols, gestures, tables, graphs, and concrete objects.

# Track

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

## Visible Learning Trajectories


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



### 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](http://my.mheducation.com) to use the Spiral Tracker.

★ **Spiral Towards Mastery Progress** The Spiral Trace outlines instructional trajectories for key standards in Section 1. For each standard, it highlights opportunities for Focus instruction, Practice activities, and assessment and describes the **degree of mastery**—as measured against the entire standard—expected at this point in the year.



**Counting and Cardinality**

**K.CC.1**

Routine 1

1-6 Focus

2-5 Practice

3-2 Practice

3-10 Focus Practice

4-6 Focus

4-11 Focus Practice

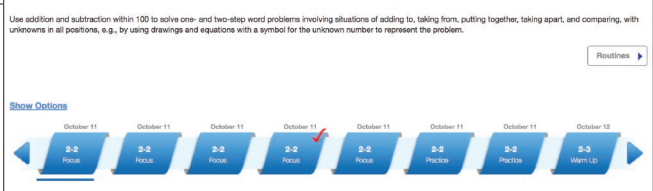
4-12 Practice

4-13 Focus Practice

5-1 Focus Practice

5-4 Practice

5-8 Practice



### Spiral Tracker

Operations and Algebraic Thinking : 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

Show Options

October 11

October 11

October 11

October 11

October 11

October 11

October 11

October 11

October 12

5-2 Focus

5-2 Focus

5-2 Focus

5-2 Focus

5-2 Focus

5-2 Practice

5-2 Practice

5-3 Warm Up

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

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

# Master

★ **Progress Towards Mastery** By the end of Section 1, expect children to **and efficiently** from 1 to at least 10.

**Full Mastery of** **K.CC.1** expected by the end of Section 8.

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.

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.	★ 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

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



# 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 K	Everyday Mathematics Grade K Lessons*
Counting and Cardinality K.CC	
Know number names and the count sequence.	
K.CC.1 Count to 100 by ones and by tens.	Routines 1, 3; 1-6, 2-5, 3-2, 3-10, 4-6, 4-11, 4-12, 4-13, 5-1, 5-4, 5-8, 5-12, 6-11, 7-5, 7-8, 7-9, 7-11, 7-12, 8-1, 8-3, 8-4, 8-5, 8-10, 9-3, 9-8, 9-12, 9-13
K.CC.2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1).	Routines 1, 3; 1-6, 2-5, 2-6, 2-11, 3-2, 3-9, 3-13, 4-9, 4-11, 4-12, 4-13, 5-1, 5-8, 5-11, 5-12, 6-7, 6-11, 6-12, 7-1, 7-5, 7-10, 7-11, 7-12, 7-13, 8-1, 8-4, 8-5, 8-10, 9-3, 9-8, 9-12, 9-13
K.CC.3 Write numbers from 0 to 20. Represent a number of objects with a written numeral 0–20 (with 0 representing a count of no objects).	Routines 1, 3; 1-4, 1-5, 2-4, 3-1, 3-4, 3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11, 3-12, 3-13, 4-1, 4-2, 4-4, 4-5, 4-6, 4-7, 4-8, 4-12, 4-13, 5-1, 5-2, 5-4, 5-6, 5-7, 5-8, 5-9, 5-12, 5-13, 6-3, 6-4, 6-12, 6-13, 7-2, 7-3, 7-7, 7-8, 7-9, 7-11, 7-12, 8-1, 8-5, 8-6, 8-10, 8-12, 9-3, 9-12, 9-13

## Content Standards for Mathematics for Grade K

## Everyday Mathematics Grade K Lessons\*

### Count to tell the number of objects.

**K.CC.4** Understand the relationship between numbers and quantities; connect counting to cardinality.

**See the following lists for Standards K.CC.4a, K.CC.4b, and K.CC.4c.**

**K.CC.4a** When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.

**Routines 1, 2, 4, 5; 1–3, 1–5, 1–6, 1–7, 1–8, 1–9, 1–10, 1–11, 1–12, 1–13, 2–1, 2–2, 2–3, 2–4, 2–6, 2–8, 2–9, 2–10, 2–11, 2–13, 3–4, 3–8, 3–9, 3–10, 4–7**

**K.CC.4b** Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.

**Routines 1, 2, 4, 5; 1–3, 1–5, 1–6, 1–7, 1–8, 1–9, 1–10, 1–11, 1–12, 1–13, 2–1, 2–2, 2–3, 2–4, 2–6, 2–8, 2–9, 2–10, 2–11, 2–13, 3–2, 3–4, 3–7, 3–9, 3–10, 3–11, 3–13**

**K.CC.4c** Understand that each successive number name refers to a quantity that is one larger.

**Routines 1, 3; 1–5, 1–6, 1–7, 1–8, 1–9, 1–10, 1–11, 1–12, 1–13, 2–1, 2–4, 2–6, 2–11, 3–9, 3–10, 3–13**

**K.CC.5** Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.

**Routines 1, 2, 4, 5; 1–3, 1–5, 1–6, 1–7, 1–8, 1–9, 1–10, 1–11, 1–12, 1–13, 2–1, 2–2, 2–3, 2–4, 2–6, 2–8, 2–9, 2–10, 2–11, 2–13, 3–1, 3–4, 3–5, 3–6, 3–7, 3–8, 3–9, 3–10, 3–11, 3–13, 4–1, 4–2, 4–3, 4–4, 4–8, 5–1, 5–2, 5–3, 5–6, 5–7, 5–8, 5–9, 5–10, 5–11, 5–13, 6–3, 6–4, 6–5, 6–6, 6–7, 6–11, 6–13, 7–2, 7–3, 7–5, 7–7, 7–8, 7–9, 7–11, 8–1, 8–4, 8–5, 8–6, 8–9, 8–10, 9–1, 9–3, 9–12, 9–13**

### Compare numbers.

**K.CC.6** Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.

**Routines 2, 4, 5; 1–7, 1–8, 2–1, 2–2, 2–6, 2–10, 3–1, 3–7, 3–11, 4–1, 4–3, 4–8, 5–3, 5–7, 5–8, 5–9, 6–3, 6–5, 6–6, 6–9, 6–12, 6–13, 7–2, 7–3, 7–7, 7–8, 7–9, 7–10, 8–6, 8–10, 9–1, 9–8, 9–12**

**K.CC.7** Compare two numbers between 1 and 10 presented as written numerals.

**Routine 2; 3–12, 4–6, 4–12, 5–7, 5–8, 5–9, 5–12, 6–3, 6–9, 6–12, 6–13, 7–3, 7–8, 7–9, 7–10, 7–12, 8–3, 8–5, 8–10, 8–11, 8–13, 9–2, 9–3, 9–4, 9–5, 9–9, 9–12**

Content Standards for Mathematics for Grade K	<i>Everyday Mathematics Grade K Lessons*</i>
<b>Operations and Algebraic Thinking K.OA</b>	
<b>Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.</b>	
<b>K.OA.1</b> Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.	<b>Routines 2, 5; 2–5, 2–9, 2–12, 2–13, 3–2, 3–3, 3–12, 4–9, 5–2, 5–3, 5–6, 5–7, 5–10, 5–11, 6–4, 6–7, 6–8, 6–9, 6–11, 6–12, 6–13, 7–1, 7–2, 7–4, 7–5, 7–7, 7–9, 7–10, 7–12, 7–13, 8–2, 8–4, 8–5, 8–7, 8–9, 8–11, 8–12, 8–13, 9–2, 9–3, 9–5, 9–6, 9–9, 9–10, 9–11, 9–13</b>
<b>K.OA.2</b> Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.	<b>Routines 2, 3, 5; 2–5, 2–9, 2–12, 2–13, 3–3, 3–12, 4–9, 5–2, 5–6, 5–7, 5–10, 5–11, 6–4, 6–7, 6–8, 6–9, 6–12, 6–13, 7–1, 7–2, 7–4, 7–7, 7–10, 7–12, 7–13, 8–2, 8–5, 8–7, 8–9, 8–11, 8–12, 8–13, 9–2, 9–3, 9–5, 9–6, 9–9, 9–10, 9–11, 9–12, 9–13</b>
<b>K.OA.3</b> Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$ ).	<b>Routine 3; 1–9, 1–10, 1–11, 2–4, 2–8, 2–9, 2–13, 3–2, 3–9, 4–5, 4–8, 5–2, 5–3, 5–5, 5–7, 5–9, 5–10, 5–13, 6–4, 6–10, 6–11, 7–2, 7–5, 7–6, 7–7, 7–9, 8–4, 8–7, 8–8, 8–9, 8–12, 8–13, 9–6, 9–7, 9–11, 9–13</b>
<b>K.OA.4</b> For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.	<b>Routine 3; 2–9, 2–13, 3–2, 4–5, 5–2, 5–3, 5–5, 5–10, 6–10, 6–11, 7–5, 8–4, 8–7, 8–8, 8–9, 9–7, 9–11, 9–13</b>
<b>K.OA.5</b> Fluently add and subtract within 5.	<b>Routine 3; 1–9, 1–10, 1–11, 2–4, 2–8, 4–5, 5–5, 5–7, 6–4, 6–10, 7–6, 7–7, 7–12, 8–5, 8–11, 8–12, 8–13, 9–2, 9–3, 9–5, 9–6, 9–10, 9–11, 9–13</b>
<b>Number and Operations in Base Ten K.NBT</b>	
<b>Work with numbers 11–19 to gain foundations for place value.</b>	
<b>K.NBT.1</b> Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$ ); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.	<b>Routines 1, 3; 5–6, 5–8, 5–12, 6–3, 6–12, 6–13, 7–3, 8–6, 8–13</b>

Content Standards for Mathematics for Grade K		Everyday Mathematics Grade K Lessons*
Measurement and Data    K.MD		
Describe and compare measurable attributes.		
K.MD.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.	1-1, 2-7, 3-5, 3-10, 4-1, 4-9, 4-10, 4-13, 5-1, 6-1, 6-2, 6-7, 6-10, 7-1, 7-6, 7-8, 7-13, 9-4, 9-5, 9-8, 9-9, 9-12, 9-13	
K.MD.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. <i>For example, directly compare the heights of two children and describe one child as taller/shorter.</i>	1-1, 1-4, 3-5, 3-10, 4-9, 4-10, 4-13, 5-1, 6-1, 6-2, 6-6, 6-7, 6-10, 7-1, 7-6, 7-8, 8-3, 9-4, 9-5, 9-8, 9-9, 9-12, 9-13	
Classify objects and count the number of objects in each category.		
K.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.	Routines 2, 4, 5; 1-7, 1-8, 2-7, 2-10, 3-1, 4-1, 4-3, 5-3, 6-3, 6-5, 6-6, 7-2, 7-7, 7-9, 7-13, 8-6, 9-1, 9-12	
Geometry    K.G		
Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).		
K.G.1 Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as <i>above</i> , <i>below</i> , <i>beside</i> , <i>in front of</i> , <i>behind</i> , and <i>next to</i> .	1-13, 2-3, 2-8, 2-11, 2-12, 3-6, 3-13, 4-7, 5-4, 5-5, 5-11, 5-13, 6-1, 6-4, 6-5, 6-8, 6-9, 7-1, 7-4, 7-11, 8-1, 8-7, 9-1, 9-4, 9-6, 9-7, 9-10, 9-12, 9-13	
K.G.2 Correctly name shapes regardless of their orientations or overall size.	1-2, 1-5, 1-13, 2-3, 2-7, 2-8, 2-11, 2-12, 3-3, 3-11, 4-1, 4-2, 4-7, 4-8, 4-10, 4-11, 5-4, 5-5, 5-11, 5-13, 6-1, 6-4, 6-5, 6-8, 6-9, 6-10, 7-1, 7-4, 7-8, 7-11, 7-13, 8-1, 8-2, 8-3, 8-7, 8-8, 8-11, 9-1, 9-4, 9-6, 9-12, 9-13	
K.G.3 Identify shapes as two-dimensional (lying in a plane, “flat”) or three dimensional (“solid”).	6-4, 6-5, 6-8, 7-1, 7-4, 8-2, 8-3, 9-13	
Analyze, compare, create, and compose shapes.		
K.G.4 Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).	1-2, 1-5, 1-12, 2-2, 2-3, 2-7, 2-8, 2-11, 2-12, 3-3, 3-11, 4-2, 4-8, 4-11, 5-4, 5-11, 5-13, 6-4, 6-5, 6-8, 6-9, 6-10, 7-1, 7-4, 7-13, 8-1, 8-2, 8-3, 8-8	
K.G.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.	3-3, 3-11, 4-11, 5-4, 5-11, 8-2, 8-3, 9-6, 9-7, 9-10, 9-12, 9-13	
K.G.6 Compose simple shapes to form larger shapes. <i>For example, “Can you join these two triangles with full sides touching to make a rectangle?”</i>	1-2, 1-5, 4-7, 4-10, 5-13, 6-9, 7-11, 8-2, 8-7, 9-1, 9-4, 9-12	

# Correlation to the Mathematical Processes and Practices

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

Mathematical Processes and Practices	<i>Everyday Mathematics</i> Goals for Mathematical Processes and Practices
<b>1. Make sense of problems and persevere in solving them.</b>  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.	<b>Pages</b> 49, 51, 73, 74, 75, 77, 79, 89, 103, 104, 105, 119, 120, 121, 123, 125, 127, 130, 131, 140, 143, 144, 145, 148, 151, 152, 153, 155, 156, 157, 177, 178, 179, 190, 194, 196, 197, 198, 205, 217, 218, 219, 251, 253, 256, 259, 260, 262, 263, 264, 265, 267, 268, 269, 272, 273, 275, 276, 277, 280, 288, 305, 309, 311, 318, 322, 326, 331, 339, 341, 342, 343, 345, 346, 347, 350, 353, 354, 355, 384, 389, 392, 394, 395, 397, 399, 400, 401, 403, 404, 405, 407, 409, 411, 412, 413, 415, 417, 419, 420, 421, 433, 435, 437, 442, 443, 446, 447, 449, 450, 453, 454, 455, 457, 458, 460, 461, 465, 466, 467, 470, 471, 473, 474, 475, 478, 481, 482, 504, 512, 515, 517, 520, 523, 524, 526, 527, 529, 531, 532, 533, 535, 537, 539, 540, 541, 545, 565, 567, 569, 571, 573, 575, 578, 585, 587, 589, 592, 595, 599, 602, 606, 609, 610, 611, 613, 614, 615, 617, 621



## Mathematical Processes and Practices

## Everyday Mathematics Goals for Mathematical Processes and Practices

### 2. Reason abstractly and quantitatively.

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

**Pages** 57, 58, 59, 62, 65, 66, 67, 70, 71, 73, 74, 75, 77, 78, 79, 81, 82, 83, 86, 90, 103, 105, 107, 108, 109, 115, 116, 117, 119, 120, 121, 124, 136, 139, 140, 141, 153, 156, 157, 169, 170, 171, 173, 174, 175, 177, 178, 179, 181, 182, 186, 187, 190, 191, 193, 194, 196, 197, 198, 199, 202, 203, 205, 206, 207, 209, 210, 211, 213, 214, 215, 221, 223, 236, 240, 244, 245, 249, 251, 252, 253, 257, 267, 268, 269, 280, 281, 283, 284, 285, 287, 288, 289, 306, 309, 311, 318, 321, 323, 333, 334, 335, 337, 338, 339, 341, 342, 343, 345, 346, 347, 354, 368, 372, 376, 377, 397, 399, 400, 401, 403, 404, 405, 408, 413, 415, 416, 417, 420, 421, 435, 437, 439, 441, 443, 445, 446, 447, 454, 457, 458, 460, 461, 462, 463, 469, 470, 471, 473, 474, 475, 483, 504, 512, 516, 517, 519, 520, 521, 533, 536, 541, 551, 552, 553, 585, 587, 605, 606, 607, 609, 610, 611, 613, 614, 617, 619, 620, 621

### 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** 218, 239, 241, 268, 273, 288, 289, 302, 303, 305, 306, 317, 318, 319, 324, 325, 326, 328, 329, 331, 353, 368, 381, 383, 385, 400, 445, 455, 465, 466, 467, 470, 482, 499, 501, 505, 506, 509, 532, 536, 539, 540, 551, 553, 565, 566, 567, 578, 581, 583, 586, 601, 602, 616, 619, 620

## Mathematical Processes and Practices

*Everyday Mathematics Goals for  
Mathematical Processes and Practices***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** 53, 54, 55, 65, 67, 69, 70, 71, 151, 152, 153, 155, 156, 157, 181, 191, 221, 243, 244, 245, 248, 249, 310, 313, 314, 315, 317, 322, 341, 342, 343, 345, 346, 347, 355, 367, 375, 377, 384, 397, 399, 400, 401, 403, 404, 405, 415, 416, 417, 419, 420, 421, 434, 435, 446, 447, 473, 474, 475, 477, 486, 500, 503, 504, 505, 508, 512, 516, 536, 541, 566, 574, 586, 589, 592, 593, 595, 606, 613, 614, 615, 617

**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** 61, 120, 247, 248, 249, 255, 271, 272, 273, 279, 280, 287, 289, 334, 367, 368, 369, 372, 388, 391, 392, 394, 395, 396, 397, 412, 434, 435, 449, 450, 451, 453, 455, 467, 481, 486, 511, 515, 517, 535, 536, 537, 539, 540, 541, 571, 579, 581, 582, 583, 597, 598, 599, 601, 602, 603, 616, 623

## Mathematical Processes and Practices

## Everyday Mathematics Goals for Mathematical Processes and Practices

### 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** 41, 42, 43, 45, 46, 47, 49, 50, 51, 54, 55, 58, 59, 61, 62, 63, 67, 69, 71, 77, 79, 85, 86, 87, 88, 89, 91, 104, 107, 108, 109, 111, 112, 113, 115, 116, 117, 120, 121, 133, 135, 136, 137, 141, 143, 144, 145, 147, 148, 149, 152, 174, 177, 178, 179, 182, 183, 185, 186, 187, 189, 191, 201, 202, 203, 209, 210, 211, 214, 222, 236, 239, 240, 241, 243, 244, 245, 249, 251, 253, 255, 256, 257, 259, 260, 262, 263, 265, 268, 271, 273, 275, 276, 277, 280, 283, 284, 285, 288, 289, 301, 302, 303, 311, 313, 314, 316, 317, 318, 319, 323, 325, 326, 328, 329, 331, 334, 337, 338, 339, 346, 349, 351, 355, 367, 368, 369, 371, 372, 373, 375, 377, 379, 380, 381, 383, 384, 385, 388, 400, 406, 407, 408, 409, 434, 443, 445, 447, 453, 454, 455, 457, 458, 460, 461, 462, 465, 466, 467, 477, 478, 479, 481, 482, 483, 499, 500, 501, 503, 504, 505, 506, 507, 508, 509, 511, 512, 513, 515, 516, 517, 520, 529, 532, 540, 543, 545, 548, 552, 565, 566, 567, 569, 570, 571, 574, 577, 578, 579, 581, 582, 583, 585, 586, 587, 597, 598, 599, 601, 603, 607, 609, 610, 611, 615, 616, 617, 619, 620, 621, 623

### 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  $7 \times 8$  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  $2 \times 7$  and the 9 as  $2 + 7$ . They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see  $5 - 3(x - y)^2$  as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers  $x$  and  $y$ .

**Pages** 43, 45, 47, 55, 58, 62, 66, 70, 74, 78, 82, 83, 85, 86, 87, 89, 90, 91, 104, 108, 111, 112, 113, 115, 117, 123, 124, 125, 126, 127, 128, 130, 131, 133, 135, 136, 137, 144, 147, 148, 149, 152, 169, 170, 171, 173, 205, 206, 207, 209, 210, 211, 215, 223, 235, 236, 237, 241, 249, 267, 269, 279, 280, 281, 283, 284, 285, 287, 289, 301, 302, 303, 305, 307, 309, 311, 321, 322, 323, 331, 333, 335, 339, 349, 351, 354, 379, 380, 387, 388, 389, 407, 409, 411, 413, 438, 449, 450, 451, 463, 466, 469, 471, 477, 479, 485, 486, 487, 499, 501, 513, 521, 522, 523, 524, 526, 527, 528, 529, 531, 532, 533, 536, 543, 544, 547, 548, 549, 553, 569, 570, 573, 574, 575, 582, 595, 605

### 8. Look for and express regularity in repeated reasoning.

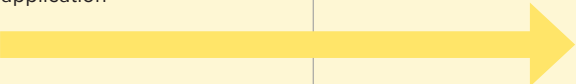
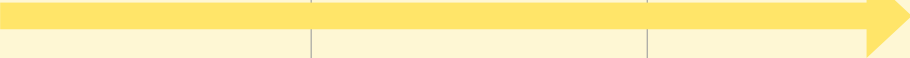
Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By 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.

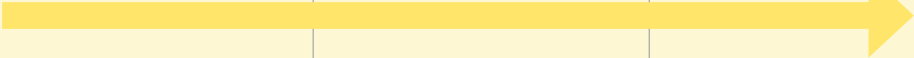
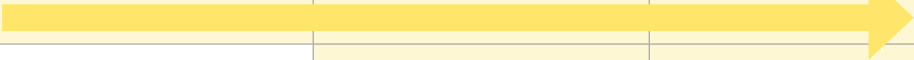
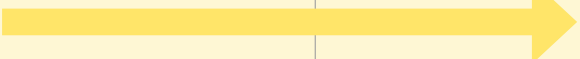
**Pages** 126, 127, 128, 130, 131, 133, 144, 235, 236, 237, 303, 349, 351, 387, 388, 389, 438, 485, 487, 519, 521, 544, 547, 548, 549, 570, 573, 574, 575


# Mastery Expectations

In Kindergarten, *Everyday Mathematics* focuses on procedures, concepts, and applications in two critical areas:


- Representing and comparing whole numbers, initially with sets of objects.
- Describing shapes and space.

Standards	First Quarter Benchmark Expectations for Units 1 through 3	Second Quarter Benchmark Expectations for Units 4 and 5	Third Quarter Benchmark Expectations for Units 6 and 7	Fourth Quarter Benchmark Expectations for Units 8 and 9
K.CC.1	Count orally by ones to 19.	Count orally by ones to 50. Count orally by tens to 50.	Count orally by ones to 80. Count orally by tens to 80.	★ Count to 100 by ones and by tens.
K.CC.2	Count forward to 10 starting from numbers other than 1.	Count forward to 50 starting from numbers other than 1.	Count forward to 80 starting from numbers other than 1.	★ Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
K.CC.3	Read and write numbers from 0 to 10. Represent up to 10 objects with a written numeral.	★ Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).	Ongoing practice and application 	
K.CC.4a	★ When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.	Ongoing practice and application 		

Standards	First Quarter Benchmark Expectations for Units 1 through 3	Second Quarter Benchmark Expectations for Units 4 and 5	Third Quarter Benchmark Expectations for Units 6 and 7	Fourth Quarter Benchmark Expectations for Units 8 and 9
<b>K.CC.4b</b>	★ Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.	Ongoing practice and application 		
<b>K.CC.4c</b>	★ Understand that each successive number name refers to a quantity that is one larger.	Ongoing practice and application 		
<b>K.CC.5</b>	Count arranged and scattered sets of up to 10 objects. Count out up to 10 objects.	Count arranged sets of up to 20 objects. Count scattered sets of up to 10 objects. Count out up to 10 objects.	★ Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.	Ongoing practice and application.
<b>K.CC.6</b>	Compare the number objects in two groups using the terms more, fewer, and same.	★ Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.	Ongoing practice and application 	

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

 Mastery expected during this quarter.

Standards	First Quarter Benchmark Expectations for Units 1 through 3	Second Quarter Benchmark Expectations for Units 4 and 5	Third Quarter Benchmark Expectations for Units 6 and 7	Fourth Quarter Benchmark Expectations for Units 8 and 9
<b>K.CC.7</b>	No expectations for mastery at this point.	★ Compare two numbers between 1 and 10 presented as written numerals.	Ongoing practice and application	
<b>K.OA.1</b>	Represent end-unknown addition and subtraction situations within 5 concretely (using objects, fingers, drawings, or acting out).	Represent addition and subtraction concretely and verbally, but not yet symbolically.	Represent addition concretely, verbally, and symbolically. Represent subtraction concretely and verbally, but not yet symbolically.	★ Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
<b>K.OA.2</b>	Solve end-unknown number stories involving addition and subtraction within 5 using direct modeling with fingers, counters, pictures, or acting out.  Add and subtract within 5 using objects, drawings, or other concrete strategies.	Solve simple number stories involving addition and subtraction using direct modeling.  Add and subtract within 10 using objects, drawings, or other concrete strategies.	★ Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.	Ongoing practice and application
<b>K.OA.3</b>	Decompose numbers less than or equal to 10 into pairs in more than one way in the context of manipulatives, dot patterns, and ten frames.	Decompose numbers less than or equal to 10 into pairs in more than one way.  Record decompositions with drawings.	★ Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$ ).	Ongoing practice and application

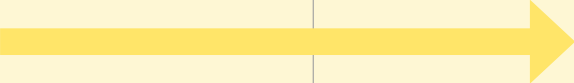


Standards	First Quarter Benchmark Expectations for Units 1 through 3	Second Quarter Benchmark Expectations for Units 4 and 5	Third Quarter Benchmark Expectations for Units 6 and 7	Fourth Quarter Benchmark Expectations for Units 8 and 9
<b>K.OA.4</b>	No expectations for mastery at this point.	Find number pairs that add to 10.	★ For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.	Ongoing practice and application
<b>K.OA.5</b>	No expectations for mastery at this point.	Develop strategies for addition and subtraction within 5.	Develop strategies for addition and subtraction within 5.	★ Fluently add and subtract within 5.
<b>K.NBT.1</b>	No expectations for mastery at this point.	Understand, compose, and decompose, numbers 11-19 as ten ones and some more ones concretely (e.g., with fingers or on a ten frame)	Understand, compose, and decompose, numbers 11-19 as ten ones and some more ones concretely (e.g., with fingers or on a ten frame).	★ Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (such as $18 = 10 + 8$ ); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.
<b>K.MD.1</b>	No expectations for mastery at this point.	Describe the length and weight of objects using terms such as long, tall, short, heavy, and light.	Describe various measurable attributes of objects. Describe several measurable attributes of a single object.	★ Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

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



Mastery expected during this quarter.

Standards	First Quarter Benchmark Expectations for Units 1 through 3	Second Quarter Benchmark Expectations for Units 4 and 5	Third Quarter Benchmark Expectations for Units 6 and 7	Fourth Quarter Benchmark Expectations for Units 8 and 9
<b>K.MD.2</b>	Directly compare objects by length and describe the comparisons using the terms longer and shorter.	Directly compare objects by length and weight and describe the comparisons using terms such as longer, taller, shorter, heavier, and lighter.	Directly compare objects by length and weight and describe the comparisons using terms such as longer, taller, shorter, heavier, and lighter.	★ Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. <i>For example, directly compare the heights of two children and describe one child as taller/shorter.</i>
<b>K.MD.3</b>	Sort objects into categories using obvious attributes, such as color or shape. Count up to 10 objects in each category.	★ Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.	Ongoing practice and application 	
<b>K.G.1</b>	Understand some positional terms.	Identify 2-dimensional shapes in the environment. Understand many positional terms.	Identify 2-dimensional and some 3-dimensional shapes in the environment. Use many positional terms.	★ Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as <i>above, below, beside, in front of, behind, and next to</i> .
<b>K.G.2</b>	Identify and name some triangles, circles, and rectangles (including squares) in different sizes and orientations.	Identify and name triangles, circles, and rectangles (including squares) in different sizes and orientations.	Identify and name triangles, circles, and rectangles (including squares) in different sizes and orientations.	★ Correctly name shapes regardless of their orientations or overall size.

Standards	First Quarter Benchmark Expectations for Units 1 through 3	Second Quarter Benchmark Expectations for Units 4 and 5	Third Quarter Benchmark Expectations for Units 6 and 7	Fourth Quarter Benchmark Expectations for Units 8 and 9
<b>K.G.3</b>	No expectations for mastery at this point.	No expectations for mastery at this point.	★ Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).	Ongoing practice and application
<b>K.G.4</b>	Describe the numbers of sides and vertices of triangles, circles, and rectangles (including squares) in different sizes and orientations.	Analyze and describe attributes of triangles, circles, and rectangles (including squares) in different sizes and orientations.  Compare attributes of 2-dimensional shapes	Analyze and describe attributes of basic 2-dimensional and 3-dimensional shapes in different sizes and orientations.  Compare attributes of 2-dimensional shapes.	★ Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).
<b>K.G.5</b>	No expectations for mastery at this point.	Draw recognizable circles, triangles, squares, and other rectangles.	Draw circles, triangles, squares, and other rectangles.	★ Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.
<b>K.G.6</b>	No expectations for mastery at this point.	Compose shapes from other shapes with the support of puzzle outlines or other structured guidance.	★ Compose simple shapes to form larger shapes. For example, “Can you join these two triangles with full sides touching to make a rectangle?”	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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## Focus

In **Section 1**, children learn and apply basic counting principles and explore a range of other mathematical topics, such as graphing, measurement and shapes.

### Major Clusters

**K.CC.A** Know number names and the count sequence.

**K.CC.B** Count to tell the number of objects.

### Supporting Clusters

**K.G.A** Identify and describe shapes.

**K.MD.B** Classify objects and count the number of objects in each category.

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## Focus

In **Section 2**, children continue to practice counting in different contexts and begin in-depth explorations of basic shapes.

### Major Clusters

**K.OA.A** Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

**K.CC.B** Count to tell the number of objects.

### Supporting Clusters

**K.G.A** Identify and describe shapes.

**K.G.B** Analyze, create, compare, and compose shapes.

## Section 2 Naming and Describing Shapes; Counting

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## Focus

In **Section 3**, children do a wide range of activities to help them connect written numerals to quantities.

### Major Clusters

**K.CC.A** Know number names and the count sequence.

**K.CC.B** Count to tell the number of objects.

**K.CC.C** Compare numbers.

### Supporting Clusters

**K.G.B** Analyze, create, compare, and compose shapes.

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## Focus

In **Section 4**, children explore attributes of shapes, expand their knowledge of measurable attributes, and extend their counting skills.

### Major Clusters

**K.CC.A** Know number names and the count sequence.

**K.OA.A** Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

### Supporting Clusters

**K.G.B** Analyze, create, compare, and compose shapes.

**K.MD.A** Describe and compare measurable attributes.

## Section 4 Advanced Counting; Composing/Decomposing Numbers and Shapes; Measurable Attributes

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## Focus

In **Section 5**, children focus on teen numbers. They also learn new ways to model and represent addition.

### Major Clusters

**K.CC.B** Count to tell the number of objects.

**K.OA.A** Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

**K.NBT.A** Work with numbers 11-19 to gain foundations for place value.

### Supporting Clusters

**K.G.B** Analyze, create, compare, and compose shapes.

## Section 5 Exploring Teen Numbers

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## Focus

In **Section 6**, children explore 3-dimensional shapes and learn how to model and represent subtraction symbolically.

### Major Clusters

**K.OA.A** Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

### Supporting Clusters

**K.MD.A** Describe and compare measurable attributes.

**K.G.A** Identify and describe shapes.

**K.G.B** Analyze, create, compare, and compose shapes.

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## Focus

In **Section 7**, children develop and discuss addition and subtraction strategies in a variety of contexts.

### Major Clusters

**K.CC.C** Compare numbers.

**K.OA.A** Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

### Supporting Clusters

**K.G.B** Analyze, create, compare, and compose shapes.

**K.MD.B** Classify objects and count the number of objects in each category.

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## Focus

In **Section 8**, children explore number combinations that add to 10 and continue to explore 2- and 3-dimensional shapes.

### Major Clusters

**K.CC.A** Know number names and the count sequence.

**K.OA.A** Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

**K.NBT.A** Work with numbers 11-19 to gain foundations for place value.

### Supporting Clusters

**K.G.B** Analyze, create, compare, and compose shapes.

## Section 8 Numbers that Add to 10; Early Fact Fluency

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## Focus

In **Section 9**, children apply their knowledge of counting, operations, measurement, and geometry to new contexts and situations.

### Major Clusters

**K.CC.C** Compare numbers.

**K.OA.A** Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

### Supporting Clusters

**K.MD.A** Describe and compare measurable attributes.

**K.G.A** Identify and describe shapes.

## Section 9 Measurement and Spatial Thinking

554

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## Section 1 Organizer

# Foundational Counting Principles and Skills

## Contents

Lesson	Title, Focus, and Practice	Page	Content Standards*	Processes and Practices*
1-1	<b>Partner Match</b> <i>Send home the Section 1 Family Letter.</i> <b>Focus:</b> Children compare lengths and explain their mathematical thinking as they participate in a social activity. <b>Practice:</b> Establishing Daily Routines	40	K.MD.1, K.MD.2	SMP6
1-2	<b>Introduction to Pattern Blocks</b> <b>Focus:</b> Children use shape names as they explore pattern blocks. <b>Practice:</b> Establishing Daily Routines	44	K.G.2, K.G.4, K.G.6	SMP6, SMP7
1-3	<b>Gotcha: A Counting Game</b> <i>Use Home Link 1-3.</i> <b>Focus:</b> Children use one-to-one correspondence and the cardinal principle as they engage in a counting game. <b>Practice:</b> Establishing Daily Routines	48	K.CC.4a, K.CC.4b, K.CC.5	SMP1, SMP6
1-4	<b>Number Walk</b> <i>Use Home Link 1-4.</i> <b>Focus:</b> Children take a walk to look for numbers and explore the many uses of numbers in their world. <b>Practice:</b> Matching Strips (revisit 1-1)	52	K.CC.3	SMP4
1-5	<b>Getting to Know Numbers</b> <b>Focus:</b> Children explore the numbers 0-9 to practice and reinforce early counting and numeration skills and principles. <b>Practice:</b> Exploring Pattern Blocks (revisit 1-2)	56	K.CC.3, K.CC.4a, K.CC.4b, K.CC.4c, K.CC.5	SMP2
1-6	<b>Count and Sit</b> <b>Focus:</b> Children play an active counting game to develop their oral counting skills, including counting on. <b>Practice:</b> Getting to Know Numbers (2) (revisit 1-5)	60	K.CC.1, K.CC.2	SMP5, SMP6
1-7	<b>Class Birthdays</b> <i>Use Home Link 1-7.</i> <b>Focus:</b> Children count, compare, and represent data about their birthday months. <b>Practice:</b> Getting to Know Numbers (3) (revisit 1-5)	64	K.CC.4a, K.CC.4b, K.CC.5, K.CC.6, K.MD.3	SMP2, SMP4



Lesson	Title, Focus, and Practice	Page	Content Standards*	Processes and Practices*
1-8	<b>Class Age Graph</b> <b>Focus:</b> Children create concrete and paper graphs showing their ages, and use them to answer counting and comparison questions. <b>Practice:</b> Getting to Know Numbers (4) (revisit 1-5)	68	K.CC.4a, K.CC.4b, K.CC.5, K.CC.6, K.MD.3	SMP4, SMP6
1-9	<b>Number Stations</b> <i>Use Home Link 1-9.</i> <b>Focus:</b> Children count out objects to represent 5 in multiple ways, and informally explore addition and subtraction within 5. <b>Practice:</b> Getting to Know Numbers (5) (revisit 1-5)	72	K.CC.4a, K.CC.4b, K.CC.5, K.OA.3, K.OA.5	SMP1, SMP2
1-10	<b>Quick Looks</b> <b>Focus:</b> Children compose and decompose numbers and explore addition by looking quickly at dots in different arrangements. <b>Practice:</b> Getting to Know Numbers (6) (revisit 1-5)	76	K.CC.4b, K.OA.3, K.OA.5	SMP1, SMP2, SMP6
1-11	<b>Five Frames</b> <b>Focus:</b> Children use a five frame to compose numbers in various ways and informally explore addition and subtraction within 5. <b>Practice:</b> Getting to Know Numbers (7) (revisit 1-5)	80	K.CC.4a, K.CC.4b, K.CC.5, K.OA.3, K.OA.5	SMP2
1-12	<b>Describing Shapes</b> <b>Focus:</b> Children use informal language to describe, compare, and contrast a variety of shapes. <b>Practice:</b> Getting to Know Numbers (8) (revisit 1-5)	84	K.G.4	SMP2, SMP7
1-13	<b>Shape Patterns</b> <i>Use Home Link 1-13.</i> <b>Focus:</b> Children identify and describe shapes in the context of repeating and growing patterns. <b>Practice:</b> Getting to Know Numbers (9) (revisit 1-5)	88	K.G.1, K.G.2	SMP1, SMP6, SMP7

### Suggested Pacing for Section 1 is 17–18 days.

Plan to teach 3-4 lessons per week, leaving plenty of time to establish routines and set norms. This includes full use of the Focus and Practice for every lesson, plus needed Differentiation Options and select Cross-Curricular Connections.

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

Focus

In this section, children learn and apply basic counting principles and explore a range of other mathematical topics, such as graphing, measurement and shapes.

Major Clusters

- K.CC.A** Know number names and the count sequence.
- K.CC.B** Count to tell the number of objects.

Supporting Clusters

- K.G.A** Identify and describe shapes.
- K.MD.B** Classify objects and count the number of objects in each category.

Process and Practice Standards

- SMP2** Reason abstractly and quantitatively.
- SMP6** Attend to precision.

Coherence

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

	Links to the Past	Links to the Future
<b>K.CC.1</b>	In PreK, children learned and practiced the count sequence through 10 (and beyond as ready) through playful counting games, songs, and movement activities.	Children will continue to extend their knowledge of the count sequence across the year through a variety of oral counting activities and as they count objects in sets of increasing sizes. They will learn to count by 10s beginning in Section 4. In Grade 1, they will extend their knowledge of the oral count sequence to at least 120.
<b>K.CC.4a</b>	In PreK, children had experiences with a variety of objects and sets in order to develop their understanding of and skill with one-to-one correspondence when counting.	Children continue to work on one-to-one correspondence, as needed, through Section 3 to ensure that they have mastered this foundational counting skill. They will apply it in a variety of contexts (counting larger sets, solving addition and subtraction problems, analyzing graphs, and so on) throughout the year and into later grades.

<b>K.CC.4b</b>	In PreK, children had many experiences to develop their understanding of cardinality, starting with quantities smaller than 3 and gradually increasing to help them generalize the cardinal principle.	Children continue to work on understanding and generalizing the cardinal principle, as needed, through Section 3 to ensure that they have mastered this foundational counting concept. They will apply it in a variety of contexts (counting larger sets, solving addition and subtraction problems, analyzing graphs, and so on) throughout the year and into later grades.
<b>K.CC.5</b>	In PreK, children counted objects mostly in ordered arrangements as part of counting activities, games, and classroom life.	Children will count increasing numbers of objects in various arrangements, as well as learn and practice strategies for counting scattered sets, throughout the year and into later grades, where these basic counting skills have many important applications (operations, graphing, measurement, and so on).
<b>K.G.2</b>	In PreK, children explored mostly 2-dimensional shapes in various sizes and orientations through tactile, kinesthetic, and visual activities.	Children will experience a wide range of different shapes over the course of the year to deepen their understanding of shape categories (triangles, rectangles, and so on). In Grades 1 and 2 they will further these understandings by thinking about defining and non-defining attributes of particular shape categories and by identifying additional shape categories, such as quadrilaterals.
<b>K.MD.3</b>	In PreK, children focused on identifying, matching, and sorting objects by attributes. They also generated a variety of concrete graphs that they used for counting and comparing.	Children will classify a variety of different things over the course of the year, often representing, counting, and comparing their categories using graphs. In Grade 1, they continue with increasingly complex graphing activities that give them opportunities to categorize, count, and compare data.

# Planning for Rich Math Instruction

33A

RIGOR							■ = Fact Work	Red text = Game
	Conceptual Understanding	Procedural Skill and Fluency	Applications	Rich Tasks and Mathematical Reasoning	Mathematical Discourse	Distributed Practice	Differentiation Support	
<b>1-1</b> <b>Partner Match</b>	Length as a measurable attribute, p. 41	Daily Routines	Daily Routines Thinking of real-life situations for comparing lengths, p. 41 Blocks Connection, p. 42 Enrichment, p. 43	Reasoning about misaligned strips, p. 41 Thinking of real-life situations for comparing lengths, p. 41 Blocks Connection, p. 42	Discussing how to compare lengths and why, p. 41 Blocks Connection, p. 42	Daily Routines Establishing Daily Routines, p. 42	Common Misconception, p. 41 Differentiation Options, p. 43 Online Differentiation Support 1-1	
<b>1-2</b> <b>Introduction to Pattern Blocks</b>	Side as a geometric attribute, p. 45	Daily Routines	Daily Routines Literacy and Art Connection, p. 46	Exploring different ways to combine pattern blocks to create pictures, designs, and new shapes, p. 45 Literacy and Art Connection, p. 46 Using Pattern-Block Clues, p. 47	Discussing pattern-block shape similarities and differences, p. 45 Literacy and Art Connection, p. 46 Readiness, p. 47	Daily Routines Establishing Daily Routines, p. 46	ELL Support, p. 44 Academic Language Development, p. 45 Differentiation Options, p. 47 Online Differentiation Support 1-2	
<b>1-3</b> <b>Gotcha: A Counting Game</b>	Cardinality/cardinal principle, p. 49	Daily Routines Playing Gotcha, p. 49 Home Link 1-3, p. 50 Readiness, p. 51	Daily Routines Thinking of real-life situations when it is important to count correctly, p. 49 Readiness, p. 51	Thinking of real-life situations when it is important to count correctly, p. 49 Discussing why changing the arrangement doesn't change the number of items in a set, p. 49	Discussing why changing the arrangement doesn't change the number of items in a set, p. 49	Daily Routines Establishing Daily Routines, p. 50	ELL Support, p. 48 Common Misconception, p. 49 Differentiation Options, p. 51 Online Differentiation Support 1-3	
<b>1-4</b> <b>Number Walk</b>	Different uses of numbers, p. 53	Daily Routines	Daily Routines Looking for numbers in the environment and considering their uses, p. 53 Home Link 1-4, p. 54 Enrichment, p. 55	Considering why and where else they see particular numbers in their environment, p. 53 Matching Strips, p. 54 Enrichment, p. 55	Discussing uses of numbers, p. 53 Matching Strips, p. 54 Literacy Connection, p. 54	Daily Routines Matching Strips, p. 54	ELL Support, p. 52 Adjusting the Activity, p. 53 Differentiation Options, p. 55 Online Differentiation Support 1-4	

<b>1-5</b> <b>Getting to Know Numbers</b>	Cardinality and uses of featured numbers, p. 57	Daily Routines <i>Mother, May I? and Simon Says with featured number, p. 58</i> Literacy Connection, p. 58	Daily Routines Looking for or using the featured number in real-life contexts, p. 58	Creating number collections, p. 57 Enrichment, p. 59 Extra Practice, p. 59	Discussing the meaning of zero/none, p. 57 Literacy Connection, p. 58	Daily Routines Exploring Pattern Blocks, p. 58	ELL Support, p. 56 Adjusting the Activity, p. 57 Differentiation Options, p. 59 Online Differentiation Support 1-5
	Counting on and counting from numbers other than one, p. 61	Daily Routines <i>Playing Count and Sit, pp. 60 &amp; 63</i> <i>Mother, May I? and Simon Says with featured number, p. 62</i>	Daily Routines Looking for or using the featured number in real-life contexts, p. 62	Figuring out who will be the last person standing, p. 61 Correcting teacher's counting mistake, p. 61	Discussing children's counting strategies, p. 61 Getting to Know Numbers (2), p. 62	Daily Routines Getting to Know Numbers (2), p. 62	ELL Support, p. 60 Common Misconception, p. 61 Game Modifications, p. 61 Differentiation Options, p. 63 Online Differentiation Support 1-6
	Understanding the data display and its uses, p. 65	Daily Routines <i>Mother, May I? and Simon Says with featured number, p. 66</i> Readiness, p. 67	Daily Routines Graphing real-life data, p. 65 Discussing uses of the birthday graph, p. 65 Looking for or using the featured number in real-life contexts, p. 66 Home Link, p. 66	Thinking about how to create the data display, p. 65	Discussing findings from and uses of the birthday graph, p. 65 Getting to Know Numbers (3), p. 66	Daily Routines Getting to Know Numbers (3), p. 66	ELL Support, p. 64 Academic Language Development, p. 66 Differentiation Options, p. 67 Online Differentiation Support 1-7
	<b>Conceptual Understanding</b>	<b>Procedural Skill and Fluency</b>	<b>Applications</b>	<b>Rich Tasks and Mathematical Reasoning</b>	<b>Mathematical Discourse</b>	<b>Distributed Practice</b>	<b>Differentiation Support</b>
<b>RIGOR</b>				<b>■ = Fact Work</b> Red text = Game			

RIGOR				■ = Fact Work      Red text = Game			
	Conceptual Understanding	Procedural Skill and Fluency	Applications	Rich Tasks and Mathematical Reasoning	Mathematical Discourse	Distributed Practice	Differentiation Support
1-8 Class Age Graph	Understanding the data display and its uses, p. 69	Daily Routines <i>Mother, May I? and Simon Says with featured number, p. 70</i>	Daily Routines Graphing real-life data, p. 69 Looking for or using the featured number in real-life contexts, p. 70	Predicting how the age graph will change over time, pp. 69-70 Enrichment, p. 71	Comparing the birthday and age graphs, pp. 69-70 Discussing findings from the age graph, p. 69 Getting to Know Numbers (4), p. 70	Daily Routines Getting to Know Numbers (4), p. 70	ELL Support, p. 68 Differentiation Options, p. 71 Online Differentiation Support 1-8
1-9 Number Stations	The same number can be represented in different ways, p. 73	Daily Routines Representing 5, p. 73 <i>Mother, May I? and Simon Says with featured number, p. 74</i>	Daily Routines Looking for or using the featured number in real-life contexts, p. 74	Representing a number in different ways, with different materials, pp. 73 & 75 Home Link, p. 74 Art Connection, p. 74 Enrichment, p. 75	Discussing similarities and differences in representations, p. 73 Getting to Know Numbers (5), p. 74	Daily Routines Getting to Know Numbers (5), p. 74	ELL Support, p. 72 Common Misconception, p. 73 Differentiation Options, p. 75 Online Differentiation Support 1-9
1-10 Quick Looks	The same number can be decomposed in different ways, p. 77	Daily Routines ■ Introducing Quick Looks, p. 77 <i>Mother, May I? and Simon Says with featured number, p. 78</i>	Daily Routines ■ Generating quick-look hints for preschoolers, p. 77 Looking for or using the featured number in real-life contexts, p. 78	■ Generating quick-look hints for preschoolers, p. 77 Enrichment, p. 79	■ Discussing children’s quick-look strategies, p. 77 Getting to Know Numbers (6), p. 78	Daily Routines Getting to Know Numbers (6), p. 78	ELL Support, p. 76 ■ Adjusting the Activity, p. 77 Differentiation Options, p. 79 Online Differentiation Support 1-10
1-11 Five Frames	The same number can be represented in different ways, p. 81	Daily Routines ■ Exploring Five Frames, p. 81 <i>Mother, May I? and Simon Says with featured number, p. 82</i>	Daily Routines Looking for or using the featured number in real-life contexts, p. 82	■ Justifying and comparing different representations, p. 81 ■ Literacy and Music Connection, p. 82 ■ Extra Practice, p. 83	■ Discussing children’s different representations, p. 81 Getting to Know Numbers (7), p. 82 ■ Literacy and Music Connection, p. 82	Daily Routines Getting to Know Numbers (7), p. 82	ELL Support, p. 80 ■ Differentiation Options, p. 83 Online Differentiation Support 1-11

■ = Fact Work

Red text = Game

<b>1-12</b> <b>Describing Shapes</b>	Meanings of terms related to shape characteristics and features, p. 85	Daily Routines <i>Mother, May I?</i> and <i>Simon Says</i> with featured number, p. 86	Daily Routines Finding classroom objects that look like particular shapes, p. 85	Describing and comparing shapes and relating them to real-life objects, p. 85 Readiness, p. 87 Enrichment, p. 87	Discussing and comparing shape characteristics and features, p. 85 Getting to Know Numbers (8), p. 86 Literacy Connection, p. 86	Daily Routines Getting to Know Numbers (8), p. 86	ELL Support, p. 84 Differentiation Options, p. 87 Online Differentiation Support 1-12
	Patterns, p. 89	Daily Routines <i>Mother, May I?</i> and <i>Simon Says</i> with featured number, p. 90	Daily Routines Connecting patterning to everyday life, p. 89 Looking for patterns in nature, p. 91	Comparing repeating and growing patterns, p. 89 Generating and justifying new patterns, p. 89 Literacy Connection, p. 90	Discussing how to continue various patterns and how to know something is a pattern, p. 89	Daily Routines Getting to Know Numbers (9), p. 90	ELL Support, p. 88 Adjusting the Activity, p. 89 Differentiation Options, p. 91 Online Differentiation Support 1-13
	<b>Conceptual Understanding</b>	<b>Procedural Skill and Fluency</b>	<b>Applications</b>	<b>Rich Tasks and Mathematical Reasoning</b>	<b>Mathematical Discourse</b>	<b>Distributed Practice</b>	<b>Differentiation Support</b>
<b>RIGOR</b>							

■ = Fact Work     Red text = Game

# Notes

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## Go Online:



### Evaluation Quick Entry

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



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



# Section 1 Materials

Lesson	Math Masters	Activity Cards	Manipulative Kit	Other Materials	Literacy Suggestions
<b>1-1</b>	pp. 10-11	1		strips of heavy paper or cardstock cut into matching-length pairs*; see Routines, pp. 4-29, for listings of materials	
<b>1-2</b>		2	pattern blocks	paper, placemats, or cookie sheets for workspaces*	<i>The Quilt; Selina and the Bear Paw Quilt; Changes, Changes</i>
<b>1-3</b>	p. 12		counters; connecting cubes	other small objects for counting (optional)	
<b>1-4</b>	pp. 13-14			chart paper and markers; clipboards or hard writing surfaces (optional); camera (optional); cardstock strips from Lesson 1-1	<i>City by Numbers</i>
<b>1-5</b>		2-3	beads; counters; pattern blocks; connecting cube	<i>Sing Everyday!</i> song collection; “0” and “1” index cards; puppet or stuffed animal (math mascot)*; plastic bags; other small objects for counting; paper, placemats, or cookie sheets	<i>Emily’s First 100 Days of School</i> ; number picture book(s)
<b>1-6</b>	p. TA3*		connecting cubes	<i>Sing Everyday!</i> song collection in ConnectED; math mascot from Lesson 1-5; beanbag (optional); manipulatives; plastic bags; “2” index card	
<b>1-7</b>	pp. 15-17, TA3		connecting cubes	prepared paper birthday cakes and birthday candles; adhesive; manipulatives; plastic bags; “3” index card	birthday story
<b>1-8</b>	p. TA3		connecting cubes	prepared posterboard (optional); prepared index cards; adhesive; manipulatives; plastic bags; “4” index card	<i>When I Was Five</i>
<b>1-9</b>	pp. 19, TA3	4	craft sticks; beads; connecting cubes	index cards labeled “5” on both sides; manipulatives; plastic bags; “5” index card	<i>Five Little Chicks; Five Little Firefighters</i>
<b>1-10</b>	p. TA3		Quick Look Cards 1-10; connecting cubes	manipulatives; plastic bags; “6” index card	
<b>1-11</b>	pp. TA3-TA4*	5	counters; connecting cubes	prepared five frames*; manipulatives; plastic bags; “7” index card	<i>Seven Blind Mice; Five Green and Speckled Frogs</i>
<b>1-12</b>	pp. TA3, TA5-TA10*	6	connecting cubes	prepared Shape Cards*; manipulatives; plastic bags; “8” index card	shape book(s)
<b>1-13</b>	pp. 20, TA3	7-8	pattern blocks; connecting cubes	manipulatives; plastic bags; “9” index card	<i>Nine Ducks Nine; Pattern Fish</i>

\*Preserve for future lessons.

[Go Online](#) for other cross-curricular connections.

## 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.

1-1	1-2	1-3	1-4	1-5	1-6	1-7	1-8	1-9	1-10	1-11	1-12	1-13
K.MD.1, K.MD.2, SMP6	K.G.2, SMP6	K.CC.4a, K.CC.4b, K.CC.5	K.CC.3	K.CC.5, SMP2	K.CC.1, SMP6	K.CC.4a, K.CC.4b, K.CC.5, K.CC.6	K.CC.4a, K.CC.4b, K.CC.5, K.CC.6	K.CC.4b, K.CC.5, SMP2	K.CC.4b, SMP2	K.CC.4b, K.CC.5, SMP2	K.G.4, SMP6	K.G.1, K.G.2, SMP7



## Virtual Learning Community

[vlc.uchicago.edu](http://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: Kindergarten Section 1 Planning Webinar

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

### Kindergarten Routines

Watch one classroom work through the daily routines. Listen to the teacher explain how she let the routines evolve to suit her own classroom's needs or adopted some of the program's suggested methods.

### Saul's Classroom Tour Video

A Kindergarten teacher provides a tour of his classroom, describing his Routines set-up and procedures. He also explains how he organizes his math materials and conducts centers to support students' independence.

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

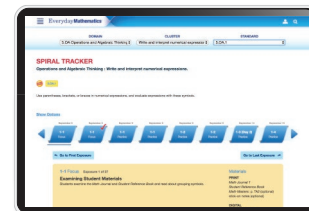


**UCHICAGO**  
STEM EDUCATION



# 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](http://my.mheducation.com) to use the Spiral Tracker.



**Spiral Towards Mastery Progress** The Spiral Trace outlines instructional trajectories for key standards in Section 1. For each standard, it highlights opportunities for Focus instruction, Practice activities, and assessment and describes the **degree of mastery**—as measured against the entire standard—expected at this point in the year.

## Counting and Cardinality

**K.CC.1**



**Progress Towards Mastery** By the end of Section 1, expect children to orally count accurately and efficiently from 1 to at least 10.

**Full Mastery of** **K.CC.1** expected by the end of Section 8.

**K.CC.4a**



**Progress Towards Mastery** By the end of Section 1, expect children to count a set of at least 5 objects using the correct count sequence and one-to-one correspondence.

**Full Mastery of** **K.CC.4a** expected by the end of Section 3.

**Key** = Assessment Check-In = Current Unit = Previous or Upcoming Lessons



**Progress Towards Mastery** By the end of Section 1, expect children to understand and generalize the cardinal principle for numbers 5 and greater.\*

**Full Mastery of K.CC.4b** expected by the end of Section 3.



**Progress Towards Mastery** By the end of Section 1, expect children to count arranged and scattered sets of up to 5 objects. Children should also be able to count out a set of up to 5 objects.\*

**Full Mastery of K.CC.5** expected by the end of Section 7.

\*Children with limited counting experience prior to Kindergarten may still be working on generalizing their understanding of cardinality for sets larger than 2 or 3.

**Key** = Assessment Check-In = Current Unit = Previous or Upcoming Lessons

# Mathematical Background: Content

## Oral (Rote) Counting (Number of the Day Routine, Lesson 1-6, and Rational Counting Activities)

Throughout Section 1, children practice the sequence of number names as they count by 1s. **K.CC.1** Oral counting (especially for numbers to about 12) is a memory task, much like reciting the alphabet. Over time children discern patterns in the count sequence, which helps them make sense of the words they say. Typically, young children's oral counting skills are more advanced than their rational counting skills: they are able to count to a number orally before being able to count or count out that number of objects (see below).

## Rational Counting (Lessons 1-3, 1-5 through 1-13)

Children who can count rotely may still have difficulty counting sets of objects with accuracy and understanding. Beyond knowing the number names in order, rational counting requires linking a single number name to one object, or *one-to-one correspondence*. **K.CC.4a** To determine how many objects are in a group, children must also learn the *cardinal principle*: that the last number counted tells the total number of objects in the group. Further, they must learn that when counting a group of objects, neither the characteristics of the objects (size, color, shape, or arrangement) nor the order in which they are counted affects the number of objects in the set. They must also find strategies to keep track of objects already counted, making sure not to count any twice. **K.CC.4b** In Section 1, children have many opportunities to gain familiarity with these concepts by counting objects in various configurations and by counting out sets of objects to represent a given number. **K.CC.5** Provide explicit guidance and support to children during these early counting activities to help them develop a solid understanding of these foundational counting skills and principles.

### Section 1 Terms to Use

Use these informally with children.

above	next
alike	next to
angle	none
below	number
corner	number words
count	on top
curve	pattern
different	pattern block
dot pattern	Quick Look
fewer	repeat
fewest	rhombus
five frame	right
graph	same
group	same length
grow	set
hexagon	shape
left	shorter
length	side
longer	square
match	straight
month	trapezoid
month names	triangle
more	vertex
most	zero

# Mathematical Background: Process and Practice



See below for some of the ways that children engage in **SMP2 Reason abstractly and quantitatively** and **SMP6 Attend to precision**: for example, through *Counting and Cardinality* and the other mathematical content of *Section 1*.

## Standard for Mathematical Process and Practice 2

Children engage in quantitative reasoning as they relate number words and quantities and connect counting to cardinality. In Lessons 1-5, 1-9, 1-10, and 1-11, children use concrete objects and visual images to create mathematical representations of quantities and to compare, analyze, and make connections between these representations. **GMP2.1, GMP2.2, GMP2.3** In Lessons 1-7 and 1-8, they create and use graphical representations and consider how these are useful for quantitative reasoning. Throughout this section, children are prompted to “attend to the meaning of quantities” as they work to develop their early counting skills and their number sense for small quantities.

## Standard for Mathematical Process and Practice 6

The Section 1 lessons provide many opportunities for children to practice clearly communicating their mathematical ideas, observations, and questions orally. For example, in Lesson 1-1 children explain how to compare the lengths of two strips. **GMP6.1** In Lessons 1-2, 1-12, and 1-13, they are prompted and supported to use clear and detailed language to describe shapes. **GMP6.3** In Lesson 1-10, children describe what they see in quantities on Quick Look dot cards and compare the different ways they figure out the total numbers of dots. **GMP6.1, GMP6.3** Be sure to capitalize on these and other chances for children to express their mathematical ideas verbally in Section 1 and throughout the year. Model clear, descriptive, and precise language, and have children model it for one another. Both are key ways to help children develop this process.

### Standards and Goals for Mathematical Process and Practice

#### **SMP2 Reason abstractly and quantitatively.**

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

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

**GMP2.3** Make connections between representations.

#### **SMP6 Attend to precision.**

**GMP6.1** Explain your mathematical thinking clearly and precisely.

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

[Go Online](#) to the *Implementation Guide* for more information about the Mathematical Process and Practice Standards.




## Lesson 1-5

# Getting to Know Numbers


**Overview** Children explore the numbers 0–9 to practice and reinforce early counting and numeration skills and principles.

- ▶ **Before You Begin** Choose a puppet or stuffed animal to be a “math mascot” for the class throughout the year. Fold index cards and label them 0–9, one number per card, to use for the Focus activity in this lesson (numbers 0 and 1) and the Practice activities in Lessons 1-6 through 1-13 (numbers 2–9).
- ▶ **Terms to Use** count • none • number • number words • one • set • zero
- ▶ **Materials** **Focus:** *Emily’s First 100 Days of School* by Rosemary Wells (Hyperion, 2005) or another number picture book; “Over in the Meadow” from *Sing Everyday!* in ConnectED; index cards labeled 0 and 1; puppet or stuffed animal “math mascot”; connecting cube; resealable plastic bags; small objects for counting (counters, buttons, beads, coins, etc.) **Practice:** pattern blocks; paper, placemats, or cookie sheets

 **Assessment Check-In** See page 58. Expect that most children will be able to create small sets (1, 2, and 3), but may not be able to count out bigger sets yet.

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

## Daily Routines

 10–15 min | Children practice mathematics as they perform the Daily Routines. See pages 4–29 for related Mathematical Process and Practice Standards.

## Core Activities

**Focus:** Exploring 0 and 1 **K.CC.3, K.CC.4a, K.CC.4b, K.CC.4c, K.CC.5**

 20–30 min **WHOLE CLASS** **SMALL GROUP** **PARTNER** **INDEPENDENT**

## Standards

### Focus Clusters

- Know number names and the count sequence.
- Count to tell the number of objects.

## ELL Support

Use touch commands to give children practice naming the number represented by a set of objects. For example: *Touch the set that shows one.* Also use yes or no questions and questions that require one-word answers. For example: *Does this set show one? How many buttons are in this set?*

## Readiness

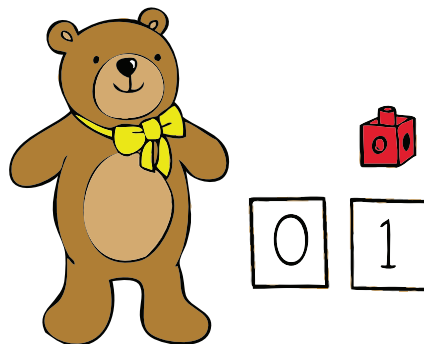
You may wish to use the Readiness activity on [page 59](#) with some or all children to prepare them to count out sets of objects.



**Read** *Emily's First 100 Days of School* by Rosemary Wells (Hyperion, 2005) or another number picture book. Tell children that each day they will explore a number from 0 to 9. Introduce the puppet or stuffed animal who wants to learn about numbers with them. Have the class choose a name for your math mascot such as *Counting Cub*, *Math Buddy*, or *Número!*

Conduct the following activities with the numbers 0 and 1. These activities will be repeated with the featured numbers in the Practice activities of Lessons 1-6 through 1-13.

- **Writing and Representing** Write 0 and 1 on the board and have children write each number in the air with large arm motions while saying the number. Ask children what they know about each number. Together, count out one connecting cube and display it with a folded index card labeled 1. Show the class the card labeled 0 and ask children how many cubes they should display with it. Explain that the 0 card should not have any cubes because **zero** represents no objects, or **none**. Save the labels and connecting cubes so you can add to the display on subsequent days. You may want to have your math mascot “guard” the “one more” number display. **GMP2.1**



A “one-more” display

- **Creating Number Collections** Pair children and give each partnership a plastic bag labeled with the number 1. Set out an assortment of objects and have children choose an object to put in their bags. (Save the bags for use in a comparison activity in Lesson 2-1, Practice.) After children create number collections, or **sets**, for 1, ask them why you are not giving them bags for 0 collections. Discuss how a bag with zero objects would be empty because 0 is a name for no objects, or none. Label an empty bag with “0” and keep it with the “1” collections. **GMP2.1**

**Focus on the featured number** during the day using as many of these activities as you can:

- Introduce and practice the appropriate verse of “Over in the Meadow” from *Sing Everyday!* in ConnectED. Also use the number in other counting songs. For example, change “Five Little Monkeys” to “Three Little Monkeys” on “Three Day.”

## Standards and Goals for Mathematical Process and Practice

**SMP2** Reason abstractly and quantitatively.

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

### Adjusting the Activity

**Differentiate** Counting out objects, or creating a set of a given number, is often more difficult than counting an already-created set. Provide the number strip on *Math Masters*, page TA3 for children who struggle to count out objects. (See Readiness, page 59.) Counting out sets will become more difficult as the featured number increases on subsequent days.

- Play movement games such as “Mother, May I?” or “Simon Says.” Have children jump, clap, or turn around as many times as the featured number. (You might do this during outside time.)
- Look for the featured number around the classroom or school.
- At snack time, eat the featured number of snacks (for example, 3 crackers or 5 grapes).
- List children who have the featured number of siblings, pets, letters in their names, and so on.



## Assessment Check-In K.CC.5

As children create their number collections, note whether they are able to count out sets to represent the numbers 1–9. Expect that most children will be able to create small sets (1, 2, and 3), but may not be able to count out bigger sets yet. Children will practice this skill in future lessons. Use Math Masters, page TA3 to support children who struggle with counting out objects to create sets. GMP2.1



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

## Practice: Exploring Pattern Blocks K.G.2, K.G.4, K.G.6

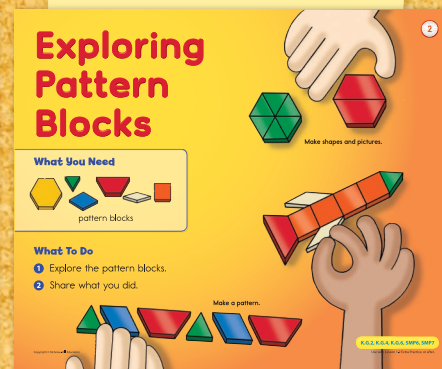
10–15 min WHOLE CLASS SMALL GROUP PARTNER INDEPENDENT

**Revisit** Lesson 1-2, pages 44–47. Put pattern blocks in the Math Center or otherwise make them available for free exploration. You may wish to use Activity Card 2. As children work with the blocks, reinforce shape names and terms. Encourage children to combine and arrange the shapes to make larger shapes, pictures, and patterns. GMP6.3, GMP7.1

## Connections

10–15 min | **Literacy** Read a different counting book each day as part of the Getting to Know Numbers sequence (Lesson 1-5 through Lesson 1-13). Compare how each book represents the featured number of the day, and use the books to reinforce that each successive number name refers to a quantity that is one larger. After the lessons, the class can vote or make a graph to see which book was the favorite.

### Activity Card 2





# Differentiation Options

Readiness				Enrichment				Extra Practice			
10–15 min				10–15 min				10–20 min			
WHOLE CLASS	SMALL GROUP	PARTNER	INDEPENDENT	WHOLE CLASS	SMALL GROUP	PARTNER	INDEPENDENT	WHOLE CLASS	SMALL GROUP	PARTNER	INDEPENDENT
<b>Using Number Strips to Create Sets</b> <b>K.CC.3, K.CC.4a, K.CC.4b, K.CC.5, SMP2, SMP6</b> <p><i>Math Masters</i>, p. TA3; small objects for counting (such as counters, beads, buttons)</p> <p>To provide practice with counting out objects to create sets, use the number strip on <i>Math Masters</i>, page TA3. Have children mark the target number by circling or shading it, then place one object in each empty space in order, counting aloud as they add each object. Have children repeat the total number of objects, emphasizing that the last number spoken tells the total number in the set. Repeat to create different-size sets. You may wish to pair children and have them check each other's counting. <b>GMP2.1, GMP6.4</b></p> <div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> <div>8</div> <div>9</div> <div>10</div> </div>				<b>Taking Apart Featured Numbers</b> <b>K.CC.4b, K.CC.5, K.OA.3, SMP2, SMP6</b> <p>connecting cubes; paper or <i>My First Math Book</i> Journaling Page</p> <p>To extend children's work with each day's featured number, have them count out that number of same-color connecting cubes to create a stack. Next have them separate the stack into two or more smaller parts. Ask: <i>Is the total number of cubes still the same?</i> Then ask: <i>Can you find another way to split the stack into smaller parts?</i> Children can record each combination they find with pictures and numbers on paper or on a <i>My First Math Book</i> Journaling Page. <b>GMP2.1, GMP6.4</b></p> <div> </div> <p>Examples of groupings of 6 cubes</p>				<b>Making Number Posters</b> <b>K.CC.3, K.CC.4a, K.CC.4b, K.CC.5, SMP2, SMP6</b> <p>Activity Card 3, construction paper or chart paper, markers or crayons, stickers, small items for gluing</p> <p>For additional practice, children can work individually or together to create posters about the featured number. If you prefer, create a number poster on chart paper as a whole-class activity. <b>GMP2.1, GMP6.4</b></p> <div> </div>			

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



# Lesson 1-11


## Five Frames

**Overview** Children use a five frame to compose numbers in various ways and informally explore addition and subtraction within 5.

► **Before You Begin** Copy 1 five frame (*Math Masters*, page TA4) for every child—on cardstock if possible or laminate a set for future use. Decide how you will show children's five-frame representations for discussion (for example: on a document camera, on a large five frame on the board, or on the floor with children in a circle where they can see each other's frames).

► **Terms to Use** five frame

► **Materials** **Focus:** prepared five frames (see Before You Begin); counters **Practice:** *Math Masters*, p. TA3 (optional); manipulatives; plastic bags; connecting cubes; index card with number 7


 **Assessment Check-In** See page 82. Document whether children can count out the designated number of objects to represent numbers on five frames. Expect most children to be able to count out sets of up to 5 objects correctly and to understand that objects in different arrangements can show the same number.



Go Online

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

## Daily Routines

 10–15 min | Children practice mathematics as they perform the Daily Routines. See pages 4–29 for related Mathematical Process and Practice Standards.

## Core Activities

**Focus:** Exploring Five Frames **K.CC.4a, K.CC.4b, K.CC.5, K.OA.3, K.OA.5**

 20–30 min

WHOLE CLASS

SMALL GROUP

PARTNER

INDEPENDENT

## Standards

### Focus Clusters

- Count to tell the number of objects.
- Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

## ELL Support

Ask questions about the five frames that require *yes*, *no*, or other one-word answers, such as: *Does this frame show 5? How many counters do you see?* Also use touch commands such as: *Touch the frame that has 3 counters.*

**Remind children** of the many different ways they showed the number 5 in Number Stations (Lesson 1-9). Explain that today they will show numbers in different ways by using a **five frame**.

Give each child a five frame and 5 counters. Ask: *Why do you think this is called a five frame?* **GMP2.2**

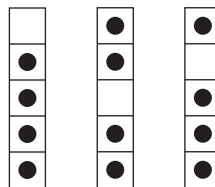
Tell children that they can show different numbers on their five frames by placing no more than one counter per square. Have children show the number 5. Ask: *How do you know you have 5?*

Emphasize that when the frame is full (one counter in each space), they know there are 5.

Reinforce good counting procedures by having children count aloud as they point to each counter to confirm. Then gesture to the whole set and say: *We have five counters all together.*

Have children clear their five frames and show the number 4. If most children make similar representations, encourage them to show 4 in other ways.

If necessary, show and discuss other groupings such as those shown at the right. Invite children to describe and compare their representations, and model your own thinking and observations. Support children's descriptions by modeling or providing sentence frames. For example: *I see \_\_\_\_ here and \_\_\_\_ here and that makes \_\_\_\_.* **GMP2.1, GMP2.2, GMP2.3**



Ask:

- *How do you know it is 4?* **Sample answers:** I counted 4 counters. I saw 2 and 2, which makes 4. I saw that 1 space in the frame was empty.
- *How is this 4 different from your 4?* **Sample answers:** There is an empty space between the two groups of counters. There are 3 counters at the bottom and 1 at the top. All 4 counters are next to each other.
- *What is the same about all our ways of showing 4 on a five frame?* **Sample answers:** There are always 4 counters. There is always 1 empty space.
- *Why did you decide to make your four that way?* **Answers vary.**

Repeat the procedure with the number 3 and again discuss several different representations.

**Conclude** by representing 3 in a way that has not been discussed. Have children share with a partner a different way they could figure out the number of counters. **GMP2.2** Sample strategies include counting, seeing how many are missing (compared to 5), or looking at the dots in groups. (For example, a group of 2 and a group of 1 make 3.) Have pairs share with the class.

## Standards and Goals for Mathematical Process and Practice

**SMP2** Reason abstractly and quantitatively.

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

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

**GMP2.3** Make connections between representations.

Math Masters, p. TA4

Blank Five Frame

NAME \_\_\_\_\_ DATE \_\_\_\_\_


TA4



## Assessment Check-In K.CC.4b, K.CC.5

Note whether children can count out the designated number of objects to represent numbers on five frames. Expect most children to be able to count out sets of up to 5 objects correctly. Also expect most children to understand that objects in different arrangements can show the same number. If children do not understand this, provide varied opportunities for them to count, rearrange, and then re-count sets in the context of five frames and Number Stations (Lesson 1-9). GMP2.3



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

## Practice: Getting to Know Numbers (7) K.CC.4a–c, K.CC.5

🕒 15–20 min WHOLE CLASS SMALL GROUP PARTNER INDEPENDENT

**Revisit** Lesson 1-5, pages 56–59. Focus on 7 as the featured number. In addition to using some of the suggested “featured number” activities on pages 57–58, have partners create and save number-collection bags with 7 items. Use the number strip on *Math Masters*, page TA3 for children who need additional support counting out a set of 7 objects. Also add a 7-cube tower and the label “7” to your growing connecting-cube display and discuss any patterns children notice in the display. Ask children to predict how many cubes there will be tomorrow and to explain their thinking. You may also wish to read ***Seven Blind Mice*** by Ed Young (Puffin, 2002).

GMP2.1, GMP7.1, GMP7.2

## Connections

🕒 10–15 min | **Literacy and Music** Read ***Five Green and Speckled Frogs*** by Constanza Basaluzzo (Scholastic, 2008). See *Sing Everyday!* in ConnectED for the song. For each verse, discuss how many frogs are on the log and how many are in the water. Note how the total is always 5. Act out the story with children, with small toys, or with manipulatives on a five frame. Ask children for their ideas about how the story connects to five frames.

### Professional Development

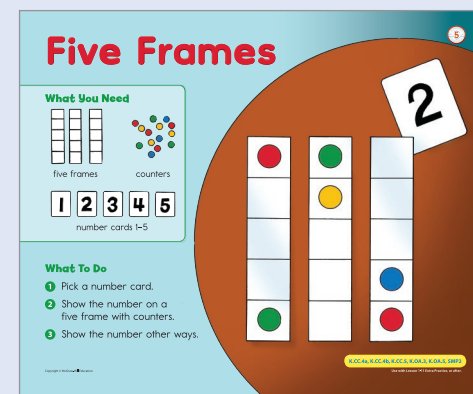
As they predict and describe what will come next in the growing connecting-cube display, many children will use the *successor function*, indicating that they understand that each successive number name refers to a quantity that is one larger and that they do not need to go back and count from 1 to find out “1 more.”





# Differentiation Options

Readiness				Enrichment				Extra Practice			
10–15 min				10–15 min				5–15 min			
WHOLE CLASS	SMALL GROUP	PARTNER	INDEPENDENT	WHOLE CLASS	SMALL GROUP	PARTNER	INDEPENDENT	WHOLE CLASS	SMALL GROUP	PARTNER	INDEPENDENT
<b>Number Stations for 3 and 4</b> <b>K.CC.4a–4b, K.CC.5, K.OA.3, K.OA.5, SMP2</b> <i>Math Masters</i> , p. TA3 (optional); small objects for Number Stations; index cards labeled 3 and 4  Children who need practice counting out small numbers of objects and understanding that they can be arranged in different ways can work at Number Stations (Lesson 1-9) for the numbers 3 and 4. Help children count out the manipulatives correctly. (Provide the number strip on <i>Math Masters</i> , page TA3 if needed.) Then encourage children to arrange the manipulatives to show the target number in a variety of ways. Help them count, describe, and compare their own and each other's creations. <b>GMP2.1, GMP2.2, GMP2.3</b>				<b>One More and One Less on Five Frames</b> <b>K.CC.4c, K.OA.1, K.OA.5, SMP2, SMP7</b> prepared five frames, counters  Children who are ready for more challenging work with five frames can do the following partner activity: One child places a number of counters on the five frame. The other child tells how many counters will be on the frame if 1 counter is added or removed. Partners then switch roles and repeat the activity, trying to use as many different representations as possible. After children master this version, have them tell how many <i>empty spaces</i> will exist if 1 counter is added to or removed from a given five-frame setup. <b>GMP2.1, GMP2.2, GMP7.2</b>				<b>Five Frames</b> <b>K.CC.4a–4b, K.CC.5, K.OA.3, K.OA.5, SMP2</b> Activity Card 5, prepared five frames, counters, number cards 1–5  To provide extra practice with five frames, have children represent numbers in various ways on different five frames and compare representations. Reinforce counting skills and concepts such as count sequence, one-to-one correspondence, and cardinality. <b>GMP2.1, GMP2.2</b>			



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

# Comparing Representations

**Overview** **Day 1:** Children create matching representations for a number between 5 and 10. **Day 2:** Children discuss and analyze different representations of numbers they created.

## Day 1: Open Response

▶ **Before You Begin** Prepare four index cards showing different representations of the number 4 to use during the Warm Up. Include a ten frame (see Quick Look Card 55), a dot pattern (see Quick Look Card 8), a drawing of four fingers on a hand, and a numeral 4. (See page 193 for a complete set of examples.) Also have a few blank cards ready for recording other representations during the Warm Up. Decide how you will pair children and which number (5–10) you will assign to each partnership. Write down each partnership's number on an index card or the back of each Representations Recording Sheet (*Math Masters*, page 50). If possible, plan to meet with other teachers after Day 1 to review children's work and plan for Day 2. Day 2 should take place within a few days of Day 1.

▶ **Terms to Use** compare • different • match • number • representation • same

▶ **Materials** **Day 1:** *Math Masters*, p. 50; index cards showing different representations of 4 (see Before You Begin); blank index cards; crayons or markers **Getting Ready for Day 2:** *Math Masters*, p. TA11 (Reengagement Planning Form); children's work from Day 1 **Day 2:** Activity Card 23 (optional); selected samples of children's work **Practice:** *Math Masters*, pp. 40–42; crayons or markers



**Assessment Check-In** See page 199 and rubric on page 197. Expect most children to recognize that the same number can be shown in different ways, and to compare representations and identify those that show the same number.



Go Online

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

## Daily Routines

🕒 10–15 min | Children practice mathematics as they perform the Daily Routines. See pages 4–29 for related Mathematical Process and Practice Standards.

## Standards

### Focus Clusters

- Know number names and the count sequence.
- Count to tell the number of objects.
- Compare numbers.



## Core Activities

### Focus: Solving the Open Response Problem

K.CC.3, K.CC.4b, K.CC.5, K.CC.6

🕒 20–30 min | Math Masters, p. 50

WHOLE CLASS

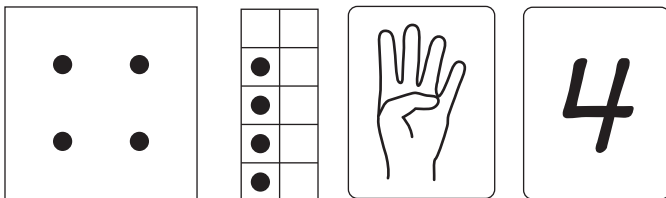
SMALL GROUP

PARTNER

INDEPENDENT

**Warm Up** Display all four of the following cards for children to see:

- dot pattern showing 4
- ten frame showing 4
- picture of 4 fingers
- the numeral 4



Ask: *What do you notice about all of these cards? What number do they all show?* Confirm that they all show 4 by counting the number of dots in the dot pattern and on the ten frame and the number of fingers in the picture. Note that each card shows the number 4 in a different way. Ask: *How can these cards look so different but all show 4?* **Sample answer: Things can look different but still be the same amount when you count them.** After discussing children's ideas, invite them to help you think of *another* way to show 4 on a blank card. With children's assistance, make one or more new cards that show 4 differently from the cards you prepared. If a child suggests a representation that is identical to one on display, create a card for it and discuss whether it is exactly the same as or different from the others. Display all the cards and praise children's efforts for showing the same number in so many different ways! **GMP2.1, GMP2.3**

### 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.

**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.

### Professional Development

During this task, children create a variety of representations for the same number, which develops their quantitative reasoning in a variety of ways. First they must think about what *can* change from one representation to the next (the objects, arrangement, grouping, and format) and what *cannot* change (the quantity). Then they must apply this knowledge to their own representations. **GMP2.1**

**Create Representations** Explain to children that they are going to work with a partner to create their own set of representations for a number. Show children a Representations Recording Sheet (*Math Masters*, page 50) and point out the four sections. Explain that each child will show their assigned number four different ways—one representation in each section of their papers. Tell them that they should use the ten frame for one of their representations and that they may choose how to represent the numbers in the other sections, including drawing other ten frames. Ask: *What are some different ways you can show your number?* **Sample answers:** Pictures, dot patterns or dots on ten frames in different arrangements, fingers on a hand, and written numbers **GMP2.1**

Explain that each partner will create four different representations for the same number and then compare their work. Talk with children about how to share with their partners. Suggest that they respond together to questions such as: *Do all of our representations show the same number? Are any different? Are any of our representations similar? How are they alike and how are they different?* **GMP2.3**

**Assign each pair a number between 5 and 10;** write down the number on an index card or the back of their recording sheets. Give each child a recording sheet. As children work, circulate and ask:

- *What number does this box show? How do you know? Why did you decide to show the number this way?*
- *Does this box show your number? If not, how could you change it so it does?*
- *How is this representation similar or different from this one?*
- *Are any of your representations exactly the same? How could you make them different from each other?* **GMP1.2, GMP2.1, GMP2.3**

### Differentiate

### Adjusting the Activity

- If children struggle to create different representations, scaffold the task by suggesting particular types of representations, such as a ten frame, a dot pattern, or a numeral. Show them the cards from the Warm Up as examples. You can also assign them a number lower than 5.
- If children finish quickly, provide an additional recording sheet and have them make more representations of the same number. You may wish to challenge pairs to determine how many more representations they need as a partnership to have 10 (or 12) different representations.

**To conclude this part of the lesson,** tell children they will compare the different ways they showed their numbers on another day. Collect children's work to evaluate it and prepare for Day 2.

### Math Masters, p. 50

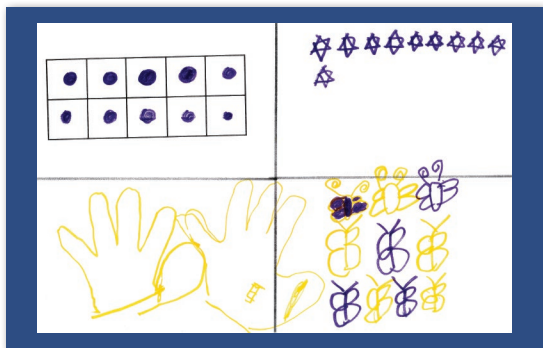
**Representations Recording Sheet**

Lesson 3-7

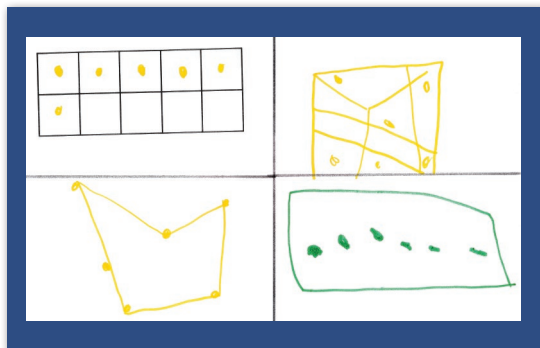
NAME \_\_\_\_\_ DATE \_\_\_\_\_

50 fifty K.CC.3, K.CC.4b, K.CC.5, K.CC.6, SMP1, SMP2

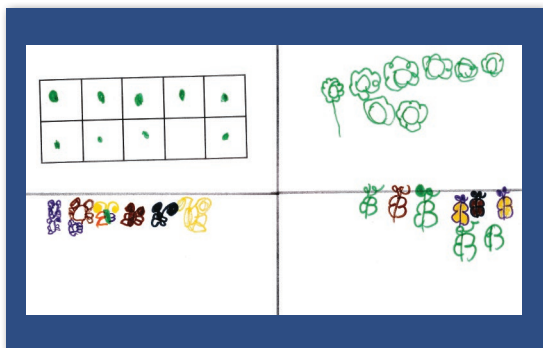
These work samples show a variety of ways children may represent their number, as well as possible misconceptions.



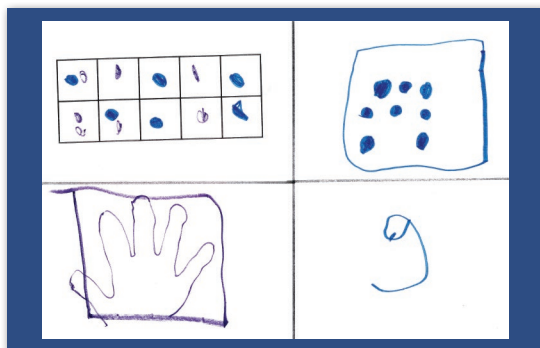
Four different accurate representations of 10



Four different accurate representations of 6



Three accurate representations of 8 and one inaccurate representation of 8 on a ten frame



One accurate and three inaccurate representations of 9

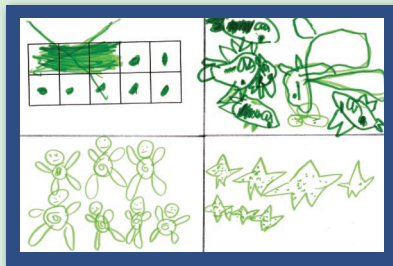


## Getting Ready for Day 2

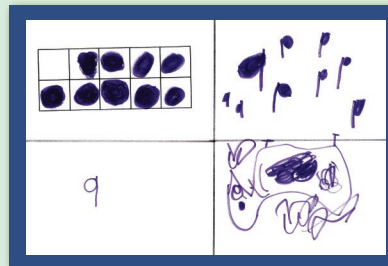
Review children's representations. Use the Reengagement Planning Form (*Math Masters*, page TA11) and the rubric on page 197 to assist you in evaluating the work and planning a discussion of the task. Look for trends in children's work and analyze their errors. What mathematical understandings and misconceptions do they appear to have?

You may organize the discussion of children's work in one of the ways listed below or in another way you choose. In general, invite children to share their strategies for determining the number that each representation shows. Children may instantly recognize the quantity, count, or see the numbers in groups. Model a range of strategies if children do not generate them.

1. Show a paper with two or three accurate representations of the child's given number, but with one or two incorrect or confusing representations, as in Child A's or Child B's work below. Encourage children to describe and compare accurate and inaccurate representations of the child's given number. (Note that the sample answers provided below are unique to the sample work pictured; children's responses will vary based on the work they produce.) Ask:
  - *What number does this child represent in this box? How can you tell?* **Sample answers for Child A's work:** Seven; counted 7 dots in the ten frame. There are 2 on top and 5 on the bottom. The ten frame shows 7 because 3 boxes are crossed out, so 7 are filled. **GMP1.2, GMP2.1**
  - *Which other representations **match** (show the same number)? How do you know?* **Sample answers for Child A's work:** The drawing of the people shows 7. I see 3 people on top and 4 people on the bottom. I counted 7 stars. There are 4 on top and 3 on the bottom. **GMP1.2, GMP2.3**
  - *Which one(s) do not match? Why not?* **Sample answers for Child A's work:** The monsters (upper-right representation) do not match because I cannot tell how many there are. They are too close together. They are not in clear groups. **GMP1.2, GMP2.3**
  - *How are these representations similar to yours? How are they different?* **Answers vary.** **GMP1.2, GMP2.3**
  - *What are others ways we could show this number?* **Answers vary.** **GMP1.2, GMP2.1**



Child A created three accurate and one inaccurate representations of 7.



Child B created three accurate and one inaccurate representations of 9.

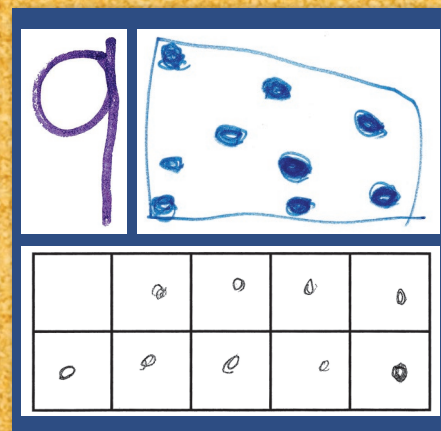
2. Show a variety of representations of the same number from different children's work, as in Groups C and D. Consider showing each example to the whole class one at a time or organizing a gallery walk by placing a few examples of children's work around the classroom (as in a museum gallery) and having children walk around to view them in small groups. You may wish to show groups representing two different numbers, such as a small number and a large number, and discuss which representations and numbers are more challenging to interpret. Ask:

- *What number is shown here? How can you tell?* **Sample answers for Group C:** The number shown is 5. I counted five fingers and five balls and five shapes. **GMP1.2, GMP2.1**
- *How is this representation of the number similar to this other one? How is it different?* **Sample answers for Group C:** Both make 5. I see 4 balls on top and 1 on the bottom. On the other one, I see 3 rectangles on top and 2 squares on the bottom. **GMP1.2, GMP2.3**
- *Which representation do you find easiest to interpret (to see or figure out the number)? Why?* **Sample answers for Group D:** The number 9 is easiest because I don't have to count anything. The ten frame is easiest because I see one empty space and know the rest make 9 without counting. **GMP1.2, GMP2.3**
- *Which representation do you find hardest to interpret?* **Sample answers for Group D:** The dot pattern is hardest because I have to count all the dots. I cannot just "see" nine because the dots are not in clear groups. **GMP1.2, GMP2.3**

<b>Goal for Mathematical Process and Practice</b> <b>GMP2.1</b> Create mathematical representations using numbers, words, pictures, symbols, gestures, tables, graphs, and concrete objects.	Not Meeting Expectations	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations
	Creates zero representations of the assigned number.	Creates two or three different accurate representations of the assigned number.	Creates four different accurate representations of the assigned number.	Meets expectations and creates more representations of the assigned number.



Group C:  
Three different children's representations of 5



Group D:  
Three different children's representations of 9



# Comparing Representations

**Overview Day 2:** Children discuss and analyze different representations of numbers they created on Day 1.

## Day 2: Reengagement

- ▶ **Before You Begin** Use the Reengagement Planning Form (*Math Masters*, page TA11) to analyze children's work and plan the Reengagement discussion. Decide how you will display selected children's work.
- ▶ **Terms to Use** compare • different • match • number • representation • same
- ▶ **Materials** Day 2: Activity Card 23 (optional); selected samples of children's work **Practice:** *Math Masters*, pp. 40–42; crayons or markers

## Core Activities

### Focus: Reengaging in the Problem K.CC.3, K.CC.4b, K.CC.5, K.CC.6

🕒 20–30 min

WHOLE CLASS

SMALL GROUP

PARTNER

INDEPENDENT

**Revisit Guidelines** Review the Guidelines for Discussion that you and the class developed in Section 2. (*See the sample poster in the margin.*) Have children reflect on those they are following well and those they are not. You may want to focus on one or two behaviors to practice during discussion. Continue modeling and role-playing to support constructive behavior during Reengagement.

**Review and Reengage in the Problem** This is an opportunity for children to reengage with the problem by analyzing and critiquing their own and other children's work in a class discussion. Review the Open Response problem and ask: *What does it mean to show your number in different ways?*

GMP1.2, GMP2.1, GMP2.3 Tell the class that they will look at and make connections between each other's representations. Organize and facilitate this discussion based on the decisions you made in Getting Ready for Day 2. See sample discussion questions on pages 196–197. You may wish to have children “turn and talk” with a partner before they discuss the questions with the whole class.

**NOTE** These Day 2 activities will ideally take place within a few days of Day 1. Prior to beginning Day 2, see Getting Ready for Day 2 on pages 196–197.

### Guidelines for Discussion

*During our class discussions, we will . . .*

- ✓ *Listen closely to our classmates' ideas.*
- ✓ *Ask questions.*
- ✓ *Share different ideas.*
- ✓ *Agree and disagree respectfully.*
- ✓ *Make and learn from mistakes.*

**Conclude** by thanking children for sharing their representations and ideas. You may wish to laminate and cut children's sheets into 4 sections to make "representations" cards for continued exploration. Children can sort the representations by number, by type, or another way. They can also use them to play *Which Number Doesn't Belong?* One player chooses three representations of the same number and one that is different; the other player decides which does not match. See Activity Card 23.



## Assessment Check-In K.CC.4b, K.CC.6

For the content standards, expect most children to recognize that the same number can be shown in different ways, to represent their assigned number correctly in more than one way, and to compare representations and identify those that show the same number. Children will have more opportunities to create, connect, and compare multiple representations of numbers throughout the year. You can use the rubric on page 197 to evaluate children's work with respect to **GMP2.1**.



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

## Practice: Writing Numbers (7, 8, and 9) K.CC.3, K.CC.5

20–25 min | *Math Masters*, pp. 40–42

WHOLE CLASS   SMALL GROUP   PARTNER   INDEPENDENT

**Revisit** Lesson 3-4, pages 180–183. Teach children the verses for 7, 8, and 9 of "The Numeral Song":

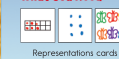
- *Slide to the right and slant right down (repeat 2 more times) to make the numeral 7.*
- *Make an "S" and close the gate (repeat 2 more times) to make the numeral 8.*
- *Circle around and come right down (repeat 2 more times) to make the numeral 9.*

Have children practice writing the numbers in the air with large arm motions and on someone's back or their own palms with their fingers. Then provide time for children to write and represent each number with drawings on the appropriate Number Book pages (*Math Masters*, pages 40–42). Collect and save their pages to compile into individual number books. **GMP2.1, GMP2.3**

### Activity Card 23

## Which Number Doesn't Belong?

### What You Need



Representations cards



### What To Do

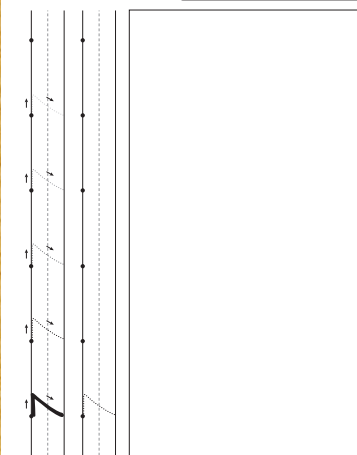
- Player 1:** Pick three cards that show the same number. Pick one card that shows a different number. Mix them up and show them to your partner.
- Player 2:** Find the card that does not match.
- Trade roles and play again.



### Math Masters, pp. 40–42

#### Number Book (7)

Lesson 3-4  
NAME \_\_\_\_\_ DATE \_\_\_\_\_

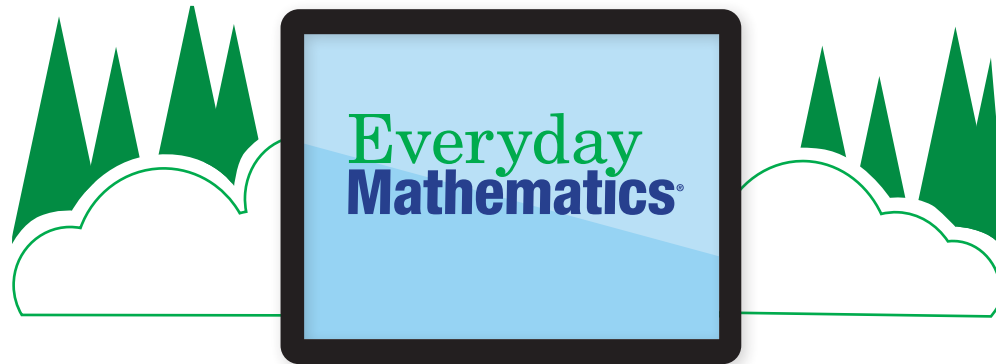


40 forty K.CC.3, K.CC.5





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**K**



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