Core Knowledge® MATHEMATICS

Adding, Subtracting, and Working with Data

Teacher Guide

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Core Knowledge Mathematics™

Introduction to the CKMath Program

Welcome to the Core Knowledge Math™ (CKMath) program, based on the carefully researched and designed Illustrative Math™ (IM) instructional materials. IM K-12 Math is a problem-based core curriculum that believes all students are able to understand and use mathematics. Students learn about math by doing math. They bring their current understanding of math and their world experiences to the classroom. In these lessons, students take an active role in the learning process by building on their previous knowledge, and by exploration to develop conceptual understanding instead of being told how to solve problems. Doing math includes: understanding problems, reasoning abstractly and quantitatively, making arguments and critiquing the reasoning of others, modeling with mathematics, making appropriate use of tools, attending to precision in their use of language, looking for and making use of structure, and expressing regularity in repeated reasoning. Encouraging students to participate in mathematical practices with other students gives the opportunity for them to perceive themselves as mathematical thinkers and as part of a mathematical community. By observing students' understanding of concepts and their thought processes, teachers are able to direct student learning and guide them to recognize the connection between concepts and procedures.

Organization of Units and Lessons

Each unit is divided into sections. Each section revolves around specific goals.

- The **Section Overview** identifies the learning goals for each section of the unit and describes how students will work towards these goals. Sections are labeled by letters; e.g. Section A, Section B, and so on. Each section uses scaffolding to identify the Common Core Standards that apply to that section. In First Grade, there are four areas covered by the Common Core Standards. They include Operations and Algebraic Thinking (1.OA), Number and Operations in Base Ten (1.NBT), Measuring and Data (1.MD), and Geometry (1.G).

  The standards in each section are divided into three groups: **Building On, Addressing, and Building Towards**. A standard that reflects the work of prior grades and is being used to bridge to a grade-level standard is indicated as *Building On*. When the standard is focused on the grade-level work, the alignment is indicated as *Addressing*. A standard that is indicated as *Building Towards* means that the standard has not yet been achieved by the activities in that section.

- The **Center Overview** identifies the learning centers to be used in the unit. Each center has different stages, or levels. Students will progress through the stages as they master the objectives for each stage. Each center description includes the Common Core Standards that apply to that stage of the center, a stage narrative describing the activity with possible variations, and a list of materials needed for the center. In first grade, there is a scheduled center day at the end of each section within a unit.

- The **Standards for Mathematical Practice (MP)** describe the types of thinking and behaviors students engage in as they are doing mathematics. Throughout the curriculum, the Teacher Guide identifies lessons and activities where different Mathematical Practices are likely to be observed.

  Standards for Mathematical Practice Student Facing Learning Targets

  MP1 I Can Make Sense of Problems and Persevere in Solving Them
  - I can ask questions to make sure I understand the problem.
  - I can say the problem in my own words.
  - I can keep working when things aren't going well and try again.

- I can show at least one try to figure out or solve the problem.
- I can check that my solution makes sense.

MP2 I Can Reason Abstractly and Quantitatively

- I can think about and show numbers in many ways.
- I can identify the things that can be counted in a problem.
- I can think about what the numbers in a problem mean and how to use them to solve the problem.
- I can make connections between real-world situations and objects, diagrams, numbers, expressions, or equations.

MP3 I Can Construct Viable Arguments and Critique the Reasoning of Others

- I can explain or show my reasoning in a way that makes sense to others.
- I can listen to and read the work of others and offer feedback to help clarify or improve the work.
- I can come up with an idea and explain whether that idea is true.

MP4 I Can Model with Mathematics

- I can wonder about what mathematics is involved in a situation.
- I can come up with mathematical questions that can be asked about a situation.
- I can identify what questions can be answered based on data I have.
- I can identify information I need to know and don't need to know to answer a question.
- I can collect data or explain how it could be collected.
- I can model a situation using a representation such as a drawing, equation, line plot, picture graph, bar graph, or a building made of blocks.
- I can think about the real-world implications of my model.

MP5 I Can Use Appropriate Tools Strategically

- I can choose a tool that will help me make sense of a problem. These tools might include counters, base-ten blocks, tiles, a protractor, ruler, patty paper, graph, table, or external resources.
- I can use tools to help explain my thinking.
- I know how to use a variety of math tools to solve a problem.

MP6 I Can Attend to Precision

- I can use units or labels appropriately.
- I can communicate my reasoning using mathematical vocabulary and symbols.
- I can explain carefully so that others understand my thinking.
- I can decide if an answer makes sense for a problem.

MP7 I Can Look for and Make Use of Structure

- I can identify connections between problems I have already solved and new problems.
- I can compose and decompose numbers, expressions, and figures to make sense of the parts and of the whole.
- I can make connections between multiple mathematical representations.
- I can make use of patterns to help me solve a problem.

MP8 I Can Look for and Express Regularity in Repeated Reasoning

- I can identify and describe patterns and things that repeat.
- I can notice what changes and what stays the same when working with shapes, diagrams, or finding the value of expressions.
- I can use patterns to come up with a general rule.

- Each unit contains between 8 - 25 **Lesson Plans**.

  Each lesson is designed to use 60 minutes. A typical lesson is divided into four phases; a warm-up activity, one or more instructional activities, the lesson synthesis, and a cool-down activity. Every activity within these phases is divided into three parts—the Launch, the Activity, and the Synthesis.

  - **Warm-up Activity**—The warm-up activity is designed to strengthen the idea of mathematical community. In these activities, students work with their peers. Students use their personal experiences and mathematical knowledge to develop ideas, ask questions, defend their responses, and evaluate the reasoning of others. A warm-up activity might review a context students have seen before, have them reflect on where the previous lesson left off, or preview a context or idea that will come up in that lesson.

    There are several **warm-up routines** that are used during the lessons.

    - Act It Out—This routine is for kindergarten and first grade students. It encourages young children to understand the relationship between words and numbers. It provides opportunities for students to make sense of story problems. In this routine, students listen to a story problem and act it out through movement, using their fingers, or objects to represent the action in the story.

    - Choral Count—This routine encourages students to make predictions and think about patterns. It also provides opportunities for students to justify their reasoning. In this routine, students count aloud starting from a given number. The count might be forwards or backwards. The teacher records the numbers on a chart as students say them. Students then stop and look at the written numbers to make predictions and look for patterns.

    - Estimation Exploration—Estimation Exploration encourages students to use what they know and what they can see to problem-solve for a rough evaluation of a quantity rather than giving a "wild guess." The estimates can be in the context of measurement, computation, or numerosity—estimating about a large group of objects (MP2). In this routine, students make estimates in response to a question about an image. They first think about estimates that would be sensible, but too high or too low. Then they make a reasonable estimate and discuss why their estimate makes sense.

    - How Many Do You See?—This routine encourages students to see groups when counting. Being able to see groups of objects in an organized way helps them visualize quantities and improves their ability to do mental computation. In this routine, students look at an image, which is typically an arrangement of dots or other shapes. Then students state how many dots or shapes they see. Also included in the discussion will be comments about the way they saw them or determined how many there were. This encourages students to see groups and patterns rather than count each item one by one.

    - Notice and Wonder—This routine provides an opportunity for students to bring their understandings and experiences to a problem. They share their ideas and ask questions without any pressure to answer or solve a problem. This routine reinforces the importance of making sense of situations before solving a problem. In this routine, students look at an image related to the topic of the lesson and are asked, "What do you notice?" The teacher writes all comments on a chart. They are then asked, "What do you wonder?", and their questions are also recorded on the chart.

- Number Talk—This routine provides an opportunity for students to practice mental math. It helps them solve problems and think about numbers in flexible ways. They not only justify their own reasoning, but critique the reasoning of others as they make sense of methods for solving problems. In this routine, a series of problems are presented one at a time. Students solve the problem in their head and signal when they have an answer. The teacher takes notes as they justify their answer and explain their method for solving.

- Questions About Us—This routine is used with kindergarten students. It provides them opportunities to learn more about their classmates and gives them practice asking questions, organizing quantities, counting, and analyzing data. In this routine, students ask their classmates a question with two choices. They keep track of the answers and count the responses. The teacher then asks follow up questions that students answer using the data that they collected.

- True or False?—This routine encourages students to make sense of equations, often without any computation. It provides another opportunity for students to justify their reasoning as they explain to others what they are thinking. In this routine, students are presented with a series of equations, one at a time. Some equations may be true, and some may be false. Students use what they know about place value, operations, and number relationships to decide if each is true or false. And then, students explain how they know.

- What Do You Know About _____?—This routine encourages students to share their experiences and understandings about a math topic. In this routine, students are presented with a number, expression, or are asked a general question about a math topic. They then list everything they know about that topic. The teacher writes what students say and then references the list later so that students can add more ideas.

- Which One Doesn't Belong?—This routine provides an opportunity for students to reason about characteristics of shapes, math tools, or other images to decide which one doesn't belong. Because any answer is correct, students are able to focus on communicating their reasoning and justifying their choice. In this routine, students are shown 4 different images, which may be numbers, equations, shapes, images, or diagrams. They decide which one doesn't belong and explain why.

- **Instructional Activities**—After the warm-up, lessons consist of one to three instructional activities.

  Instructional Activities include:

  - 5 Practices—Lessons that include this routine are designed to allow students to solve problems in ways that make sense to them. During the activity, students engage in a problem in meaningful ways and teachers monitor to uncover and nurture conceptual understandings. During the activity synthesis, students collectively reveal multiple approaches to a problem and make connections between these approaches (MP3).

  - Card Sort—A card sorting task gives students opportunities to analyze representations, statements, and structures closely, and make connections (MP2 and MP7). As students work, teachers monitor for the different ways groups choose their categories, and

encourage increasingly precise mathematical language (MP6).

- MLR1 Stronger and Clearer Each *(MLR stands for Mathematics Learning Routine.)*—Provides students with a structured and interactive opportunity to revise and refine both their ideas and their verbal and written output. *Embedded in grades 3–5.*

- MLR2 Collect and Display—Captures a variety of students' oral words and phrases into a stable, collective reference. Output can be organized, re-voiced, or explicitly connected to other languages in a display that all students can refer to, build on, or make connections with during future discussion or writing. *Embedded in grades K–5.*

- MLR3 Clarify, Critique, Correct—Gives students a piece of mathematical writing that is not their own to analyze, reflect on, and develop. *Embedded in grades 3–5.*

- MLR4 Information Gap—Creates an authentic need for students to communicate. Partners or team members are given different pieces of necessary information that must be used together to solve a problem. *Embedded in grades 3–5.*

- MLR5 Co-craft Questions—Allows students to get inside a context before feeling pressure to produce answers, and creates opportunities for students to produce the language of mathematical questions. *Embedded in grades 2–5.*

- MLR6 Three Reads—Supports reading comprehension, sense-making, and meta-awareness of mathematical language. Students take time to understand mathematical situations and story problems, and plan their strategies before finding solutions. *Embedded in grades K–5.*

- MLR7 Compare and Connect—Fosters students' meta-awareness as they identify, compare, and contrast different mathematical approaches, representations, and language. *Embedded in grades K–5.*

- MLR8 Discussion Supports—Includes a large variety of teacher moves that support rich discussions about mathematical ideas, representations, contexts, and strategies. *Embedded in grades K–2.*

- **Lesson Synthesis—**After the instructional activities are completed, students take time to reflect on the knowledge they have gained during the instructional activities and incorporate his with their previous knowledge. The lesson synthesis activity should take 5–10 minutes. During this time, teachers help students with this process by asking questions verbally and having students respond orally or in a written journal, by asking students to add on to a graphic organizer or concept map, or some similar activity.

- **Cool-down Activity—**The cool-down activity is given to students at the end of the lesson. This activity should take about 5 minutes. Students work on the cool-down independently and turn it in. The teacher uses the cool-down as a formative assessment to determine if students understand the lesson and to adjust further instruction. Not all lessons in first grade have a cool-down activity.
  Note: The Cool-down activity is identified in the Introduction to the lesson plan and not at the end of the lesson.

- **Assessments**—There are several opportunities for assessment during each unit.

  - Pre-unit problems can be used as a pre-unit assessment.

  - Each instructional task includes expected student responses and suggestions to advance student thinking. Teachers will adjust their instruction depending on how the students respond to the task. Frequently there are suggested questions to help teachers better understand students' thinking.

- Practice problems are provided for each lesson that can be used for in-class practice, homework, or as a means to assess certain learning on a particular concept.

- Each section in first grade has a checklist to indicate that students are meeting the section goals.

- Each unit includes an end-of-unit written assessment that is intended for students to complete individually to assess what they have learned at the conclusion of the unit.

Unit Resources

Teacher Components

Teacher Guide: The Teacher Guide for each unit contains an overview of the sections in which the unit is divided, a description of the centers students will use with the unit, detailed lesson plans, and teacher resources. Within the overview of the unit sections can be found suggested activities from each unit section that can be used as a PLC activity for teachers. PLCs, or Professional Learning Communities, provide teachers the ability to work collaboratively in recurring cycles of collective inquiry and action research to achieve better results for students. PLCs give teachers the opportunity to discuss and plan instruction with peers.

The first few pages of each detailed lesson plan are directed to the teacher. Support notes to the teacher are in gray boxes throughout the lesson plan. On these first pages can be found:

- Alignment to the Common Core Standards
- Learning Goals
    - Teacher-facing learning goals appear at the top of lesson plans. They are directed to the teacher and describe the mathematical and pedagogical goals of the lesson.
    - Student-facing learning goals are directed to the student and start with the word "Let's." These learning goals can be written on the board before class begins. They are used to invite students into the work of that day without giving away too much and spoiling the problem-based instruction.
- Lesson Purpose
- Suggestions for instruction for English Learners and Students with Disabilities
- Instructional Routines
- List of materials needed for the lesson
- Lesson Timeline
- Description of the Cool-Down Activity
- Teacher Reflection Question – The purpose of this question is to provide a direction to the teachers to think critically about their teaching during the lesson.
- Sample Student Responses

At the back of the Teacher Guide are Teacher Resources for the unit.

- Family Support Materials
- Assessments
- Cool Downs
- Instructional Masters

Student Component

Activity Book: The Activity Book is used by the students during the lessons. It coordinates with the lesson plans. It displays the student-facing learning goals for each lesson as well as activity sheets for some activities. Not all activities will use the Activity Book.

As you will note when you examine the Activity Book, minimal text is included on each page. Instead, colorful photos and engaging illustrations dominate the Activity Book pages. The design of the Activity Book in this way is intentional because students in Kindergarten–Grade 2 are just learning to read. At these grade levels, students are learning how to decode written words, so the complexity and amount of text that these young students can actually read is quite limited.

While some advanced students may be able to read words on a given page of the Activity Book, as a general rule students should not be expected or asked to read aloud the text on the Activity Book pages. The text in the Activity Book is there so that teachers and parents can read it when sharing the Activity Book with students.

Introduction to Grade 1

The big ideas in grade 1 include: developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; developing understanding of whole-number relationships and place value, including grouping in tens and ones; developing understanding of linear measurement and measuring lengths as iterating length units; and reasoning about attributes of, and composing and decomposing geometric shapes.

Grade 1 is divided into eight units:

1. Adding, Subtracting, and Working with Data
2. Addition and Subtraction Story Problems
3. Adding and Subtracting within 20
4. Numbers to 99
5. Adding within 100
6. Length Measurements within 120 Units
7. Geometry and Time
8. Putting it All Together

Unit 1: Adding, Subtracting, and Working with Data

At a Glance

Unit 1 is estimated to be completed in 16-17 days including 2 days for assessment.

This unit is divided into three sections including 14 lessons and 1 optional lesson.

- Section A—Add and Subtract within 10 (Lessons 1-6)
- Section B—Show Us Your Data (Lessons 7-10)
- Section C—What Does the Data Tell Us? (Lessons 11-15)

On pages 5-7 of this Teacher Guide is a chart that identifies the section each lesson belongs in and the materials needed for each lesson.

This unit introduces new stages to seven student centers.

- Counting Collections
- Number Race
- Check It Off
- Five in a Row: Addition and Subtraction
- Find the Pair
- What's Behind My Back
- Sort and Display

Unit 1: Adding, Subtracting, and Working with Data

Unit Learning Goals

- Students add and subtract within 10, and represent and interpret categorical data.

In this unit, students deepen their understanding of addition and subtraction within 10, and extend what they know about organizing objects into categories and representing the quantities.

In kindergarten, students solved addition and subtraction word problems within 10 using objects and drawings. They learned about Put-Together, Result-Unknown problems and worked toward fluency with sums and differences within 5.

The activities in this unit reinforce these understandings and initiate the year-long work of developing fluency with sums and differences within 10. Some problems involve finding sums greater than 10, a skill to be honed throughout the course and with the support of tools such as connecting cubes.

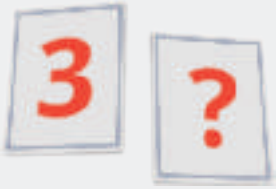
Students also build on the work in kindergarten as they engage with data. Previously, they sorted objects into given categories such as size or shape. Here, students use drawings, symbols, tally marks, and numbers to represent categorical data. They go further by choosing their own categories, interpreting representations with up to three categories, and asking and answering questions about the data.

This opening unit also offers teachers opportunities to introduce mathematical routines and structures for centers, and to develop a shared understanding of what it means to do math and to be a part of a mathematical community.

Number Race

Five in a Row

Find the Pair



Check It Off

Section A: Add and Subtract within 10

Standards Alignments

Building On	K.CC.A.1, K.CC.B
Addressing	1.OA.C.5, 1.OA.C.6
Building Towards	1.OA.C.5

Section Learning Goals

- Build toward fluency by adding and subtracting within 10 in a way that makes sense to them.

In this section, students engage with addition and subtraction within 10 through activities and centers. The work here allows teachers to assess students' understanding of addition and subtraction, as well as their fluency with facts within 5, a kindergarten goal.

There is an emphasis on adding and subtracting 1 or 2 to encourage students to count on or count back, which helps to build their awareness of how addition and subtraction relates to counting. To support this development, give students access to two-color counters and 10-frames throughout this section.

PLC: Lesson 5, Activity 1, Introduce Check it Off, Subtract within 10

Section B: Show Us Your Data

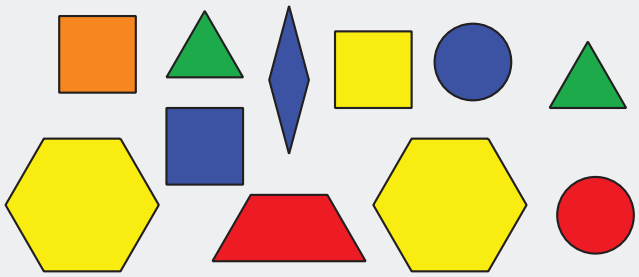
Standards Alignments

Building On	K.CC.A.1, K.CC.B, K.CC.B.4
Addressing	1.MD.C.4, 1.OA.B.4, 1.OA.C.5, 1.OA.C.6
Building Towards	1.MD.C.4, 1.NBT.B.2

Section Learning Goals

- Organize and represent data.

In this section, students organize and represent data. They begin by sorting objects into categories of their choice, describing their categories, and counting the number of objects in each category.



Next, students learn to collect data by conducting a survey. No specific data representations are required in grade 1, so students record and organize data in a way that makes sense to them. They may represent the results using objects, symbols, tally marks, or numbers. Students then make sense of one another's representations (MP1).

PLC: Lesson 8, Activity 1, Sort Shapes

Section C: What Does the Data Tell Us?

Standards Alignments

Building On	K.CC.A.1
Addressing	1.MD.C.4, 1.OA.B.4, 1.OA.C.5, 1.OA.C.6
Building Towards	1.MD.C.4, 1.NBT.A.1

Section Learning Goals

- Interpret data representations to ask and answer questions.

The focus of this section is on interpreting data represented in different ways and on asking and answering questions about them.

Students analyze representations of data and respond to "how many in each category" and "how many in all" questions. They consider which representation (tallies or numbers) is most helpful in answering certain types of questions. They also think about questions that could be asked given a representation of data.

Students begin responding to written questions in this section. To support students with the reading demand, consider reading the questions aloud or arranging students to work with a partner.

PLC: Lesson 12, Activity 2, Data Represented with Numbers

Throughout the Unit

Students are introduced to the structure of centers that will be used throughout the year. Both warm-ups and centers in this unit allow opportunities for students to add and subtract 1 or 2 to encourage students to use counting on or the number sequence to add and subtract.

Materials Needed

LESSON	GATHER	COPY
A.1	• Collections of objects • Dot cubes	• 10-Frame Standard (groups of 1) • Counting Collections Stages 1 and 2 Recording Sheet (groups of 1) • Number Race Stage 3 Gameboard (groups of 1)
A.2	• 10-frames • Dot cubes • Two-color counters	• Check It Off Stage 1 Recording Sheet Grade 1 (groups of 1) • Number Cards (0-10) (groups of 2)
A.3	• 10-frames • Materials from previous centers • Number cards 0–10 • Two-color counters	• Five in a Row Addition and Subtraction Stages 1 and 2 Gameboard (groups of 2)
A.4	• 10-frames • Materials from a previous activity • Materials from previous centers • Number cards 0–10 • Two-color counters	• none
A.5	• 10-frames • Materials from previous centers • Number cards 0–10 • Two-color counters	• Check It Off Stage 2 Recording Sheet (groups of 1)
A.6	• 10-frames • Materials from previous centers • Number cards 0–10 • Two-color counters	• Find the Pair Stage 2 Recording Sheet (groups of 1)

B.7	• Inch tiles • Materials from a previous activity • Materials from previous centers • Pattern blocks • Two-color counters	• Three-Column Table (groups of 1) • Two-Column Table (groups of 1)
B.8	• Colored pencils or crayons • Materials from a previous activity	• Shape Cards (groups of 2)
B.9	• Colored pencils or crayons • Connecting cubes • Materials from a previous activity	• none
B.10	• 10-frames • Connecting cubes • Materials from previous centers • Two-color counters	• What's Behind My Back Stage 2 Recording Sheet Grade 1 (groups of 1)
C.11	• Materials from previous centers	• none
C.12	• Connecting cubes	• Data Represented with Tally Marks (groups of 2) • Data Represented with Numbers (groups of 2)
C.13	• Connecting cubes • Materials from a previous activity	• Favorite Special Class Data (groups of 4)
C.14	• Collections of objects • Materials from previous centers	• Sort and Display Stage 1 Recording Sheet (groups of 1)

C.15	• Materials from a previous activity • Tools for creating a visual display	• none

Center: Counting Collections (K–1)

Stage 1: Up to 20

Activities

- Grade1.1.A1.1 (supporting)
- Grade1.1.A3.2 (supporting)
- Grade1.1.A4.2 (supporting)
- Grade1.1.A5.2 (supporting)
- Grade1.1.A6.2 (supporting)
- Grade1.1.B7.3 (supporting)

Stage Narrative

Students are given a collection of up to 20 objects. They work with a partner to figure out how many objects are in their collection and then each partner shows how many. Students may draw pictures or write numbers to represent their collection.

Variation:

In kindergarten, teachers may not want to provide a recording sheet, so that students can explain their count orally.

Standards Alignments

Addressing K.CC.B

Materials to Gather

10-frames, 5-frames, Collections of objects

Materials to Copy

Counting Collections Stages 1 and 2 Recording Sheet (groups of 1)

Additional Information

Create a collection of up to 20 objects per group of 2 students (buttons, two-color counters, linking cubes, paper clips, pattern blocks, square tiles).

Stages used in Kindergarten

Stage 1

Addressing

- Kindergarten.3.A

Supporting

- Kindergarten.4.B
- Kindergarten.5.C
- Kindergarten.7.B

Center: Number Race (K–1)

Stage 3: Add to 10

Activities

- Grade1.1.A1.2 (addressing)
- Grade1.1.A3.2 (addressing)
- Grade1.1.A4.2 (addressing)
- Grade1.1.A5.2 (addressing)
- Grade1.1.A6.2 (addressing)
- Grade1.1.B7.3 (addressing)
- Grade1.1.C14.2 (addressing)

Stage Narrative

Students take turns rolling two dot cubes. They find the sum and record it in the corresponding column on their gameboard. If the sum is more than 10, students roll the cubes again.

Standards Alignments

Addressing 1.OA.C.5, 1.OA.C.6

Materials to Gather

Dot cubes

Materials to Copy

Number Race Stage 3 Gameboard (groups of 1)

Additional Information

Each group of 2 needs two dot cubes.

Stages used in Kindergarten

Stage 1

Addressing

- Kindergarten.2.A
- Kindergarten.2.B
- Kindergarten.2.C
- Kindergarten.2.D

Supporting

- Kindergarten.4.C
- Kindergarten.6.A
- Kindergarten.6.B

Stage 2

Addressing

- Kindergarten.6.A
- Kindergarten.6.B

Center: Check It Off (K–1)

Stage 1: Add within 10

Activities

- Grade1.1.A2.2 (addressing)
- Grade1.1.A3.2 (addressing)
- Grade1.1.A4.2 (addressing)
- Grade1.1.A5.2 (addressing)
- Grade1.1.A6.2 (addressing)
- Grade1.1.B7.3 (addressing)
- Grade1.1.B10.2 (addressing)
- Grade1.1.C11.3 (addressing)
- Grade1.1.C14.2 (addressing)

Stage Narrative

Students take turns picking two number cards (0–5) to make and find the value of an addition expression. Students check off the number that represents the value of the sum (0–10) and then write the addition expression on the recording sheet.

This stage has two different recording sheets, one for kindergarten and another for grade 1. On the kindergarten recording sheet, students fill in blanks to record the expression. On the grade 1 recording sheet, students write in the full expression. Be sure to use the appropriate recording sheet with students.

Variation:

Students can roll two cubes (and treat 6 as a wild card) to provide visual support for each quantity.

Standards Alignments

Addressing 1.OA.C.5, 1.OA.C.6, K.OA.A.2

Materials to Gather

Number cards 0–10

Materials to Copy

Check It Off Stage 1 Recording Sheet Grade 1 (groups of 1), Check It Off Stage 1 Recording Sheet Grade K (groups of 1)

Stage 2: Subtract within 10

Activities

- Grade1.1.A5.1 (addressing)
- Grade1.1.A5.2 (addressing)
- Grade1.1.A6.2 (addressing)
- Grade1.1.B7.3 (addressing)
- Grade1.1.B10.2 (addressing)
- Grade1.1.C11.3 (addressing)
- Grade1.1.C14.2 (addressing)

Stage Narrative

Students take turns picking two number cards (0–10) to make and find the value of a subtraction expression. Students check off the number that represents the value of the difference (0–10) and then write the subtraction expression on the recording sheet.

Variation:

Students can choose whether to add or subtract after picking two number cards.

Standards Alignments

Addressing 1.OA.C.5, 1.OA.C.6, K.OA.A.2

Materials to Gather

Number cards 0–10

Materials to Copy

Check It Off Stage 2 Recording Sheet (groups of 1)

Stages used in Kindergarten

Stage 1

Addressing

- Kindergarten.5.A

Center: Five in a Row: Addition and Subtraction (1–2)

Stage 1: Add 1 or 2

Activities

- Grade1.1.A3.1 (addressing)
- Grade1.1.A3.2 (addressing)
- Grade1.1.A4.2 (addressing)
- Grade1.1.A5.2 (addressing)
- Grade1.1.A6.2 (addressing)
- Grade1.1.B7.3 (addressing)
- Grade1.1.B10.2 (addressing)
- Grade1.1.C11.3 (addressing)
- Grade1.1.C14.2 (addressing)

Stage Narrative

Students choose a number card 0-10 and choose to add 1 or 2 to the number on their card and then place their counter on the sum.

Standards Alignments

Addressing 1.OA.C.5

Materials to Gather

Number cards 0–10, Two-color counters

Materials to Copy

Five in a Row Addition and Subtraction Stages 1 and 2 Gameboard (groups of 2)

Additional Information

Each group of 2 needs 25 counters.

Stage 2: Subtract 1 or 2

Activities

- Grade1.1.A4.1 (addressing)
- Grade1.1.A4.2 (addressing)
- Grade1.1.A5.2 (addressing)
- Grade1.1.A6.2 (addressing)
- Grade1.1.B7.3 (addressing)
- Grade1.1.B10.2 (addressing)
- Grade1.1.C11.3 (addressing)
- Grade1.1.C14.2 (addressing)

Stage Narrative

Students choose a number card 0-10 and choose to subtract 1 or 2 from the number on their card and then place their counter on the difference.

Variation:

Students can choose to add or subtract 1 or 2.

Standards Alignments

Addressing 1.OA.C.5

Materials to Gather

Number cards 0–10, Two-color counters

Materials to Copy

Five in a Row Addition and Subtraction Stages 1 and 2 Gameboard (groups of 2)

Additional Information

Each group of 2 needs 25 counters.

Center: Find the Pair (K–1)

Stage 2: Make 10

Activities

- Grade1.1.A6.1 (addressing)
- Grade1.1.A6.2 (addressing)
- Grade1.1.B7.3 (addressing)
- Grade1.1.B10.2 (addressing)
- Grade1.1.C11.3 (addressing)
- Grade1.1.C14.2 (addressing)

Stage Narrative

Partner A asks their partner for a number that would make 10 when added to the number on one of their cards. If Partner B has the card, they give it to Partner A. If not, Partner A chooses a new card. When students make the target number 10, they put down those two cards and write an equation to represent the combination. Students continue playing until one player runs out of cards. The player with the most pairs wins.

Standards Alignments

Addressing 1.OA.C.6, K.OA.A.4

Materials to Gather

10-frames, Connecting cubes or counters, Number cards 0–10

Materials to Copy

Find the Pair Stage 2 Recording Sheet (groups of 1)

Stages used in Kindergarten

Stage 1

Addressing

- Kindergarten.6.A
- Kindergarten.6.B

Supporting

- Kindergarten.7.A

Stage 2

Addressing

- Kindergarten.6.C

Supporting

- Kindergarten.7.A

Center: What's Behind My Back (K–2)

Stage 2: 10 cubes

Activities

- Grade1.1.B10.1 (addressing)
- Grade1.1.B10.2 (addressing)
- Grade1.1.C11.3 (addressing)
- Grade1.1.C14.2 (addressing)

Stage Narrative

Students work with 10 cubes. One partner snaps the tower and puts one part behind their back and shows the other part to their partner. Their partner figures out how many cubes are behind their back.

This stage has two different recording sheets, one for kindergarten and another for grade 1. Be sure to use the appropriate recording sheet with students.

On the kindergarten recording sheet, students draw or color the connecting cube tower to show the two parts that the tower broke into and fill in an equation to show the total number of connecting cubes in the tower and the two parts that the tower was broken into.

On the grade 1 recording sheet, students record an addition equation with a blank to represent the missing cubes.

Standards Alignments

Addressing 1.OA.B.4, 1.OA.C.6, K.OA.A.4

Materials to Gather

10-frames, Connecting cubes

Materials to Copy

What's Behind My Back Stage 2 Recording Sheet Grade 1 (groups of 1), What's Behind My Back Stage 2 Recording Sheet Kindergarten (groups of 1)

Additional Information

Each group of 2 needs 10 connecting cubes.

Stages used in Kindergarten

Stage 1

Addressing

- Kindergarten.5.A
- Kindergarten.5.B
- Kindergarten.5.C

Stage 2

Addressing

- Kindergarten.5.C

Center: Sort and Display (1–3)

Stage 1: Any Way

Activities

- Grade1.1.C14.1 (addressing)

Stage Narrative

Students sort 10–20 objects into two or three categories and then show how they sorted. Provide students with a group of items that will be interesting for them to work with such as:

- pattern blocks
- connecting cubes
- counters
- combination of the blocks, cubes, and counters
- sets of books

Students then show their representation to a partner and ask questions that can be answered about their collection of objects.

Standards Alignments

Addressing 1.MD.C.4

Materials to Gather

Collections of objects

Materials to Copy

Sort and Display Stage 1 Recording Sheet (groups of 1)

Additional Information

Create collections of 10–20 objects with up to three attributes by which to sort.

Section A: Add and Subtract within 10

Lesson 1: Count and Add

Standards Alignments

Building On	K.CC.B
Addressing	1.OA.C.5, 1.OA.C.6
Building Towards	1.OA.C.5

Teacher-facing Learning Goals

- Count and represent a collection of objects.
- Relate counting to addition.

Student-facing Learning Goals

- Let's count objects.

Lesson Purpose

The purpose of this lesson is for students to count objects and relate counting to addition.

Students revisit counting collections, which is an activity introduced in kindergarten. Students count and represent objects in a way that makes sense to them. Students then count dots on two dot cubes to find the total. Together, they relate counting to addition, as the teacher writes expressions to represent the total number of dots on the two cubes (MP2). A 10-frame is provided as a Instructional master. Students used 10-frames in kindergarten and may choose to use them throughout this section. Consider making copies on cardstock or laminating them so they can be used repeatedly.

Throughout the lesson, observe students for the look fors on the Section A Checkpoint Assessment, which can be used throughout the section.

Math Community

In the lesson synthesis, students discuss what it means to be a part of a mathematical community. Prepare a space, such as a piece of poster paper, titled "Math Community" and a T-chart with the header "Doing Math." Partition the column into two sections: students and teacher.

Mathematical Community	
Doing Math	*Norms*
Students	Students
Teacher	Teacher

Access for:

Students with Disabilities

- Engagement (Activity 1)

English Learners

- MLR8 (Activity 1)

Instructional Routines

What Do You Know About _____? (Warm-up)

Materials to Gather

- Collections of objects: Activity 1
- Dot cubes: Activity 2

Materials to Copy

- 10-Frame Standard (groups of 1): Activity 1
- Counting Collections Stages 1 and 2 Recording Sheet (groups of 1): Activity 1
- Number Race Stage 3 Gameboard (groups of 1): Activity 2

Lesson Timeline

Warm-up	10 min
Activity 1	20 min
Activity 2	20 min
Lesson Synthesis	10 min

Teacher Reflection Question

Reflect on the tone in the classroom during the first lesson of the year. How are you feeling about teaching math, and how are your students feeling about participating in the mathematics this year? How can you tell?

Cool-down (to be completed at the end of the lesson)

0 min

Unit 1, Section A Checkpoint

Standards Alignments

Addressing 1.OA.C.5, 1.OA.C.6

Student-facing Task Statement

Lesson observations

Student Responses

- Recognize the number of dots without counting.
- Count all to find the sum.
- Count on to find the sum.
- Use their knowledge of the count sequence to know certain sums.
- Know certain sums.

Begin Lesson

Warm-up

10 min

What Do You Know About Math?

Standards Alignments

Building Towards 1.OA.C.5

The purpose of this activity is to elicit ideas students have about doing math. Students learn the What Do You Know About _____ routine, which will be used throughout the year. This routine provides an opportunity for all students to contribute to the conversation and for the teacher to listen to what knowledge students already have.

For all the routines, consider establishing a small, discreet hand signal that students can display to indicate they have an answer they can support with reasoning. This signal could be a thumbs-up, a certain number of fingers that tells the number of responses they have, or another subtle signal. This is

a quick way to see if students have had enough time to think about the problem. It also keeps students from being distracted or rushed by hands being raised around the class.

Instructional Routines

What Do You Know About _____?

Student-facing Task Statement

What do you know about math?

Student Responses

Sample responses:

- Math uses numbers.
- We use tools in math.
- We count in math.
- We add or subtract numbers in math.

Launch

- Groups of 2
- Display the question.
- "What do you know about math?"
- 1 minute: quiet think time

Activity

- Record responses.

Synthesis

- "Today, you will get to do math in different ways."

Activity 1

20 min

Revisit Counting Collections, Up to 20

Standards Alignments

Building On K.CC.B

The purpose of this activity is for students to count collections of up to 20 objects and represent their count in a way that makes sense to them. Students may use drawings, numbers, or words to represent their count.

This activity provides an opportunity to gather formative assessment data on students' counting skills and understanding. Some students may have more sophisticated counting methods such as grouping and counting by twos or tens (MP7). Students are not expected to do this at this point, as students will continue to engage in Counting Collections throughout the year. Collections of objects should be saved for use in later lessons.

10-frames are provided as a Instructional master. Students will continue to use these throughout the year. Consider copying them on cardstock or laminating them and keeping them organized to be used repeatedly.

Access for English Learners

MLR8 Discussion Supports. Synthesis: Pair gestures with verbal repetition to demonstrate and clarify each strategy students share for keeping track of objects.
Advances: Listening, Representing

Access for Students with Disabilities

Engagement: Develop Effort and Persistence. Differentiate the degree of difficulty or complexity. Some students may benefit from starting with fewer objects to count.
Supports accessibility for: Conceptual Processing, Organization

Materials to Gather

Collections of objects

Materials to Copy

10-Frame Standard (groups of 1), Counting Collections Stages 1 and 2 Recording Sheet (groups of 1)

Required Preparation

- Create one collection of up to 20 objects such as buttons, counters, connecting cubes, paper clips, square tiles for each group of 2.

Launch

- Groups of 2
- Give each group a collection of objects, two recording sheets, and access to 10-frames.
- Show students a collection of 10–20 objects.
- "We are going to start with some counting. You and your partner will get a collection of objects like this one. Your job is to figure out how many objects are in your collection and

show how many."

- "What are some different ways you and your partner can work together to count the collection?" (One person can count first and then the next can count to see if they get the same amount. We can take turns moving an object and counting a number.)

Activity

- 10 minutes: partner work time
- Consider asking:
  - "How many objects are in your collection? Can you prove it to me?"
  - "Can you draw a picture to show how you counted?"
- Monitor for students who organize their objects as they count and create a representation with drawings or numbers.

Synthesis

- Invite previously identified students to share.
- "How did you keep track of the objects as you counted?" (We put each object in a pile after we counted it so we knew we already counted that one.)
- Display previously selected representations.
- "How did they show their count?" (They drew twelve circles. They wrote the number 12.)
- "We counted lots of collections of different things today. What are some things you count at home?"

Activity 2

20 min

Introduce: Number Race, Add to 10

Standards Alignments

Addressing 1.OA.C.5, 1.OA.C.6

The purpose of this activity is for students to learn a new stage in the center, Number Race. Earlier stages of this center were introduced in kindergarten. In this new stage, called Add to 10, students find the total number of dots on two dot cubes and record the number on their gameboard. This activity gives the teacher an opportunity to see the methods that students use. As students work, observe whether they count each dot to find the total, recognize the number of dots on each cube without counting, count on from one cube, or just know the sum of the two quantities. Students may have fluency with sums within 5, as that was the end of year expectation for kindergarten. Many students may be counting all, and some students may be counting on. It is important to let students develop their own ideas about counting on as this concept develops throughout the year. During the synthesis, students connect counting to addition as they consider representing the total number of dots with an addition expression.

Materials to Gather

Dot cubes

Materials to Copy

Number Race Stage 3 Gameboard (groups of 1)

Student Responses

Sample responses:

- 9. I counted all the dots and there were 9.
- 4. I know this is 3 and 1 more is 4.

Launch

- Groups of 2
- Give each group two game boards and two dot cubes.
- Display the game board.
- “Now we are going to learn a game called Number Race, Add to 10. Let’s play a round together. I am going to roll both dot cubes and find the total number of dots. How many dots are there? How do you know?”
- 30 seconds: quiet think time
- 1 minute: partner discussion
- Share responses.
- Demonstrate writing the total at the bottom of the appropriate column.

Activity

- “Take turns with your partner. During each

turn, roll the dot cubes, find the total number of dots, and show your partner how you know. When you agree, record the total above the number on the game board. If the total is more than 10, roll the cubes again."

- 10 minutes: partner work time
- As students work, consider asking:
  - "How many dots are on this cube?"
  - "How did you find the total number of dots?"
- "Look at your game board. Talk to your partner about what you notice."
- 2 minutes: partner discussion

Synthesis

- Display two dot cubes, for example five dots and three dots.
- "There are different ways we can find the total number of dots on the two cubes. Some of us counted all of the dots. Some of us added the number of dots on each cube."
- Point to one cube.
  - "How many dots are on this cube?"
- Repeat with the second cube.
- "We can add these two numbers to find the total number of dots. We can write an expression to show that we are adding these two numbers together."
- Write the expression $5 + 3$.
- Roll the two cubes.
- "What expression can we write to show that we are putting together the number of dots on each of these cubes?"

Advancing Student Thinking

If students are counting each dot on the dot cube, consider asking:

- "How did you know how many dots are on this cube?"
- Showing a different number of dots, ask "Can you tell how many dots are on this cube without counting?"

Lesson Synthesis

10 min

"Today we counted math tools and played a math game. We are going to make a chart of what you do and what I do in our mathematical community."

Math Community

Display chart:

Mathematical Community	
Doing Math	*Norms*
Students	Students
Teacher	Teacher

"What does it look and sound like to do math together as a mathematical community?" (We talked to each other and to the teacher. We had quiet time to think. You asked us questions. We shared our ideas. We thought about the math ideas and words we knew. You were writing down our answers. You were waiting quietly until we gave the answers.)

Lesson 2: Explore Expressions and Sums

Standards Alignments

Building On K.CC.A.1
Addressing 1.OA.C.5, 1.OA.C.6

Teacher-facing Learning Goals

- Write addition expressions within 10 based on images and add in a way that makes sense to them.

Student-facing Learning Goals

- Let's write addition expressions and find the sum of two numbers.

Lesson Purpose

The purpose of this lesson is to write addition expressions within 10 and find the sums.

This lesson builds on the previous lesson as students were asked to determine the sum of two dot cubes. It also builds on the work of kindergarten, where students wrote addition expressions to represent images and situations. In this lesson, students match expressions to dot images before they are asked to write addition expressions (MP2). Students also continue to build their math language related to the sums, addition expressions, and mathematical community (MP6).

Math Community
Tell students they will have an opportunity to revise their math community ideas at the end of this lesson, so as they work today they should think about actions that may be missing from the current list.

Access for:

Students with Disabilities

- Engagement (Activity 2)

English Learners

- MLR8 (Activity 2)

Instructional Routines

Choral Count (Warm-up)

Materials to Gather

- 10-frames: Activity 2
- Two-color counters: Activity 2

Materials to Copy

- Check It Off Stage 1 Recording Sheet Grade 1 (groups of 1): Activity 2

- Number Cards (0-10) (groups of 2): Activity 2

Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	20 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

How are you facilitating the creation of a productive Mathematical Community? Where can you point to evidence of this for students to see?

Cool-down (to be completed at the end of the lesson)

5 min

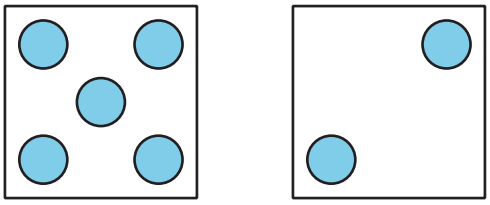
Expressions and Sums

Standards Alignments

Addressing 1.OA.C.5, 1.OA.C.6

Student-facing Task Statement

1. Write an expression to match the dots.



_____ + _____

2. Find the sum of the numbers. _____

Student Responses

1. $5 + 2$ or $2 + 5$
2. 7

Begin Lesson

Warm-up

10 min

Choral Count: Count to 41

Standards Alignments

Building On K.CC.A.1

The purpose of this Choral Count is to invite students to practice counting by 1 and notice patterns in the count. These understandings help students develop fluency with the count sequence and will be helpful as students relate counting to addition and subtraction.

Instructional Routines

Choral Count

Student Responses

Record the count in rows with the first number in each row being a multiple of ten. Line up the ones and tens digits to make the pattern visually obvious.
Sample responses:

- Each row has 10 numbers.
- The last digit of each number in each row goes 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.
- The first digit in all the numbers in each row are the same.

Launch

- "Count by 1, starting at 0."
- Record as students count.
- Stop counting and recording at 41.

Activity

- "What patterns do you see?"
- 1–2 minutes: quiet think time
- Record responses.

Synthesis

- "Does anyone want to add an observation on why that pattern is happening here?"
- "Do you agree or disagree? Why?"

Activity 1

15 min

Matching Dot Cards and Expressions

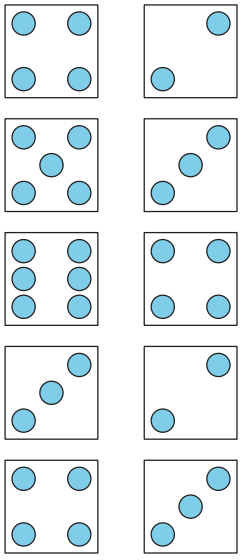
Standards Alignments

Addressing 1.OA.C.5, 1.OA.C.6

The purpose of this activity is for students to relate dot images to addition expressions. In a previous activity, students discussed using addition expressions to show putting together the value of each dot cube. In this activity, students match expressions to dot images and find the total, either by using the dots in the image, or by finding the value of the expression. Students then create matching dot images and expressions by completing the missing component. When students match dot images and expressions and write expressions to match dot images, they reason abstractly and quantitatively (MP2).

Student-facing Task Statement

Match each pair of dots to an expression. Then, find the total.



expression	total
$3 + 2$	
$4 + 2$	
$5 + 3$	
$6 + 4$	
$4 + 3$	

Draw the missing dots to match the expression. Then, find the total.

Launch

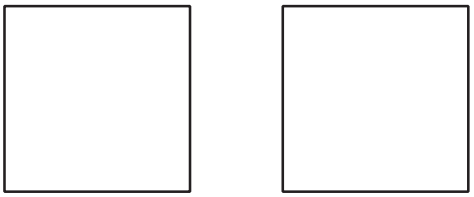
- Groups of 2

Activity

- "In this activity, draw a line to connect each dot image to its matching expression. Then, find the total. On the second page, complete the missing expressions or the missing dot images."
- 5 minutes: independent work time
- "Share your work with your partner."
- 3 minutes: partner discussion

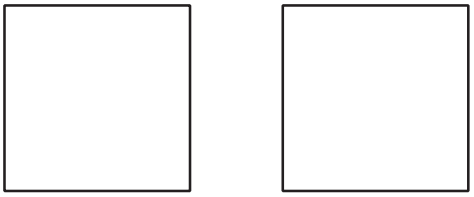
Synthesis

- "How did you know which expression matched each set of dots?" (I counted the dots on the first dot cube and wrote the number underneath, then counted the dots on the second one and found the right expression. I knew the first one was four



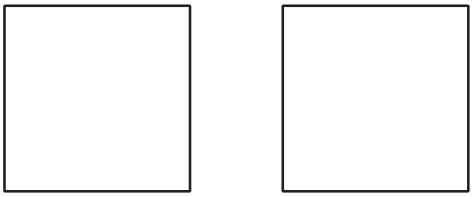
Expression: $4 + 2$

Total: _____



Expression: $5 + 2$

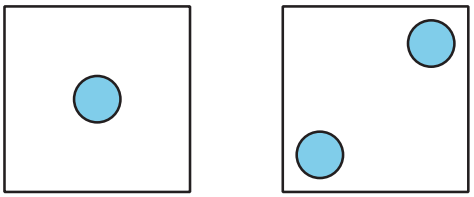
Total: _____



Expression: $2 + 6$

Total: _____

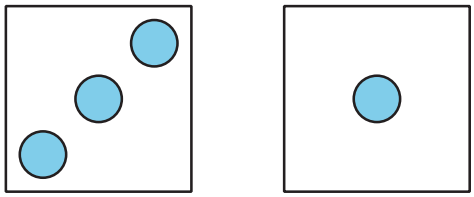
Write the missing expression to match the dots. Then, find the total.



Expression: _____

Total: _____

because it looked like a dot cube and then I counted the second one and then found the matching expression.)



Expression: _____

Total: _____

Student Responses

- Students match the dot images with the corresponding expression and write the total.
- Students draw dots that match the given expression.
- Students write expressions that match the given dots.

Activity 2

20 min

Introduce: Check it Off, Add within 10

Standards Alignments

Addressing 1.OA.C.5, 1.OA.C.6

The purpose of this activity is for students to learn a new center called Check it Off, Add within 10. In this activity, students are introduced to the term **sum**. They find the sum of two numbers in a way that makes sense to them and write addition expressions to represent the sum. Students choose two number cards in order to make each expression. Dot cubes can be used instead of number cards if students would benefit from being able to count the dots in order to find the total. If working with number cards, students may find the sum in any way that makes sense to them, such as using objects, fingers, drawings, or known facts.

Number Cards are provided as a Instructional master. Students will continue to use these throughout the year. Consider copying them on cardstock or laminating them and keeping them organized to be used repeatedly.

Access for English Learners

MLR8 Discussion Supports. To give all students an opportunity for verbal output, and to support the transfer of new vocabulary to long-term memory, invite students to chorally repeat phrases that include the term, "sum" in unison, 1–2 times. For example, "The sum of 1 and 3 is 4."
Advances: Speaking, Listening

Access for Students with Disabilities

Engagement: Internalize Self-regulation. Provide students an opportunity to self assess and reflect on their own progress. For example, check in with students, and invite them to share their thinking.
Supports accessibility for: Social-Emotional Functioning, Conceptual Processing

Materials to Gather

10-frames, Two-color counters

Materials to Copy

Check It Off Stage 1 Recording Sheet Grade 1 (groups of 1), Number Cards (0-10) (groups of 2)

Required Preparation

- Create a set of cards from the Instructional master for each group of 2.

Student Responses

Sample response:

		expression
2	✓	$1 + 1$
3		
4	✓	$2 + 2$
5	✓	$4 + 1, 2 + 3$
6	✓	$3 + 3, 4 + 2$
7	✓	$5 + 2, 4 + 3$
8	✓	$5 + 3, 4 + 4$
9	✓	$5 + 4$
10	✓	$5 + 5$

Launch

- Groups of 2
- Give each group a set of cards, two recording sheets, and access to 10-frames and two-color counters.
- "We are going to learn a game called Check It Off. Let's play a round together."
- "First we take out all of the cards greater than five. We will not use those cards in this game. Now I am going to pick two number cards and find the sum of the numbers. The **sum** is the total when adding two or more numbers."
- Choose two cards.
- "What is the sum of the numbers? How do you know?"

- 30 seconds: quiet think time
- 1 minute: partner discussion
- Share responses.
- “Now I check off the sum. What addition expression represents the sum of the numbers?”
- 30 seconds: quiet think time
- Share responses.
- “I record the expression on my recording sheet next to the sum. Now it’s my partner’s turn.”

Activity

- “Take turns choosing two cards, finding the sum, and writing an addition expression. You may have more than one expression for each sum.“
- 10 minutes: partner work time
- Consider asking:
  - “How did you find the sum?”
  - “What expression did you write? What does the expression show?”
- Monitor for students who draw pictures or use fingers to find sums.

Synthesis

- Display number cards 4 and 3.
- "How can we find the sum of these numbers?"
- Invite previously identified students to share.
- "What addition expression can we write to represent the sum of these numbers?" ($4 + 3 = 7$ or $3 + 4 = 7$)

Lesson Synthesis

10 min

Math Community
"Let's revisit our mathematical community chart."

Display the chart.

"Based on what we did today, what can we add to "Doing Math"?

Complete Cool-Down

Response to Student Thinking

Students write an expression other than $5 + 2$ or $2 + 5$.

Next Day Support

- During the synthesis of the next day's warm-up, have students write an expression to match each set of dot cubes.

This lesson builds from addition expression concepts developed in a prior unit.

Prior Unit Support

Grade K, Unit 4, Section C: Addition and Subtraction Expressions

Lesson 3: Add 1 or 2

Standards Alignments

Building On	K.CC.B
Addressing	1.OA.C.5, 1.OA.C.6

Teacher-facing Learning Goals

- Add within 10, given expressions with an addend of 1 or 2, in a way that makes sense to them.

Student-facing Learning Goals

- Let's add 1 or 2.

Lesson Purpose

The purpose of this lesson is for students to add within 10 when one addend is 1 or 2.

This lesson builds on the understanding developed in kindergarten, that each successive number name refers to a quantity that is one larger. Students relate addition to counting and see that adding one or two more is the same as counting one or two more (MP8). This deepens their understanding of the structure of the counting sequence (MP7).

Center Choice Time is introduced for the first time in this lesson. During center choice times, students choose the activities they would like to do, choosing from previously introduced center activities. Although there are four centers to choose from in this lesson, not all centers need to be offered at this time. This is an opportunity to introduce classroom structures that will be used during center time throughout the year.

Math Community

Tell students they will have an opportunity to revise their math community ideas at the end of this lesson, so as they work today they should think about actions that may be missing from the current list.

Access for:

Students with Disabilities

- Engagement (Activity 2)

English Learners

- MLR7 (Activity 1)

Instructional Routines

How Many Do You See? (Warm-up)

Materials to Gather

- 10-frames: Activity 1, Activity 2
- Materials from previous centers: Activity 2
- Number cards 0–10: Activity 1
- Two-color counters: Activity 1, Activity 2

Materials to Copy

- Five in a Row Addition and Subtraction Stages 1 and 2 Gameboard (groups of 2): Activity 1

Lesson Timeline

Warm-up	10 min
Activity 1	20 min
Activity 2	20 min
Lesson Synthesis	10 min

Teacher Reflection Question

Reflect on whether or not you were able to circulate and hear student thinking while students worked in centers. If you were, what routines or structures helped students work independently? If you were not, what routines or structures can you establish to ensure that you are able to circulate and talk to students as they work?

Cool-down (to be completed at the end of the lesson) 0 min

Unit 1, Section A Checkpoint

Standards Alignments

Addressing 1.OA.C.5, 1.OA.C.6

Student-facing Task Statement

Lesson observations

Student Responses

- Count all to find the sum.
- Count on to find the sum.
- Use their knowledge of the count sequence to know certain sums.
- Know certain sums.

Begin Lesson

Warm-up

10 min

How Many Do You See: Dot Cubes

Standards Alignments

Addressing 1.OA.C.5

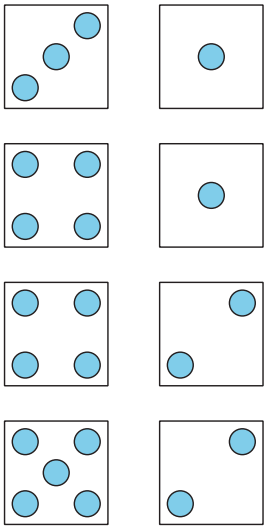
The purpose of this How Many Do You See is for students to determine the number of dots in an arrangement without counting each dot. Dots are arranged in the formation they appear on a dot cube to build on the previous lessons. When students use the dot images to relate addition to counting on, they look for and make use of the structure of whole numbers (MP7).

Instructional Routines

How Many Do You See?

Student-facing Task Statement

How many do you see?
How do you see them?



Student Responses

- 4. It's like a number cube, so I knew it was 3, then 1 more is 4.
- 5. I see 4 and know that 1 more is 5.
- 6. I see 4 and then counted on 5, 6.
- 7. I see 5 and then counted 6, 7.

Launch

- Groups of 2
- "How many do you see? How do you see them?"
- Flash the image.
- 1 minute: quiet think time

Activity

- Display the image.
- "Discuss your thinking with your partner."
- 1 minute: partner discussion
- Record responses.

Synthesis

- "How did you know how many dots there are in all?"
- Consider asking:
  - "Who can restate the way _____ saw the dots in different words?"
  - "Did anyone see the dots the same way but would explain it differently?"
  - "Does anyone want to add an

observation to the way _____ saw the dots?"

Activity 1

20 min

Introduce Five in a Row: Addition and Subtraction, Add 1 or 2

Standards Alignments

Addressing 1.OA.C.5

The purpose of this activity is for students to learn the first stage in the center, Five in a Row. In this stage, students pick a card and choose to add 1 or 2 to the number on their card. They place a counter on the sum on their game board. The first person to get five counters in a row wins. Students begin to notice that when they add 1 to any number, the sum is the next number in the counting sequence, and when they add 2, the sum is two numbers more in the counting sequence (MP7, MP8).

The game board will be used again in upcoming lessons. Consider copying on cardstock or laminating for future use.

Access for English Learners

MLR7 Compare and Connect. Synthesis: After students share how they found sums, lead a discussion about how students decided to add 1 or 2. Ask, "When did you decide to add 1? When did you decide to add 2? Why?" To amplify student language and illustrate connections, record student strategies on a visible display.
Advances: Representing, Conversing

Materials to Gather

10-frames, Number cards 0–10, Two-color counters

Materials to Copy

Five in a Row Addition and Subtraction Stages 1 and 2 Gameboard (groups of 2)

Required Preparation

- Each group of 2 needs a set of Number Cards 0–10.

Student Responses

Sample response:

Launch

- Groups of 2

- I flipped over 4. I counted out four counters and then two more. I had 6 counters total.
- I flipped over 4 and counted on 5, 6.
- I flipped over 4. I know that 4 + 2 is 6.
- I flipped over 4. I know that 6 is 2 away from 4.

- Give each group a set of number cards, a game board, two-color counters, and access to 10-frames.
- "We are going to learn a game called Five in a Row, Add 1 or 2. Let's play a round together."
- Display the game board.
- "First we need to remove any card with the number 10 on it. We will not use these cards in this game. Now I'm going to flip over a card and decide if I want to add 1 or 2 to the number."
- Flip over a card.
- "I got a (5) and I'm going to choose to add 2 to my number. What is the sum?"
- "Now I put a counter on the sum on the game board. Then it is my partner's turn."

Activity

- "Before you begin, you and your partner need to decide who will use the red side of the counters, and who will use the yellow side. Then take turns flipping over a card and adding 1 or 2 to the number. The first person to get five counters in a row on the game board wins. The counters can be in a row across, up and down, or diagonal."
- 10 minutes: partner work time
- As students work, consider asking:
    - "How did you find the sum?"
    - "How did you decide whether to add 1 or 2?"

Synthesis

- Display a game board with the center column covered with red counters except for the 8 at the bottom.
- Display the number card 6.
- "This is my game board. I just picked the number 6. Should I add 1 or 2 to the

number 6? Why?" (You should add 2 because $6 + 2$ is 8 and then you could cover the last number in the column and have five in a row.)

Activity 2

20 min

Centers: Choice Time

Standards Alignments

Building On	K.CC.B
Addressing	1.OA.C.5, 1.OA.C.6

The purpose of this activity is for students to experience center choice time for the first time. Students choose from activities that offer practice counting up to 20 objects or adding within 10. Students choose from previously introduced centers and are encouraged to choose the center that will be most helpful for them at this time.

- Counting Collections
- Number Race
- Check it Off
- Five in a Row: Addition and Subtraction

Students will choose from these centers throughout the section. Keep materials from these centers organized to use each day.

Access for Students with Disabilities

Engagement: Provide Access by Recruiting Interest. Use visible timers or audible alerts to help students anticipate and prepare to transition between center activities.
Supports accessibility for: Social-Emotional Functioning, Organization

Materials to Gather

10-frames, Materials from previous centers,
Two-color counters

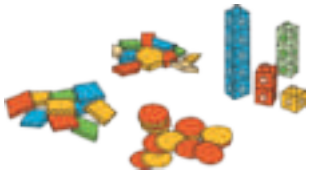
Required Preparation

- Gather materials from previous centers:
  - Counting Collections, Stage 1
  - Number Race, Stage 3
  - Check it Off, Stage 1
  - Five in a Row: Addition and Subtraction, Stage 1

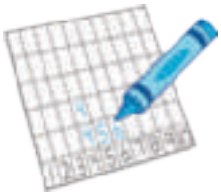
Student-facing Task Statement

Choose a center.

Counting Collections



Number Race



Check it Off

Five in a Row: Addition and Subtraction

Launch

- Groups of 2
- "Now you are going to choose from centers we have already learned."
- Display the center choices in the student book.
- "Think about what you would like to do first."
- 30 seconds: quiet think time

Activity

- Invite students to work at the center of their choice.
- 8 minutes: center work time
- "Choose what you would like to do next."
- 8 minutes: center work time

Synthesis

- "How did you and your partner work well together during centers today?"

Lesson Synthesis

10 min

Math Community

Display the math community poster and read the student actions listed under "Doing Math."

"Which of these did you do today? How did they help you in class?"

"Is there anything else we should add to the poster?"

Lesson 4: More Work with 1 and 2

Standards Alignments

Building On K.CC.B

Addressing 1.OA.C.5, 1.OA.C.6

Teacher-facing Learning Goals

- Subtract within 10, given expressions in which 1 or 2 is subtracted, in a way that makes sense to them.

Student-facing Learning Goals

- Let's subtract 1 or 2.

Lesson Purpose

The purpose of this lesson is for students to subtract 1 or 2 within 10.

This builds on the previous lesson where students considered the number sequence to support them in adding 1 or 2. When students see that subtracting 1 or 2 from any number is the same as counting one or two less, or counting back one or two, they are observing an important structure of the count sequence (MP7, MP8).

Math Community

Tell students that, at the end of the lesson, they will be asked to identify specific actions from their "Doing Math" list (both teacher and student sections) they personally experienced during the lesson today.

Access for:

Students with Disabilities

- Representation (Activity 1)

English Learners

- MLR8 (Activity 1)

Instructional Routines

Number Talk (Warm-up)

Materials to Gather

- 10-frames: Activity 1
- Materials from a previous activity: Activity 1

- Materials from previous centers: Activity 2
- Number cards 0–10: Activity 1
- Two-color counters: Activity 1

Lesson Timeline

Warm-up	10 min
Activity 1	20 min
Activity 2	20 min
Lesson Synthesis	10 min

Teacher Reflection Question

What strategy did most students use in their work today? What surprised you about student thinking?

Cool-down (to be completed at the end of the lesson) 0 min

Unit 1, Section A Checkpoint

Standards Alignments

Addressing 1.OA.C.5, 1.OA.C.6

Student-facing Task Statement

Lesson observations

Student Responses

- Represent all, then cross off or remove to find the difference.
- Count back to find the difference.
- Use their knowledge of the count sequence to know certain differences.
- Know certain differences.

Begin Lesson

Warm-up

10 min

Number Talk: Add 1 or 2

Standards Alignments

Addressing 1.OA.C.5

The purpose of this Number Talk is to elicit strategies and understandings students have for adding 1 or 2 to a given number. Students may use what they know about the count sequence to find the sums (MP7).

Instructional Routines

Number Talk

Student-facing Task Statement

Find the value of each expression mentally.

- $6 + 1$
- $6 + 2$
- $8 + 1$
- $8 + 2$

Student Responses

- 7. I know that 1 more than 6 is 7.
- 8. I put 6 on my fingers and counted 7, 8.
- 9. I started with 8 and counted 1 more.
- 10. I know that it's 1 more than the last one.

Launch

- Display one expression.
- "Give me a signal when you have an answer and can explain how you got it."
- 1 minute: quiet think time

Activity

- Record answers and strategy.
- Keep problems and work displayed.
- Repeat with each expression.

Synthesis

- "How are problems 3 and 4 the same? How are they different?" (They both start with 8. One adds one more and the other adds two more. The sums are 1 apart.)

Activity 1

20 min

Introduce Five in a Row: Addition and Subtraction, Subtract 1 or 2

Standards Alignments

Addressing 1.OA.C.5

The purpose of this activity is for students to learn stage 2 of the center Five in a Row. In this stage, students subtract one or two from a number within 10. Some students may count back and some may count all then count back or remove 1 or 2 then count the remaining objects. Provide access to 10-frames and counters and encourage students to use them only if needed.

Access for English Learners

MLR8 Discussion Supports. Pair gestures with verbal directions to clarify the meaning of any unfamiliar terms such as “flip”, “across”, “diagonally”, and “5 in a row.”
Advances: Listening, Representing

Access for Students with Disabilities

Representation: Internalize Comprehension. Synthesis: Encourage students to make connections to the counting sequence and how they are choosing to subtract one or two.
Supports accessibility for: Organization, Memory, Attention

Materials to Gather

10-frames, Materials from a previous activity,
Number cards 0–10, Two-color counters

Required Preparation

- Each group of 2 needs a set of number cards 0–10.
- Each group of 2 needs a Five in a Row game board from the previous lesson.

Student Responses

Sample responses:

- I flipped over 8, so I built 8 on my 10-frame and took away 2. I counted 1, 2, 3, 4, 5, 6.

Launch

- Groups of 2
- Give each group a set of number cards, a game board, two-color counters, and access to 10-frames.

- I flipped over 8, showed 8 fingers, took away 2, and saw 6.
- I flipped over 8. 8 . . . 7, 6.
- I flipped over 8. I know 6 is 2 away from 8.

- "We are going to learn a new way to play, Five in a Row. Last time we played, we added one or two to the number on our card. This time, you will take turns flipping over a card and choosing whether to subtract one or two from the number. Then put a counter on the number on the game board. The first person to get five counters in a row wins. Remember, your counters can be in a row across, up and down, or diagonally."

Activity

- 10 minutes: partner work time
- As students work, consider asking:
  - "How did you subtract?"
  - "How did you decide whether to subtract 1 or 2?"
- Monitor for students who:
  - represent the number, remove 1 or 2, count all that are left
  - represent the number, remove 1 or 2, know how many are left without recounting
  - count back 1 or 2
  - use the counting sequence to find the difference

Synthesis

- "I have the number 8 and I want to subtract 2. How can I do it?"
- Invite previously identified students to share.
- "How are these methods the same? How are they different?" (They all take away 2. They solve in different ways.)

Activity 2

20 min

Centers: Choice Time

Standards Alignments

Building On	K.CC.B
Addressing	1.OA.C.5, 1.OA.C.6

The purpose of this activity is for students to choose from activities that focus on counting up to 20 objects or adding and subtracting within 10. Students choose from the centers introduced in previous lessons as well as one introduced in the previous activity. If more than one stage of a center has been introduced, students choose from any of the stages. Students are encouraged to choose the center that will be most helpful for them at this time.

- Counting Collections
- Number Race
- Check it Off
- Five in a Row: Addition and Subtraction

Materials to Gather

Materials from previous centers

Required Preparation

Gather materials from:

- Counting Collections, Stage 1
- Number Race, Stage 3
- Check it Off, Stage 1
- Five in a Row: Addition and Subtraction, Stages 1 and 2

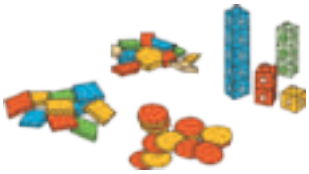
Student-facing Task Statement

Choose a center.

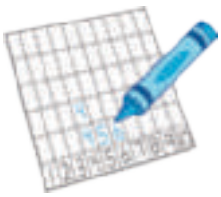
Counting Collections Number Race

Launch

- Groups of 2
- “Now you are going to choose from centers we have already learned.”
- Display the center choices in the student



Check it Off



Five in a Row: Addition and Subtraction

book.

- "Think about what you would like to do first."
- 30 seconds: quiet think time

Activity

- Invite students to work at the center of their choice.
- 8 minutes: center work time
- "Choose what you would like to do next."
- 8 minutes: center work time

Synthesis

- "What was your favorite part of center time today? Why was it your favorite?"

Lesson Synthesis

10 min

Display the math community poster and read the student actions listed under "Doing Math."

"Which of these did you do today? How did they help you in class?"

"Is there anything else we should add to the poster?"

Lesson 5: Explore Addition and Subtraction

Standards Alignments

Building On K.CC.B
Addressing 1.OA.C.5, 1.OA.C.6

Teacher-facing Learning Goals

- Add and subtract within 10 in a way that makes sense to them.

Student-facing Learning Goals

- Let's add and subtract.

Lesson Purpose

The purpose of this lesson is for students to add and subtract within 10.

Students add and subtract in a way that makes sense to them as they learn a new stage of the center, Check it Off, and then choose from other center activities introduced in previous lessons. They may use their knowledge of the counting sequence, count all, count on, or count back to find the sum or difference. This lesson provides an opportunity to collect formative assessment data on how students are developing methods for adding and subtracting within 10 that build toward fluency.

Math Community

In the lesson synthesis, students use their Mathematical Community poster to create norms for the classroom.

This lesson has a Student Section Summary.

Access for:

Students with Disabilities

- Action and Expression (Activity 1)

English Learners

- MLR8 (Activity 1)

Instructional Routines

Number Talk (Warm-up)

Materials to Gather

- 10-frames: Activity 1

Materials to Copy

- Check It Off Stage 2 Recording Sheet (groups of 1): Activity 1

- Materials from previous centers: Activity 2
- Number cards 0–10: Activity 1
- Two-color counters: Activity 1

Lesson Timeline

Warm-up	10 min
Activity 1	20 min
Activity 2	20 min
Lesson Synthesis	10 min

Teacher Reflection Question

Reflect on how comfortable your students are asking questions of you and of each other. What can you do to encourage students to ask questions?

Cool-down (to be completed at the end of the lesson)

0 min

Unit 1, Section A Checkpoint

Student-facing Task Statement

Lesson observations

Student Responses

- Represent all, then cross off or remove to find the difference.
- Count back to find the difference.
- Use their knowledge of the count sequence to know certain differences.
- Know certain differences.

Begin Lesson

Warm-up

10 min

Number Talk: Subtract 1 or 2

Standards Alignments

Addressing 1.OA.C.5, 1.OA.C.6

The purpose of this Number Talk is to elicit strategies and understandings students have for subtracting 1 or 2 from a given number. Students may use the structure of the count sequence and count back to determine the difference (MP7).

Instructional Routines

Number Talk

Student-facing Task Statement

Find the value of each expression mentally.

- $6 - 1$
- $6 - 2$
- $8 - 1$
- $8 - 2$

Student Responses

- 5. 5 comes before 6.
- 4. It's one less than the last one.
- 7. Take one away from 8.
- 6. I counted back 2.

Launch

- Display one expression.
- "Give me a signal when you have an answer and can explain how you got it."
- 1 minute: quiet think time

Activity

- Share and record responses.
- Keep problems and work displayed.
- Repeat with each expression.

Synthesis

- "How are problems 3 and 4 the same? How are they different?" (They both start with 8. They are both subtraction. One subtracts 1 and the other subtracts 2. One is 7 and the other is 6.)

Activity 1

20 min

Introduce Check it Off, Subtract within 10

PLC Activity

Standards Alignments

Addressing 1.OA.C.5, 1.OA.C.6

The purpose of this activity is for students to learn stage 2 in the center Check it Off. In this stage students subtract within 10 in any way that makes sense to them. Students may count all and remove some before counting again, count back, or use a known fact. Students are introduced to the term **difference**. They write subtraction expressions to represent differences. If students write an expression with the minuend and subtrahend in reversed order, for example $4 - 7$ instead of $7 - 4$, ask them to represent the expression with cubes or two-color counters. Students will see that if they have four cubes, they are not able to take away seven. Allow students to think about how they can write an expression that represents beginning with one of the numbers and taking away the other to find the difference. Avoid telling students that the bigger number is always first in a subtraction expression since this will not remain true when students begin working with negative numbers.

Access for English Learners

MLR8 Discussion Supports. Synthesis: Invite students to use the following sentence frames: "The difference is . . ." and "To find the difference I can . . . ."
Advances: Speaking, Representing

Access for Students with Disabilities

Action and Expression: Internalize Executive Functions. Ask students to recall strategies from the warm-up that were useful. Invite students to identify one or two strategies they plan to continue with, and to share their plan with a partner before they begin.
Supports accessibility for: Conceptual Processing, Memory

Materials to Gather

10-frames, Number cards 0–10, Two-color counters

Materials to Copy

Check It Off Stage 2 Recording Sheet (groups of 1)

Required Preparation

- Each group of 2 needs a set of Number Cards 0-10.

Student Responses

	√ found it!	expression
0		

Launch

- Groups of 2
- Give each group a set of number cards, two recording sheets, and access to two-color

1	√	$6-5$
2	√	$6-4, 7-5$
3	√	$6-3$
4	√	$8-4, 6-2$
5	√	$7-2, 8-3$
6	√	$8-2, 7-1$
7	√	$9-2$
8	√	$10-2, 9-1$
9	√	$10-1$
10		

counters and 10-frames.

- "We are going to learn a new way to play Check it Off. This time, instead of adding to find each number on the recording sheet, you will subtract."
- Demonstrate choosing two number cards.
- "Now I find the difference between the two numbers. The **difference** is the result when one number is subtracted from another. What is the difference between these two numbers? How do you know?"
- Demonstrate checking off the number on the recording sheet.
- "After you check off the number, write a subtraction expression to show the difference."
- Demonstrate writing the subtraction expression.
- "Continue taking turns with your partner. The person who checks off the most numbers wins."

Activity

- 15 minutes: partner work time
- As students work, consider asking:
  - "How did you find the difference?"
  - "Which expression did you write?"
- Monitor for students who count out counters, remove some and count again or count back to find the difference.

Synthesis

- "I have the numbers 7 and 3. How can I find the difference?"
- Invite previously identified students to share.
- "What subtraction expression can I write to show the difference?"

Activity 2

20 min

Centers: Choice Time

Standards Alignments

Building On	K.CC.B
Addressing	1.OA.C.5, 1.OA.C.6

The purpose of this activity is for students to choose from activities that focus on counting up to 20 objects or adding and subtracting within 10. Students choose from any stage of previously introduced centers and are encouraged to choose the center that will be most helpful for them at this time.

- Counting Collections
- Number Race
- Check it Off
- Five in a Row: Addition and Subtraction

Materials to Gather

Materials from previous centers

Required Preparation

- Gather materials from previous centers:
  - Counting Collections, Stage 1
  - Number Race, Stage 3
  - Check it Off, Stages 1 and 2
  - Five in a Row: Addition and Subtraction, Stages 1 and 2

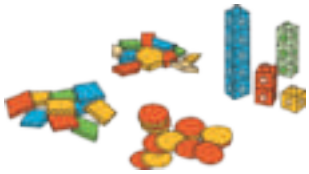
Student-facing Task Statement

Choose a center.

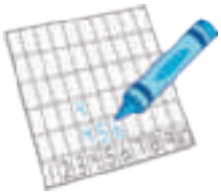
Counting Collections Number Race

Launch

- Groups of 2
- "Now you are going to choose from centers we have already learned."
- Display the center choices in the student book.



Check it Off



Five in a Row: Addition and Subtraction

- "Think about what you would like to do first."
- 30 seconds: quiet think time

Activity

- Invite students to work at the center of their choice.
- 8 minutes: center work time
- "Choose what you would like to do next."
- 8 minutes: center work time

Synthesis

- "We have been playing lots of games with addition and subtraction. What is something you have gotten better at from playing these games?"

Lesson Synthesis

10 min

Math Community

Display math community poster.

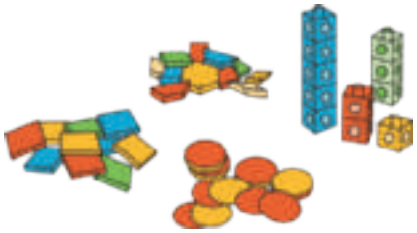
Explain to students that norms are expectations that help everyone in the room feel safe, comfortable, and productive doing math together.

"We are going to make a list of norms for how we do math together. One example of a norm is 'Listen as others share their ideas.' What other norms should we set for our class?"

Share and record responses.

Student Section Summary

We practiced counting collections.



We added 1 or 2 by counting on.
$4 + 2$
4 . . . 5, 6

We subtracted 1 or 2 by counting back.
$6 - 2$
6 . . . 5, 4

We played games with addition and subtraction within 10.

Lesson 6: Center Day 1

Standards Alignments

Building On	K.CC.B
Addressing	1.OA.C.5, 1.OA.C.6

Teacher-facing Learning Goals

- Add and subtract within 10 in a way that makes sense to them.

Student-facing Learning Goals

- Let's play games to practice adding and subtracting.

Lesson Purpose

The purpose of this lesson is for students to practice adding and subtracting within 10.

Students begin with an activity focused on finding pairs of numbers that make 10. After spending time on this activity, students then choose from other center activities introduced in previous lessons.

Access for:

Students with Disabilities

- Action and Expression (Activity 1)

English Learners

- MLR8 (Activity 1)

Instructional Routines

Which One Doesn't Belong? (Warm-up)

Materials to Gather

- 10-frames: Activity 1
- Materials from previous centers: Activity 2
- Number cards 0–10: Activity 1
- Two-color counters: Activity 1

Materials to Copy

- Find the Pair Stage 2 Recording Sheet (groups of 1): Activity 1

Lesson Timeline

Warm-up	10 min
Activity 1	20 min

Teacher Reflection Question

Students worked in centers a lot in this section. What structures have you put in place to make center time successful for all students? What additional structures or procedures could be

Activity 2	20 min
Lesson Synthesis	10 min

helpful to introduce?

Begin Lesson

Warm-up

10 min

Which One Doesn't Belong: Math Tools

This warm-up prompts students to carefully analyze and compare features of math tools. When they compare different math tools, students use mathematical language describing the shapes, such as flat and corner, precisely (MP6). The activity also enables the teacher to hear how students talk about characteristics of math tools. Students sort these math tools in the next section.

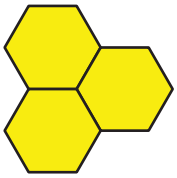
Instructional Routines

Which One Doesn't Belong?

Student-facing Task Statement

Which one doesn't belong?

A



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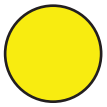

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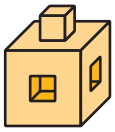


Launch

- Groups of 2
- Display the image.
- "Pick one that doesn't belong. Be ready to share why it doesn't belong."
- 1 minute: quiet think time

Activity

- "Discuss your thinking with your partner."
- 2–3 minutes: partner discussion
- Share and record responses.

Synthesis

- "Let's find at least one reason why each one doesn't belong."

Student Responses

Sample response:

- A doesn't belong because it is the only one that isn't just one shape.
- B doesn't belong because it is the only one that doesn’t have straight sides.
- C doesn't belong because it is the only one that isn’t yellow.
- D doesn't belong because it is the only one that isn’t flat.

Activity 1

20 min

Revisit Find the Pair, Make 10

Standards Alignments

Addressing 1.OA.C.6

The purpose of this activity is for students to revisit a center introduced in kindergarten. In Find the Pair, Make 10, students find a number that would make 10 when added to the number on one of their cards. Students may use addition or subtraction to find the number. Students then fill in an equation to show the pair of numbers that make 10.

Access for English Learners

MLR8 Discussion Supports. Display sentence frames to support students as they play Find the Pair: "Do you have a _____?", “Yes, I have a _____.” and “No, I don’t have a _____.”
Advances: Speaking, Listening

Access for Students with Disabilities

Action and Expression: Internalize Executive Functions. Invite students to verbalize their strategy, including the tools they will use, for finding a number that makes 10 before they begin. Students can speak quietly to themselves, or share with a partner.
Supports accessibility for: Organization, Conceptual Processing, Language

Materials to Gather

10-frames, Number cards 0–10, Two-color counters

Materials to Copy

Find the Pair Stage 2 Recording Sheet (groups of 1)

Required Preparation

- Each group of 2 needs a set of Number Cards 0-10.

Student Responses

Students find pairs of numbers that make 10 when added.

Launch

- Groups of 2
- Give each group a set of cards, recording sheets, and access to 10-frames and two-color counters.
- "We are going to play a game that you learned in kindergarten, called Find the Pair. We are going to find pairs that make 10. Let's make sure everyone remembers how to play the game."
- "Each person gets five cards to start."
- Display five cards.
- "When it is your turn, you ask your partner for a number that makes 10 when added to a number on one of your cards. For example, I have a card with a (6), so I would ask my partner for a (4) because (6) and (4) make 10."
- "If your partner has the number you asked for, they give you the card. Then you put those two cards down and fill in the equation showing the numbers that make 10."
- Demonstrate completing the equation.
- "If your partner doesn't have the number you asked for, pick up one card from the pile."
- "Continue playing until one player runs out of cards. The player with the most pairs wins."

Activity

- 10 minutes: partner work time
- Monitor for students who use a 10-frame and counters or their fingers to find the number needed to make 10.

Synthesis

- Display the card with a 3.
- "This is my last card. How can I figure out what number to ask my partner for?"
- Invite previously identified students to share.

Advancing Student Thinking

If students ask their partner for numbers that do not make 10 when added to any of the numbers on their cards, consider asking:

- "How did you figure out what number to ask your partner for?"
- "How could you use your fingers to help you figure out what number you need to make 10?"

Activity 2

20 min

Centers: Choice Time

Standards Alignments

Building On	K.CC.B
Addressing	1.OA.C.5, 1.OA.C.6

The purpose of this activity is for students to choose from activities that focus on counting up to 20 objects or adding and subtracting within 10. Students choose from any stage of previously introduced centers and are encouraged to choose the center that will be most helpful for them at this time.

- Counting Collections

- Number Race
- Check it Off
- Five in a Row: Addition and Subtraction
- Find the Pair

In the synthesis, students discuss ways they can continue building fluency with addition and subtraction within 10 at home. Consider sending home copies of the center activities for students to play at home.

Materials to Gather

Materials from previous centers

Required Preparation

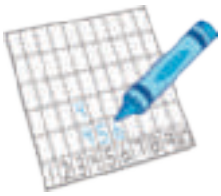
- Gather materials from previous centers:
  - Counting Collections, Stage 1
  - Number Race, Stage 3
  - Check it Off, Stages 1 and 2
  - Five in a Row: Addition and Subtraction, Stages 1 and 2
  - Find the Pair, Stage 2

Student-facing Task Statement

Choose a center.

Counting Collections

Number Race



Check it Off

Five in a Row: Addition and Subtraction

Launch

- Groups of 2
- "Now you are going to choose from centers we have already learned."
- Display the center choices in the student book.
- "Think about what you want to do first."
- 30 seconds: quiet think time

Activity

- Invite students to work at the center of their choice.
- 8 minutes: center work time
- "Choose what you would like to do next."

Find the Pair

- 8 minutes: center work time

Synthesis

- "We have been playing a lot of games to help us build fluency with addition and subtraction within 10. How can you continue working on addition and subtraction at home?" (I could use flash cards. I could play these games with my family.)

Lesson Synthesis

10 min

Display Mathematical Community poster.

Ask students to reflect on both individual and group actions while considering the question: "What norms, or expectations, were we mindful of as we did math together in our mathematical community?"

Section B: Show Us Your Data

Lesson 7: Sort Math Tools

Standards Alignments

Building On	K.CC.B
Addressing	1.MD.C.4, 1.OA.C.5, 1.OA.C.6
Building Towards	1.MD.C.4

Teacher-facing Learning Goals

- Describe (orally) the categories chosen for sorting math tools and tell how many in each category.
- Sort math tools into categories in a way that makes sense to them.

Student-facing Learning Goals

- Let's sort objects and describe how many.

Lesson Purpose

The purpose of this lesson is for students to sort objects into categories and tell how many objects are in each category.

In kindergarten, students sorted objects into given categories. In this lesson, students choose categories to sort tools they have used in previous lessons (pattern blocks, two-color counters, and inch tiles). Students explain how they sorted and how many are in each category.

Although math tools are suggested, any objects may be used that students can sort into two or more categories.

In Activity 3, students choose from center activities introduced in previous lessons, to practice counting up to 20 objects or adding and subtraction within 10.

Access for:

Students with Disabilities

- Action and Expression (Activity 2)

Instructional Routines

MLR2 Collect and Display (Activity 1), Notice and Wonder (Warm-up)

Materials to Gather

- Inch tiles: Activity 1
- Materials from a previous activity: Activity 2
- Materials from previous centers: Activity 3
- Pattern blocks: Activity 1
- Two-color counters: Activity 1

Materials to Copy

- Three-Column Table (groups of 1): Activity 1
- Two-Column Table (groups of 1): Activity 1

Lesson Timeline

Warm-up	10 min
Activity 1	10 min
Activity 2	15 min
Activity 3	15 min
Lesson Synthesis	10 min

Teacher Reflection Question

In kindergarten, students compared two- and three-dimensional shapes and used informal language to describe how they were alike and different. What informal language did students use to describe shapes today? How did the Collect and Display routine help students develop more language to describe objects?

Cool-down (to be completed at the end of the lesson)

0 min

Unit 1, Section B Checkpoint

Student-facing Task Statement

Lesson observations

Student Responses

- Sort objects into categories.

Begin Lesson

Warm-up

10 min

Notice and Wonder: Math Tools

Standards Alignments

Building Towards 1.MD.C.4

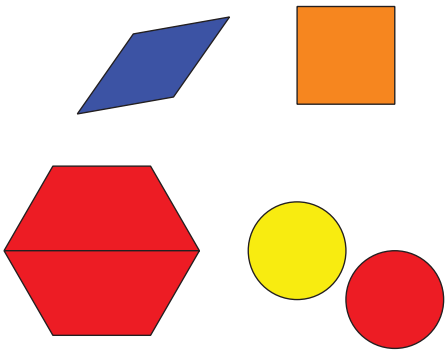
The purpose of this warm-up is to elicit language students have to describe math tools which will be useful when students sort them in a later activity. The activity provides an opportunity for students to describe mathematical objects in different ways, including non-mathematical characteristics such as color as well as mathematical characteristics such as the number of corners and the category or properties of the shapes. (MP6). If possible, display the objects themselves rather than the image or provide students with a set of the objects. Some students may not know the names of the shapes. Prompt them to use the language that makes sense to them.

Instructional Routines

Notice and Wonder

Student-facing Task Statement

What do you notice?
What do you wonder?



Student Responses

Students may notice:

- I see a square.
- Some shapes have curved sides, some have straight sides.
- The counters are both red and yellow.

Launch

- Groups of 2
- Display the image.
- "What do you notice? What do you wonder?"
- 1 minute: quiet think time

Activity

- "Discuss your thinking with your partner."
- 1 minute: partner discussion
- Share and record responses.

Synthesis

- "How are the shapes alike? How are they different?" (The counters are round. The hexagon is made of two shapes.)

Students may wonder:

- How will we use the tools?
- What are they called?

Activity 1

10 min

Sort Objects

Standards Alignments

Building Towards 1.MD.C.4

The purpose of this activity is for students to sort math tools, name the groups they used to sort, and tell the number of objects in each group. Students identify attributes of the objects and sort them into two or more groups. Students may choose to use one of the Instructional masters to organize as they sort. When students share how they sorted with their partner, they use their own mathematical vocabulary and listen to and understand their partner's thinking (MP3, MP6). Students may describe the objects' attributes by referring to shape names, number of sides, color, or other attributes. Encourage students to tell how many tools are in each category. During the synthesis, students are introduced to the term **category.** They discuss different categories that were used to sort the math tools.

Students leave their objects as they sorted them at the end of the activity for the gallery walk in Activity 2.

This activity uses *MLR2 Collect and Display.* Advances: Conversing, Reading, Writing.

Instructional Routines

MLR2 Collect and Display

Materials to Gather

Inch tiles, Pattern blocks, Two-color counters

Materials to Copy

Three-Column Table (groups of 1), Two-Column Table (groups of 1)

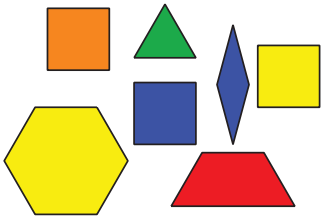
Required Preparation

- Each group of 2 needs a bag of math tools (with a small handful of inch tiles, pattern blocks, and two-color counters).

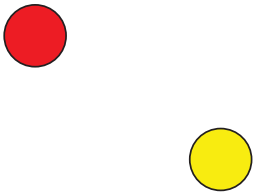
Student Responses

Sample response:

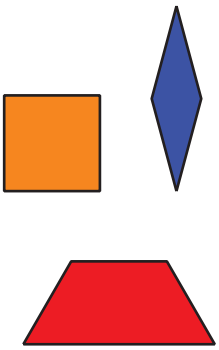
Objects with straight sides



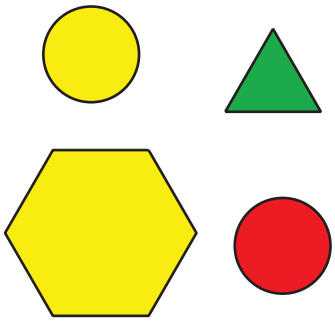
Objects with curved sides



Objects with 4 sides



Objects that do not have 4 sides



Launch

- Groups of 2
- Give each group a bag of math tools and access to the Instructional masters.

Activity

- "Sort your math tools. Use the tables if they are helpful."
- 4 minutes: partner work time
- "Explain to another group how you sorted your tools. Make sure to tell them the groups you used and how many objects are in each group."
- 3 minutes: small group discussion

MLR2 Collect and Display

- Circulate, listen for, and collect the language students use to describe how they sorted. Listen for categories, the number of shapes in each category, and math tool names.
- Record students' words and phrases on a poster titled "Words to describe how we sorted" and update throughout the lesson.

Synthesis

- Display the poster.
- "Are there any words or phrases that are important to include on our display?" Use this discussion to update the display, by adding (or removing) language, diagrams, or annotations.
- Remind students to borrow language from the display as needed in the next activity.
- "The label that tells how objects in a group are alike is called a **category**. One category I saw today was shapes with straight sides. Another category I saw was shapes that have four sides. We will continue to sort into categories."

Advancing Student Thinking

If students sort objects into groups without recognizable similarities, consider asking:

- "How did you choose to sort the objects?"
- Invite students to look at two objects and think of something they have in common. Ask, "How could you sort the objects using that as one of your categories?"

Activity 2

15 min

How Did They Sort?

Standards Alignments

Addressing 1.MD.C.4

The purpose of this activity is for students to use their own language and the language generated by the class in the last activity to describe how objects were sorted and tell how many objects are in each category. Students walk around the room and look at how other students sorted their objects. Consider using a signal to let students know when it is time to rotate.

Access for Students with Disabilities

Action and Expression: Internalize Executive Functions. Check for understanding by inviting students to rephrase directions in their own words. Keep a display of directions visible throughout the activity.
Supports accessibility for: Memory, Attention

Materials to Gather

Materials from a previous activity

Required Preparation

- The math tool sorts from the previous activity are needed for this gallery walk.

Student Responses

Sample responses:

- There are 5 red math tools.
- These categories are shapes. There are squares, triangles, and circles.

Launch

- Groups of 2
- "Now you're going to walk around to other tables to look at how other students sorted their tools. For each group's work, talk to your partner about how they sorted the math tools and how many objects are in each category."
- Students move so they are looking at another group's work.
- "Look at the objects on your own. How did they sort the math tools? How many objects are in each category? When you are ready to share your thinking with your partner, put your thumb up."
- 30 seconds: quiet think time
- "Take turns sharing your thinking with your partner."
- 1 minute: partner discussion

Activity

- "Move to the next group's work. Talk to your partner about how they sorted and how many tools are in each category."
- Repeat as time allows.
- 8 minutes: partner discussion time

Synthesis

- "What are some different ways you saw the math tools sorted?"

Activity 3

15 min

Centers: Choice Time

Standards Alignments

Building On	K.CC.B
Addressing	1.OA.C.5, 1.OA.C.6

The purpose of this activity is for students to choose from activities that focus on counting up to 20 objects or adding and subtracting within 10. Students choose from any stage of previously introduced centers and are encouraged to choose the center that will be most helpful for them at this time.

- Counting Collections
- Number Race
- Check it Off
- Five in a Row: Addition and Subtraction
- Find the Pair

Materials to Gather

Materials from previous centers

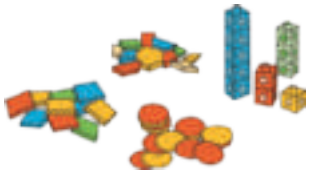
Required Preparation

- Gather materials from previous centers:
  - Counting Collections, Stage 1
  - Number Race, Stage 3
  - Check it Off, Stages 1 and 2
  - Five in a Row: Addition and Subtraction, Stages 1 and 2
  - Find the Pair, Stage 2

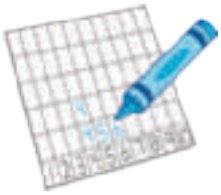
Student-facing Task Statement

Choose a center.

Counting Collections



Number Race



Launch

- Groups of 2
- "Now you are going to choose from centers we have already learned."
- Display the center choices in the student book.
- "Think about what you would like to do first."
- 30 seconds: quiet think time

Check it Off

Five in a Row: Addition and Subtraction

Find the Pair

Activity

- Invite students to work at the center of their choice.
- 10 minutes: center work time

Synthesis

- "How was the center activity you chose helpful for you today?"

Lesson Synthesis

10 min

Refer back to the poster with the language students used during the activities.

"Today we sorted objects and described how we sorted. Let's look at the words collected today during your discussions. Are there any words or phrases that are important to include on our display?"

Lesson 8: Sort and Count Shape Cards

Standards Alignments

Building On	K.CC.B.4
Addressing	1.MD.C.4
Building Towards	1.MD.C.4

Teacher-facing Learning Goals

- Represent how many shapes are in each category.
- Sort shapes into three categories.

Student-facing Learning Goals

- Let's sort shapes and show how many.

Lesson Purpose

The purpose of this lesson is for students to sort shapes and create a representation that shows the number of shapes in each category.

In a previous lesson, students made sense of how objects were sorted. Students made oral statements about how many objects were in each category. In this lesson, students sort shapes into three categories. They name and describe their categories, including how many shapes are in each category. Students then create a visual representation of the number of shapes in each category in a way that makes sense to them. Students discuss that in order to make sure their representation can be understood by others, they need to label the categories and represent objects in an organized way (MP6).

Access for:

Students with Disabilities

- Action and Expression (Activity 2)

English Learners

- MLR8 (Activity 2)

Instructional Routines

Which One Doesn't Belong? (Warm-up)

Materials to Gather

- Colored pencils or crayons: Activity 2
- Materials from a previous activity: Activity 1,

Materials to Copy

- Shape Cards (groups of 2): Activity 1

Activity 2, Activity 3

Lesson Timeline

Warm-up	10 min
Activity 1	10 min
Activity 2	15 min
Activity 3	15 min
Lesson Synthesis	10 min

Teacher Reflection Question

After the gallery walk and the discussion about what makes a representation easy to interpret, what representations do you anticipate students making for data they collect in the next lesson? Why do you think they will choose these representations?

Cool-down (to be completed at the end of the lesson) 0 min

Unit 1, Section B Checkpoint

Standards Alignments

Addressing 1.MD.C.4

Student-facing Task Statement

Lesson observations

Student Responses

- Sort objects into categories.
- Represent each object with a picture of the object, symbol, or number.
- Label the categories in their representation.

Begin Lesson

Warm-up 10 min

Which One Doesn't Belong: Show Quantities

Standards Alignments

Building On	K.CC.B.4
Building Towards	1.MD.C.4

The purpose of this warm-up is for students to compare and contrast ways of representing quantities. This warm-up prepares students to represent shapes they sort in a way that makes sense to them.

Instructional Routines

Which One Doesn't Belong?

Student-facing Task Statement

Which one doesn't belong?

A

B

C

D

5

Student Responses

Sample responses:

- A doesn't belong because it is the only one that uses marks.
- B doesn't belong because it is the only one that doesn't show 5.
- C doesn't belong because it is the only one that shows more than one line.
- D doesn't belong because it is the only one that shows the number.

Launch

- Groups of 2
- Display the image.
- "Pick one that doesn't belong. Be ready to share why it doesn't belong."
- 1 minute: quiet think time

Activity

- "Discuss your thinking with your partner."
- 2–3 minutes: partner discussion
- Share and record responses.

Synthesis

- "Which representation is easiest for you to see how many? Why?" (The three triangles because I can just look at it and know how many. The number 5 because I don't have to count.)

Activity 1

10 min

Sort Shapes

PLC Activity

Standards Alignments

Addressing 1.MD.C.4

The purpose of this activity is for students to organize shape cards into three categories and name the categories. Students describe how they sorted and how many shapes are in each category. Students choose and describe different attributes of their shapes and how those attributes determine the different ways they sorted their shapes (MP3). Students create a representation of how they sorted in the next activity.

Materials to Gather

Materials from a previous activity

Materials to Copy

Shape Cards (groups of 2)

Required Preparation

- Create a set of shape cards from the Instructional master for each group of 2.
- Have extra copies of the three-column table from a previous lesson available for students.

Student Responses

Sample responses:

- We sorted by color.
- There are 6 white, 3 gray, and 3 black shapes.
- There is 1 round shape, 7 fat shapes, and 4 skinny shapes.

Launch

- Groups of 2
- Give each group a set of shape cards and access to copies of the three-column table.
- "Look at all of your shape cards. Take a minute to look over the cards by yourself first and think about how you would sort them."
- 1 minute: quiet think time

Activity

- "Work with your partner to sort the cards into three categories in any way that you want. You do not need to use all of the cards."

- 5 minutes: partner work time
- "Share with another group. Explain how you sorted the shapes. Tell how many shapes are in each category and how many shapes there are altogether." (There are 5 white shapes. There are 12 shapes altogether.)
- 2 minutes: small group discussion
- Monitor for two groups who sorted their cards in different ways.

Synthesis

- Invite previously identified students to share.
- "How did this group sort their shapes? How many shapes are in each category?" (They sorted by color. There are 6 white shapes, 3 black shapes, and 3 gray shapes.)

Activity 2

15 min

Show Your Sort

Standards Alignments

Addressing 1.MD.C.4

The purpose of this activity is for students to represent how they sorted their shapes in the previous activity and tell how many in each category and how many in all. At the end of the activity, display each representation on tables or walls, to use during the gallery walk in the next activity.

Access for English Learners

MLR8 Discussion Supports. Synthesis: For each explanation that is shared, invite students to turn to a partner and restate what they heard using precise mathematical language.
Advances: Listening, Speaking

Access for Students with Disabilities

Action and Expression: Develop Expression and Communication. Provide alternative options for expression. Some students may benefit from the option of creating a representation by gluing or taping their shape cards from the previous activity onto a poster.
Supports accessibility for: Visual-Spatial Processing, Organization

Materials to Gather

Colored pencils or crayons, Materials from a previous activity

Required Preparation

- Have extra copies of the three-column table from a previous lesson available for students.

Student-facing Task Statement

1. Show how you sorted the shape cards. Be sure that someone else who looks at your paper can see how many shapes are in each category.
2. Complete the sentences:
    a. The first category has _____ shapes.
    b. The second category has _____ shapes.
    c. The third category has _____ shapes.
    d. There are _____ shapes all together.

Student Responses

Sample responses:

Launch

- Give students access to colored pencils or crayons and copies of the three-column table.

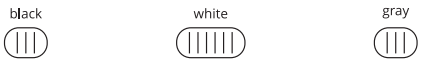
Activity

- Read the task statement.
- 10 minutes: independent work time

Synthesis

- "Now we will have a chance to look at and interpret each other's representations."

1.



2. a. The first category has 3 shapes.
   b. The second category has 6 shapes.
   c. The third category has 3 shapes.
   d. There are 12 shapes all together.

Advancing Student Thinking

If students make a representation that doesn't show three categories, consider asking,

- "Can you explain how you showed your sort on the paper?"
- "How could you show each category in your representation?"

Activity 3

15 min

Shape Sort Gallery Walk

Standards Alignments

Addressing 1.MD.C.4

The purpose of this activity is for students to interpret different representations created based on their shape sorts. Students use the different representations to determine how many shapes are in each category. During the synthesis, students discuss aspects of representations that make them easier to interpret.

Materials to Gather

Materials from a previous activity

Required Preparation

- Display students' representations of their shape sorts on tables or walls so they are easily seen as students walk around.

Student Responses

Students interpret different representations.

Launch

- Groups of 2

Activity

- "With your partner, look at each representation. Discuss how each group sorted the shapes, how many shapes are in each category, and how you know."
- 10 minutes: partner discussion
- As students work, consider asking:
  - "How does this representation show how many shapes are in the first category?"
  - "What makes this representation easy to interpret?"
- Monitor for representations that use shapes, tally marks, numbers, and labels.

Synthesis

- Display previously identified representations.
- "How did this group sort their shapes? How many are in each category? How do you know?"
- Repeat with different student work as time allows.
- "Which representation was easiest to interpret? What made it easier than the others?" (The one with numbers was easiest because I didn't have to count. The one with labels was easiest because I knew what the groups were.)

Lesson Synthesis

10 min

"Today we saw different ways to show our sorts and talked about how we can make sure they are easy for others to understand. Tell your partner one thing you would change that would make your

representation easier for someone to understand." (I would add labels. I would count my shapes and write the number so other people don't have to count.)

Lesson 9: What is Your Favorite _____ ?

Standards Alignments

Addressing 1.MD.C.4, 1.OA.C.5

Teacher-facing Learning Goals

- Organize and represent categorical data about the class.

Student-facing Learning Goals

- Let's collect, organize, and show data.

Lesson Purpose

The purpose of this lesson is for students to collect categorical data about the class, organize it, and represent it in a way others can understand.

In previous lessons students sorted objects and created visual representations of the number of objects in each category using shapes, tally marks, or numbers. In this lesson, students answer a survey question and represent different responses with different colored cubes. Connecting cubes are a concrete way to represent each student and their previous work with cubes may lead them to suggest making towers by color to organize the cubes. This supports students as they make their own representations in the next activity. Students make statements based on the data after it is represented visually.

As the class builds community, it is helpful to learn about each other's likes and dislikes. When choosing a survey question to ask, consider some of the following:

What is your favorite:

- animal
- pet
- subject in school
- special area in school (Art, Music, etc.)
- field trip destination
- indoor activity
- recess activity
- sport
- fruit
- snack

Choose a question and come up with three possible responses to the question that students can

choose from when taking the survey. Consider having students help choose the question and responses.

This lesson has a Student Section Summary.

Access for:

Students with Disabilities

- Representation (Activity 1)

English Learners

- MLR2 (Activity 3)

Instructional Routines

How Many Do You See? (Warm-up)

Materials to Gather

- Colored pencils or crayons: Activity 2
- Connecting cubes: Activity 1, Activity 2
- Materials from a previous activity: Activity 2, Activity 3

Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	15 min
Activity 3	10 min
Lesson Synthesis	10 min

Teacher Reflection Question

Reflect on times you observed students listening to one another's ideas today in class. What norms would help each student better attend to their classmates' ideas in future lessons?

Cool-down (to be completed at the end of the lesson)

0 min

Unit 1, Section B Checkpoint

Standards Alignments

Addressing 1.MD.C.4

Student-facing Task Statement

Lesson observations:

Student Responses

- Represent each object with a picture of the object, symbol, or number.
- Label the categories in their representation.

Begin Lesson

Warm-up

10 min

How Many Do You See: Dots and More Dots

Standards Alignments

Addressing 1.OA.C.5

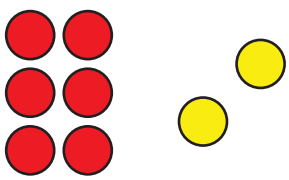
The purpose of this How Many Do You See is for students to use their ability to know without counting (subitize) the number of dots. Students may recognize quantities up to four without having to count. They may recognize larger quantities when seen in a standard configuration, such as those seen on dot cubes.

Instructional Routines

How Many Do You See?

Student-facing Task Statement

How many do you see?
How do you see them?

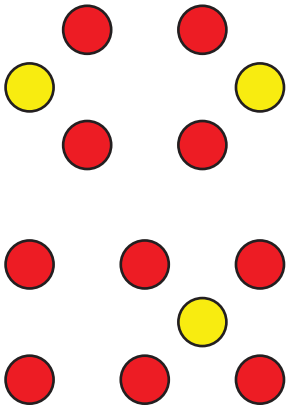


Launch

- Groups of 2
- "How many do you see and how do you see them?"

Activity

- Flash the image.
- 10 seconds: quiet think time



Student Responses

- 8. I counted on. 6 . . . 7, 8.
- 6. I see 4 red 2 yellow. $4 + 2$ is 6.
- 7. I see 5 . . . 6, 7.

- Display the image.
- Record responses.
- Repeat for each arrangement.

Synthesis

- "Did anyone see the same number of dots in a different way?"
- Consider asking:
  - "Who can restate the way _____ saw the dots in different words?"
  - "Did anyone see the dots the same way but would explain it differently?"
  - "Does anyone want to add an observation to the way _____ saw the dots?"

Activity 1

15 min

A Class Survey

Standards Alignments

Addressing 1.MD.C.4

The purpose of this activity is for students to collect information, or **data,** about their class and discuss how to organize it in a way that others will understand. Students learn how to conduct a **survey** and use connecting cubes to physically represent their vote which builds on their sorting work from previous lessons. During the activity synthesis, students discuss how to organize the cubes so they can easily determine how many are in each category.

Students need access to the data represented by connecting cubes in the next activity. Leave the cubes in a location where students can easily access them.

Access for Students with Disabilities

Representation: Access for Perception. Students with color blindness will benefit from verbal emphasis, gestures, or labeled displays to distinguish between colors of connecting cubes. *Supports accessibility for: Visual-Spatial Processing*

Materials to Gather

Connecting cubes

Required Preparation

- Each group of 2 needs access to red, blue, and yellow connecting cubes.

Student-facing Task Statement

What is your favorite _____?

If you chose _____, take a red cube. 

If you chose _____, take a blue cube. 

If you chose _____, take a yellow cube. 

Student Responses

Sample responses:

- We could put all the cubes of each color together.
- We could make towers for each color.

Launch

- Groups of 2
- Give each group access to red, blue, and yellow connecting cubes.
- "Today we are going to take a survey. A **survey** is a way to collect information about a group of people's answers to the same question. The information we collect about the things or people in the group is called **data**. Let's take a survey and collect data about our favorite _____."
- Make sure there are three clear choices for students to choose from when answering the survey question.
- Display the student book.
- Together, record the question and the answer that will be represented by each color.
- "Think about which is your favorite and take one connecting cube."
- Collect and display the connecting cubes in a scattered arrangement.

Activity

- "What do you notice about the data that we collected?" (There are a lot of cubes and it's hard to know how many of each there are.)
- "What could we do to organize the data?" (Organize the cubes by color, put the cubes in towers by color.)
- 30 seconds: quiet think time
- 1 minute: partner discussion

Synthesis

- Share responses.
- Group the cubes the ways students suggest.
- "How does organizing the cubes help us show the data from our class survey?" (When we organized, it was easier to see how many people voted for each.)

Activity 2

15 min

Show Our Class Data

Standards Alignments

Addressing 1.MD.C.4

The purpose of this activity is for students to represent on paper the class data collected during the previous activity. Students determine how they want to represent their data which was represented by cubes in the previous activity. Representations may include squares (as cubes), tally marks, or number symbols. Students also label their representations.

Materials to Gather

Colored pencils or crayons, Connecting cubes, Materials from a previous activity

Required Preparation

- Have extra copies of the three-column table from a previous lesson available for students.

Student-facing Task Statement

Show the survey data about our class's favorite _____.

Launch

- Groups of 2
- Give each group access to colored pencils or crayons and copies of the three-column table.

Student Responses

Students make representations that show how many people chose ___, ___, and ___.

- "We have to put the cubes away at the end of math, but we want to be able to see our class data tomorrow. With your partner, come up with a plan to show our data on paper."
- 3 minutes: partner discussion

Activity

- "Now each of you will show our class data on paper."
- 10 minutes: independent work time
- As students work, consider asking questions to help clarify representations:
  - "Which category is this? What can you do so others can tell what each category is on your paper?"
  - "What is the title of your data representation?"
- Monitor for different representations that use squares, tally marks, and numbers to share during the synthesis of the next activity.

Synthesis

- "Now let's see what we can learn about the representations of our class data."

Activity 3

10 min

Different Ways to Show Data

Standards Alignments

Addressing 1.MD.C.4

The purpose of this activity is for students to interpret the representations created in Activity 2. As the data is the same for each representation, students discuss how the representations they see are the same or different (MP3). This activity allows teachers to observe how students build on their work describing how objects were sorted while working with a new data context. Students may notice there are similarities in the number of votes for each category and make connections between representations. Students may notice that the representations are different as some use drawings and others use tally marks or numbers. They may also notice that the categories are in a different order.

Access for English Learners

MLR2 Collect and Display. Circulate, listen for, and collect the language students use as they talk about the data. On a visible display, record words and phrases such as: "more," "less," "same," "different," "popular." Invite students to borrow language from the display as needed, and update it throughout the lesson.
Advances: Conversing, Writing

Materials to Gather

Materials from a previous activity

Required Preparation

- Students need their representations from the previous activity.

Student Responses

Sample responses:

- This representation used numbers to represent votes, and we used squares.
- Each representation shows that 10 people chose hippopotamus.
- The categories are in different orders, but the categories are the same.

Launch

- Groups of 2

Activity

- "With your partner, find a group that represented the data in a different way from how you represented it. One person from each group switch papers with someone from the other group. With your partner, talk about what you notice is the same about each representation and what you notice is different."
- 3 minutes: partner discussion
- "Share your thinking with the other group. What do you agree about?" (We agree that each representation shows the

same number of votes in each category and the same total number of votes.)

- 3 minutes: small group discussion

Synthesis

- Display selected student representations from the previous activity.
- "What is the same about these representations? What is different?" (The way that groups represented the number of votes is different. The number of votes under each category is the same.)
- "There are different ways to represent our data, but no matter the representation, the data should tell the same story."

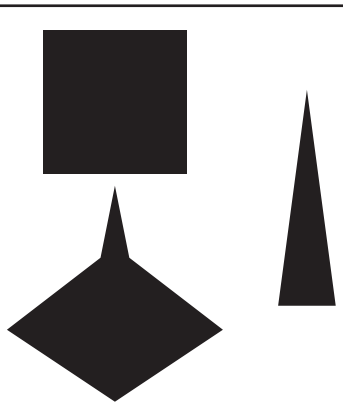
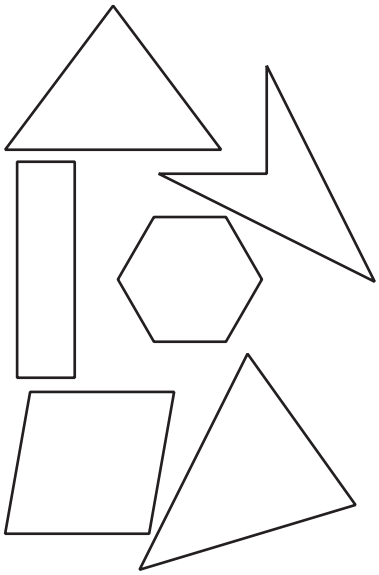
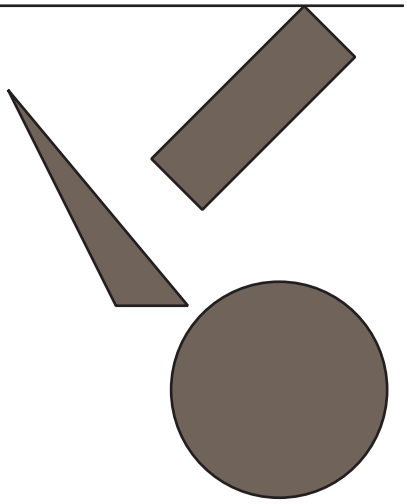
Lesson Synthesis

10 min

"Today we saw that there are different ways to show our data on paper. What are some things we should remember when doing this?" (It helps to label each group. We can use numbers to show how many are in each group. We can use tally marks or other shapes to show how many are in each group.)

Student Section Summary

We sorted objects and shapes.

black	white	gray
		

We showed our sorts on paper in different ways.

black	white	gray
□ □ □	□ □ □ □ □ □	□ □ □

black	white	gray
|||	||||| |	|||

black	white	gray
3	6	3

Lesson 10: Center Day 2

Standards Alignments

Building On	K.CC.A.1
Addressing	1.OA.B.4, 1.OA.C.5, 1.OA.C.6
Building Towards	1.NBT.B.2

Teacher-facing Learning Goals

- Add and subtract within 10.

Student-facing Learning Goals

- Let's add and subtract.

Lesson Purpose

The purpose of this lesson is for students to add and subtract within 10.

Students revisit a center from kindergarten focused on making 10. After all students spend some time on this center, they then have a choice of different previously introduced centers. All centers focus on adding or subtracting within 10.

Access for:

Students with Disabilities

- Representation (Activity 1)

English Learners

- MLR8 (Activity 1)

Instructional Routines

Choral Count (Warm-up)

Materials to Gather

- 10-frames: Activity 1
- Connecting cubes: Activity 1
- Materials from previous centers: Activity 2
- Two-color counters: Activity 1

Materials to Copy

- What's Behind My Back Stage 2 Recording Sheet Grade 1 (groups of 1): Activity 1

Lesson Timeline

Warm-up	10 min

Teacher Reflection Question

Reflect on what you saw and heard as students worked in centers today. Whose ideas were

Activity 1	20 min
Activity 2	20 min
Lesson Synthesis	10 min

heard, valued, and accepted? How can you adjust the group structure or norms during the next center time to ensure each student's ideas are a part of the collective learning?

Begin Lesson

Warm-up

10 min

Choral Count: Count by 10

Standards Alignments

Building On	K.CC.A.1
Building Towards	1.NBT.B.2

The purpose of this Choral Count is to invite students to practice counting by 10 and notice patterns in the count. These understandings help students develop fluency with the count sequence. When students notice the pattern in the ones place as they count by 10, they are looking for and making use of structure (MP7).

Instructional Routines

Choral Count

Student Responses

Record the count in a column, lining up the tens and ones digits.

Sample response:

- The first number goes 1, 2, 3, 4, all the way to 9.
- They all have zeros at the end.
- 100 has 3 digits.

Launch

- "Count by 10, starting at 0."
- Record as students count.
- Stop counting and recording at 100.

Activity

- "What patterns do you see?"
- 1–2 minutes: quiet think time
- Record responses.

Synthesis

- "How is counting by 10 like counting by 1?"
- Consider asking:
  - "Who can restate the pattern in different words?"
  - "Does anyone want to add an observation on why that pattern is happening here?"
  - "Do you agree or disagree? Why?"

Activity 1

20 min

Revisit What's Behind My Back, 10 Cubes

Standards Alignments

Addressing 1.OA.B.4, 1.OA.C.6

The purpose of this activity is for students to revisit a center from kindergarten. In this center, What's Behind My Back, students find the missing part to make 10. They record different ways to make 10 with equations.

Access for English Learners

MLR8 Discussion Supports. Synthesis: For each method that is shared, invite students to turn to a partner and restate what they heard using precise mathematical language.
Advances: Listening, Speaking

Access for Students with Disabilities

Representation: Internalize Comprehension. Synthesis: Record students' methods for finding the missing part on a visual display.
Supports accessibility for: Conceptual Processing, Attention

Materials to Gather

10-frames, Connecting cubes, Two-color counters

Materials to Copy

What's Behind My Back Stage 2 Recording Sheet Grade 1 (groups of 1)

Required Preparation

- Each group of 2 needs 10 connecting cubes.

Student Responses

Sample responses:
$2 + 8 = 10$
$6 + 4 = 10$
$5 + 5 = 10$

Launch

- Groups of 2
- Give each group two recording sheets, ten connecting cubes, and access to 10-frames and two-color counters.
- "We are going to play a game you learned in kindergarten called What's Behind My Back. Let's play the first round together to make sure we all remember how to play."
- Demonstrate starting with a tower of ten cubes.
- "Each group will start with a tower of ten cubes. Then one partner will break the tower into two parts and hide one of the parts behind their back."
- Break the tower into two parts and hide one part behind your back. Show the other part to the class.
- "The other partner will write an equation leaving a blank box for the missing number."
- Demonstrate writing $4 + \square = 10$.
- "Then they will figure out how many cubes are hidden behind their partner's back. You may use 10-frames and two-color counters if they are helpful. How many cubes are behind my back?"
- Share responses.
- "When you agree on how many are hiding, you can complete the equation."
- Demonstrate filling in the missing number in the equation.

Activity

- "Now you will play with your partner. Take

turns breaking the tower and hiding one part behind your back."

- 10 minutes: partner work time
- Monitor for students who use a 10-frame or their fingers to figure out how many cubes are hiding.

Synthesis

- Invite previously identified students to share.
- "How did you figure out how many cubes were hiding behind your partner's back?"

Activity 2

20 min

Centers: Choice Time

Standards Alignments

Addressing 1.OA.B.4, 1.OA.C.5, 1.OA.C.6

The purpose of this activity is for students to choose activities focusing on adding and subtracting within 10. Students choose from three centers introduced in the previous section and one introduced in the previous activity.

- What's Behind My Back
- Five in a Row: Addition and Subtraction
- Check it Off
- Find the Pair

Students may work with more than one center during this time. Keep the materials from each center organized to use in future lessons.

Materials to Gather

Materials from previous centers

Required Preparation

- Gather materials from previous centers:
  - What's Behind My Back, Stage 2
  - Five in a Row: Addition and Subtraction, Stages 1 and 2
  - Check it Off, Stages 1 and 2
  - Find the Pair, Stage 2

Student-facing Task Statement

Choose a center.

Five in a Row: Addition and Subtraction

Check it Off

What's Behind My Back

Find the Pair

Launch

- Groups of 2
- "Now we are going to choose from centers we have already learned."
- Display the center choices in the student book.
- "Think about what you would like to do first."
- 30 seconds: quiet think time

Activity

- Invite students to work at the center of their choice.
- 8 minutes: center work time
- "Choose what you would like to do next."
- 8 minutes: center work time

Synthesis

- "How do you know that the center you chose was a good choice?"

Lesson Synthesis

10 min

"Today we practiced adding and subtracting within 10. What is one thing you enjoy about this work?"

Section C: What Does the Data Tell Us?

Lesson 11: Class Pet Surveys

Standards Alignments

Addressing	1.MD.C.4, 1.OA.B.4, 1.OA.C.5, 1.OA.C.6
Building Towards	1.MD.C.4

Teacher-facing Learning Goals

- Determine whether statements about data are true or false.
- Write statements about data from a visual representation.

Student-facing Learning Goals

- Let's see what the data tells us.

Lesson Purpose

The purpose of this lesson is for students to write and evaluate statements based on data in a visual representation.

In a previous lesson, students created representations of survey data collected from their class. In this lesson, students interpret data represented with tally marks to consider whether statements about the data are true or false. Students then write their own statements about a different set of data, also represented with tally marks.

Access for:

Students with Disabilities

- Action and Expression (Activity 1)

English Learners

- MLR8 (Activity 1)

Instructional Routines

Notice and Wonder (Warm-up)

Materials to Gather

- Materials from previous centers: Activity 3

Lesson Timeline

Warm-up	10 min
Activity 1	10 min
Activity 2	10 min
Activity 3	15 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

What types of statements did students make about the data? What do these statements tell you about how prepared students are to answer "how many in each category" and "how many in all" questions in upcoming lessons?

Cool-down (to be completed at the end of the lesson)

5 min

Class Pet Data

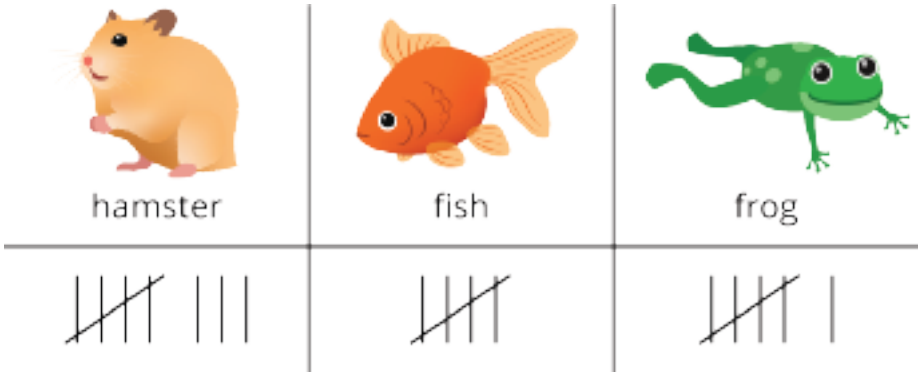
Standards Alignments

Addressing 1.MD.C.4

Student-facing Task Statement

Another class answered the question "Which animal would make the best class pet?"

Their responses are shown below.



Write 1 true statement about the data.

Student Responses

Sample responses:

- 8 students voted for hamster.
- 11 students voted for fish or frog.
- 19 students voted altogether.
- More students chose hamster than fish.

Begin Lesson

Warm-up

10 min

Notice and Wonder: Tally Marks

Standards Alignments

Building Towards 1.MD.C.4

The purpose of this warm-up is to elicit the idea that tally marks are organized in groups of five, like the 5-frame. This will be useful when students answer questions about data represented with tally marks in a later activity. While students may notice and wonder many things about these images, the fact that a group of five tally marks is shown with four straight lines and one diagonal line through them is the most important discussion point.

Instructional Routines

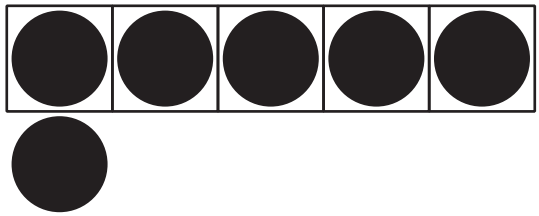
Notice and Wonder

Student-facing Task Statement

What do you notice?
What do you wonder?

Launch

- Groups of 2
- Display the image.
- "What do you notice? What do you wonder?"



Student Responses

Students may notice:

- Both show six.
- One shows dots and the other shows lines.
- I can see a group of five and one more.

Students may wonder:

- Why is one of the lines sideways?
- Why aren't the lines in the 5-frame?
- What will we use these marks for?

Activity

- "Discuss your thinking with your partner."
- 1 minute: partner discussion
- Share and record responses.

Synthesis

- "Where do you see a group of five in each image?"
- "These lines are called tally marks. We know there are five tally marks when we see the diagonal line through the other lines. We are going to see data represented with tally marks."

Activity 1

10 min

Jada's Class Pet Survey

Standards Alignments

Addressing 1.MD.C.4

The purpose of this activity is for students to interpret a data representation and determine whether statements about the data are true or false. Students then explain why they think the statements are true or false. Although the class does not need to collect data for this activity, consider spending time during the launch discussing what animals the class would choose if asked "Which animal would make the best class pet?" This is an opportunity for the class to build community by learning more about one another.

Access for English Learners

Reading: MLR6 Three Reads. To launch this activity, display the task statement. "We are going to read this statement 3 times." After the 1st Read, ask: "What is this situation about?" Listen for and clarify any questions about the context. After the 2nd Read: "What are all the things we can count?" (number of votes for each pet, number of classmates who took the survey). After the 3rd Read: "How can we know if a statement is true or false?"
Advances: Reading, Representing

Access for Students with Disabilities

Action and Expression: Develop Expression and Communication. Give students access to sentence frames to support them in communicating with their partner. For example, "This statement is true because . . . " and "This statement is false because . . . . "
Supports accessibility for: Language,Organization

Student-facing Task Statement

Jada took a survey of her classmates and asked, "Which animal would make the best class pet?"

She showed their responses.

Decide whether each statement is true or false.

Be ready to explain why.

1. There are 12 votes for rabbit.

True or False

2. There are 18 votes all together.

Launch

- Groups of 2

Activity

- Read the task statement.
- "Decide whether each statement is true. If the statement is true, circle 'thumbs up'. If it is not true, circle 'thumbs down' Be ready to explain your thinking."
- 4 minutes: independent work time
- 3 minutes: partner discussion

Synthesis

- Choose one statement Jada made that is false.
- "Is this statement true or false? Explain how you know."
- "How can we revise this statement to make it true?"

True or False

3. 14 students voted for turtle or rabbit.

True or False

4. 8 students voted for dog or turtle.

True or False

Student Responses

1. True
2. False
3. False
4. True

Activity 2

10 min

Interpret Data About Class Pets

The purpose of this activity is for students to interpret data representations and write what they learn about the data. Students may learn different things about the data, but how many in each category and how many in all are most important.

Students might make statements like “8 students voted for turtles and dogs.” While this statement makes sense to students, it is not technically correct because it introduces the possibility that some students voted for both turtles and dogs. In upcoming lessons, students will answer questions such as “How many students voted for reading or science?”, so it is important to restate

students' statements in this lesson to use "or" instead of "and."

Student-facing Task Statement

Tyler asked the same survey question to his classmates.
He showed their responses.

Write 3 things that you learned about Tyler's survey data from the representation.

1.
2.
3.

Student Responses

Sample responses:

- 9 students voted for turtle
- 14 people voted for turtle or dog
- 19 students took the survey altogether

Launch

- Groups of 3
- Read the task statement.
- 1 minute: quiet think time

Activity

- "Each student in your group will share what they learned about Tyler's survey data. After each group member has shared, write down three different statements about the data."
- 5 minutes: small group work time
- Monitor for students who make statements about:
  - how many in all
  - how many in each category
  - how many in two categories combined

Synthesis

- Invite previously identified students to share.

Advancing Student Thinking

If students make statements about the data that are not true, consider asking:

- "Where on the representation did you look to help you make this statement?"
- "What statement could you make about the number of people who voted for turtles?"

Activity 3

15 min

Centers: Choice Time

Standards Alignments

Addressing 1.OA.B.4, 1.OA.C.5, 1.OA.C.6

The purpose of this activity is for students to choose from activities that focus on adding and subtracting within 10. Students choose from any stage of previously introduced centers and are encouraged to choose the center that will be most helpful for them at this time.

- What's Behind My Back
- Check it Off
- Five in a Row: Addition and Subtraction
- Find the Pair

Materials to Gather

Materials from previous centers

Required Preparation

- Gather materials from previous centers:
  - What's Behind My Back, Stage 2
  - Check it Off, Stages 1 and 2
  - Five in a Row: Addition and Subtraction, Stages 1 and 2
  - Find the Pair, Stage 2

Student-facing Task Statement

Choose a center.

What's Behind My Back Check it Off

Launch

- Groups of 2
- "Now you are going to choose from centers we have already learned."
- Display the center choices in the student book.
- "Think about what you would like to do."
- 30 seconds: quiet think time

Five in a Row: Addition and Subtraction

Find the Pair

Activity

- Invite students to work at the center of their choice.
- 10 minutes: center work time

Synthesis

- "How has working on these center activities helped you build fluency with addition and subtraction?"

Lesson Synthesis

10 min

"Today we made statements about survey data."

Display the data representation from Activity 1.

"Can we make a statement about how many students think a fish would make the best class pet? If so, what would the statement be? If not, why not?"

Complete Cool-Down

Response to Student Thinking

Students write a statement about the data that is not true.

Next Day Support

- During the launch of the next day's activity, have students share statements that are true about the data in the new representation.

Lesson 12: How Many?

Standards Alignments

Building On	K.CC.A.1
Addressing	1.MD.C.4
Building Towards	1.NBT.A.1

Teacher-facing Learning Goals

- Answer "how many in each category" and "how many in all" questions about data represented in different ways.

Student-facing Learning Goals

- Let's answer questions about data.

Lesson Purpose

The purpose of this lesson is for students to answer "how many in each category" and "how many in all" questions about data and explain their thinking.

In previous lessons students made statements about categorical data based on representations of the data. In this lesson they answer questions about data using two different representations, tally marks and numbers. The different representations provide students with different entry points into solving Put Together problems based on data. Students discuss how different representations can be helpful in different ways to answer questions about categorical data. Since students only added within 10 in kindergarten, connecting cubes should be made available as students solve Put Together problems within 20.

In this lesson, students collect data from a survey question. In order to keep the total number of data points within 20, break the class into two groups, Group A and Group B. In Activity 1, collect data from Group A and in Activity 2, collect data from Group B.

Instructional masters with survey data are provided for those classes who are unable to collect their own data.

Access for:

Students with Disabilities

- Representation (Activity 1)

English Learners

- MLR2 (Activity 2)

Instructional Routines

Choral Count (Warm-up)

Materials to Gather

- Connecting cubes: Activity 2

Materials to Copy

- Data Represented with Tally Marks (groups of 2): Activity 1
- Data Represented with Numbers (groups of 2): Activity 2

Lesson Timeline

Warm-up	10 min
Activity 1	20 min
Activity 2	15 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

Identify ways the math community you are working to foster is going well. What aspects would you like to work on? What actions can you take to improve those areas?

Cool-down (to be completed at the end of the lesson)

5 min

Favorite Sport Data

Standards Alignments

Addressing 1.MD.C.4

Student-facing Task Statement

Both data representations show the same data.

Use either representation to answer the questions.

1. How many students chose lacrosse? _____

2. How many students took the survey? _____

Student Responses

1. 9
2. 17

Begin Lesson

Warm-up

10 min

Choral Count: Count on from 30

Standards Alignments

Building On	K.CC.A.1
Building Towards	1.NBT.A.1

The purpose of this Choral Count is to invite students to practice counting starting at a number other than 1. This will be helpful as students begin counting on when adding.

Instructional Routines

Choral Count

Student Responses

Record the count in rows with the first number in each row being a multiple of ten. Line up the ones and tens digits to make the pattern visually obvious.

Sample responses:

- All of the numbers on the end have a 0.
- The left column counts by tens.
- All the numbers in each row start with the same number.

Launch

- "Count by 1, starting at 30."
- Record as students count.
- Stop counting and recording at 62.

Activity

- "What patterns do you see?"
- 1–2 minutes: quiet think time
- Record responses.

Synthesis

- "How is starting at 30 like starting at 0?" (Thirty has a 0 and then its 31 instead of 1 and 32 instead of 2.)

Activity 1

20 min

Data Represented with Tally Marks

Standards Alignments

Addressing 1.MD.C.4

The purpose of this activity is for students to answer questions about data represented with tally marks. First, the teacher or class decides on a new survey question and three possible responses. Students in Group A take the survey and their data is recorded using tally marks. Students answer "how many in each category" and "how many in all" questions about the data and discuss how they determined the answer to each type of question.

If needed, use the provided Instructional master as an alternative to collecting data from the class.

Access for Students with Disabilities

Representation: Access for Perception. Provide appropriate reading accommodations and supports to ensure student access to written questions and other text-based content.
Supports accessibility for: Language, Attention

Materials to Copy

Data Represented with Tally Marks (groups of 2)

Student-facing Task Statement

Our favorite

_____

Launch

- Groups of 2
- "Today we are going to collect survey data and answer questions about the data."
- Decide on a survey question the class would like to answer and three possible responses.

category 1	category 2	category 3

1. How many students chose category 1? _____
2. How many students chose category 2?_____
3. How many students chose category 3? _____
4. How many students chose category 1 or category 2? _____
5. How many students took this survey? _____

Student Responses

Answers vary.

- "Record the title of the data representation and each category."
- Demonstrate recording the titles.
- Divide the class into Group A and Group B.
- "Now Group A is going to take the survey. Group B will take the survey a little later. Record the data in your book as I record it for all to see."
- Ask students in Group A the survey question and record the data on the table using tally marks. Do not write numbers.

Activity

- "Now you will answer some questions about the data we collected."
- 4 minutes: independent work time
- 4 minutes: partner work time

Synthesis

- "How did you know how many students chose category 1?" (I counted each line. I knew there was a group of 5 and counted on the rest.)
- "How did you figure out how many students took the survey?" (I counted all of the tally marks.)

Activity 2

15 min

Data Represented with Numbers

PLC Activity

Standards Alignments

Addressing 1.MD.C.4

The purpose of this activity is for students to answer questions about data represented with numbers. Students in Group B answer the same survey question as in the previous activity and their data is recorded using numbers. Students answer "how many in each category" and "how many in all" questions about the data and discuss how they determined the answer to each type of question. When students determine how many students took the survey they may draw a picture or use objects to represent the students (MP5) or they may add the numbers directly understanding that they represent the students (MP2).

If needed, use the provided Instructional master as an alternative to collecting data from the class.

Access for English Learners

MLR2 Collect and Display. Circulate, listen for, and collect the language students use as they talk about representing the data. On a visible display, record words and phrases such as: data, survey, tally, more, less, count, compare. Invite students to borrow language from the display as needed and update it throughout the lesson.
Advances: Conversing, Listening, Speaking

Materials to Gather

Connecting cubes

Materials to Copy

Data Represented with Numbers (groups of 2)

Student-facing Task Statement

Our favorite _____

category 1	category 2	category 3

1. How many students chose category 1? _____
2. How many students chose category 2? _____
3. How many students chose category 3? _____
4. How many students chose category 1 or category 2? _____

Launch

- Groups of 2
- Give students access to connecting cubes.
- "Now Group B is going to take the survey. First, let's fill in the title of the data representation and each category."
- Record the titles for all to see.
- Ask students in Group B the survey question and record the data on the table using numbers.

Activity

- "Now you will answer some questions about the new data we collected."
- 4 minutes: independent work time
- 4 minutes: partner work time

5. How many students took this survey?

   _____

Student Responses

Answers vary.

Synthesis

- "How did you know how many students chose category 1?" (I just looked at the number.)
- "How did you figure out how many students took the survey?" (I drew circles for each group and counted them all. I added all of the numbers together.)
- "What was the easiest question to answer? Why was it easy?" (The first three questions were easy because the number told us the answer.)
- "What was the hardest question to answer? Why was it hard?"(The question about how many students took the survey because I had to use cubes to add all the numbers.)

Lesson Synthesis

10 min

"Today we answered questions about data represented with tally marks and numbers. Which representation do you prefer? Why do you like that representation better?" (I prefer tally marks because I don't have to use cubes or make a drawing to add the numbers together. I prefer the numbers because I don't have to count.)

Complete Cool-Down

Response to Student Thinking

Students get answers other than 9 and 17.

Next Day Support

- During the launch of the next day's activity, have students discuss what the data representation shows. For example, have students name the categories and explain where they see how many students chose each.

Lesson 13: Questions About Data

Standards Alignments

Addressing 1.MD.C.4, 1.OA.C.5, 1.OA.C.6

Teacher-facing Learning Goals

- Ask and answer questions about data.

Student-facing Learning Goals

- Let's ask and answer questions about data.

Lesson Purpose

The purpose of this lesson is for students to ask questions about data that can be answered by a given data representation.

In previous lessons students answered questions about data using different representations. In this lesson, students begin by determining whether or not questions can be answered by a given representation. Then, students think of questions that can be asked about the data. Finally, students answer each other's questions.

This lesson has a Student Section Summary.

Access for:

Students with Disabilities

- Action and Expression (Activity 3)

English Learners

- MLR8 (Activity 1)

Instructional Routines

Number Talk (Warm-up)

Materials to Gather

- Connecting cubes: Activity 3
- Materials from a previous activity: Activity 3

Materials to Copy

- Favorite Special Class Data (groups of 4): Activity 2

Lesson Timeline

Warm-up	10 min
Activity 1	10 min

Teacher Reflection Question

What makes someone good at math? In what ways are you making assumptions about which of your students are good at math?

Activity 2	20 min
Activity 3	10 min
Lesson Synthesis	10 min

Cool-down (to be completed at the end of the lesson)

0 min

Unit 1, Section C Checkpoint

Standards Alignments

Addressing 1.MD.C.4

Student-facing Task Statement

Lesson observations

Student Responses

- Ask and answer “how many” questions about each category of data.
- Ask and answer “how many” questions about two categories of data combined.
- Ask and answer “how many” questions about the total number in the data set.

Begin Lesson

Warm-up

10 min

Number Talk: Plus or Minus 1 or 2

Standards Alignments

Addressing 1.OA.C.5, 1.OA.C.6

The purpose of this Number Talk is to elicit strategies and understandings students have for adding or subtracting 1 or 2. When students add or subtract 1 or 2 and see that the result is 1 or 2 more or less in the count sequence, they are looking for and making sense of structure (MP7).

Instructional Routines

Number Talk

Student-facing Task Statement

Find the value of each expression mentally.

- $7 + 1$
- $7 + 2$
- $9 - 1$
- $9 - 2$

Student Responses

- 8. I knew it was 1 more than 7.
- 9. I counted 7... 8, 9.
- 8. I knew it was 1 less than 9.
- 7. I know $7 + 2 = 9$.

Launch

- Display one expression.
- "Give me a signal when you have an answer and can explain how you got it."
- 1 minute: quiet think time

Activity

- Record answers and strategy.
- Keep expressions and work displayed.
- Repeat with each expression.

Synthesis

- "How can we add or subtract 1 or 2 quickly?" (It's like counting. $+1$ is the number right after, -2 is two numbers before.)

Activity 1

10 min

Can You Answer It?

Standards Alignments

Addressing 1.MD.C.4

The purpose of this activity is for students to determine whether or not questions about data can be answered with a given data representation. Students explain why questions can or cannot be answered with the representation. When students explain why some questions can not be answered, they think carefully about the meaning of the data representation, what it allows them to conclude, and what it does not allow them to conclude (MP6).

Access for English Learners

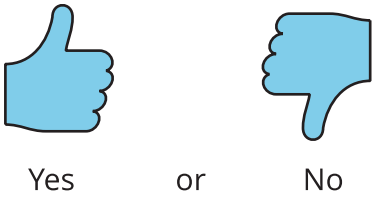
MLR8 Discussion Supports. Invite students to begin partner interactions by taking turns repeating the questions to each other and responding. This gives both students an opportunity to produce language.
Advances: Conversing

Student-facing Task Statement

Elena asked her classmates, "What is your favorite subject in school?"
She showed their responses below.

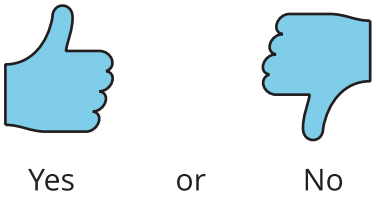
Han wrote questions about Elena's data.
Decide whether each question can be answered using the data representation.
Be ready to explain why.

1. How many students said math is their favorite subject?



Yes or No

2. How many students said writing is their favorite subject?



Yes or No

3. Who said they like reading best?

Launch

- Groups of 2

Activity

- Read the task statement.
- "If the question can be answered, circle 'thumbs up'. If it can't be answered, circle 'thumbs down'."
- 3 minutes: independent work time
- 3 minutes: partner work time

Synthesis

- "What question did you find that cannot be answered? Why can't it be answered?"
- "How can we change the question so that it can be answered using this representation?"

Yes or No

4. How many students chose reading or science?

Yes or No

Student Responses

1. Yes, I can look at the category labeled math.
2. No, writing is not one of the categories.
3. No, we only know how many people, not who voted for each category.
4. Yes, reading and science are both categories so we can add them together.

Activity 2

20 min

Ask Questions

Standards Alignments

Addressing 1.MD.C.4

The purpose of this activity is for students to think of questions that can be answered using the data representation they create as they collect data from the class. Although there are two different sets of data, all of the questions students ask should be able to be answered using either data set. Questions are compiled during the synthesis and will be used in the following activity.

If necessary, use the provided Instructional master instead of collecting data from the class. Cut the Instructional master in half and give half the class data from Group A and the other half data from

Group B.

Materials to Copy

Favorite Special Class Data (groups of 4)

Student-facing Task Statement

Our favorite

_____

category 1	category 2	category 3

Student Responses

Sample response:

- How many students chose category 1?
- How many students chose category 2 or category 3?
- How many students took the survey?

Launch

- Groups of 2
- "We are going to take another survey and ask questions about the data."
- Decide on a survey question the class would like to answer and three possible responses.
- "Record the title of the data representation and each category."
- Demonstrate recording the titles.
- Divide the class into Group A and Group B. Each partnership should have one person from each group.
- "Group A is going to take the survey first. If you are in Group B, record the data in your book as I record it for all to see."
- Ask students in Group A the survey question and record the data on the table using tally marks and numbers.
- "Now Group B is going to take the survey and Group A will record the data."
- Ask students in Group B the survey question and record the data on the table using tally marks and numbers.

Activity

- "Now, think of as many questions as you can that can be answered using your data representation. Record your questions in your book if you would like."
- 5 minutes: independent work time

Synthesis

- Share and record the students' questions about their data.
- "Now we will ask our partner some of these questions."

Advancing Student Thinking

If students make statements instead of questions, consider asking:

- "What is the question you want your partner to answer?"
- "How could you finish this question, 'How many students chose _____?'"

Activity 3

10 min

Answer Questions

Standards Alignments

Addressing 1.MD.C.4

The purpose of this activity is for students to ask and answer questions about data. Students ask each other questions about the data collected in the previous activity. Most of the questions should be able to be answered using the data representation, however if a question can't be answered, the students should explain to their partner why they can't answer the question using the data representation. Connecting cubes should be available to all students, since some questions may require adding within 20.

Access for Students with Disabilities

Action and Expression: Internalize Executive Functions. Invite students to verbalize their questions before they begin. Students can speak quietly to themselves, or share with a partner.
Supports accessibility for: Organization, Conceptual Processing, Language

Materials to Gather

Connecting cubes, Materials from a previous activity

Required Preparation

Required preparation:

- Display the list of questions from the synthesis in the previous activity.

Student Responses

Answers vary.

Launch

- Groups of 2
- Give students access to connecting cubes.

Activity

- “Now you will take turns asking and answering questions about your data. The person who goes first shows their data representation to their partner and asks a question about the data. Their partner answers the question and explains how they found the answer. Repeat with another question, then switch roles. If your partner asks you a question that can’t be answered using the data representation, explain why it can’t be answered."
- 7 minutes: partner work time

Synthesis

- Choose one of the questions from the list created in Activity 2.
- “Use your data representation to answer the question.”
- Share responses.
- “Why do we have two different answers to the questions?” (We have two different sets of data.)

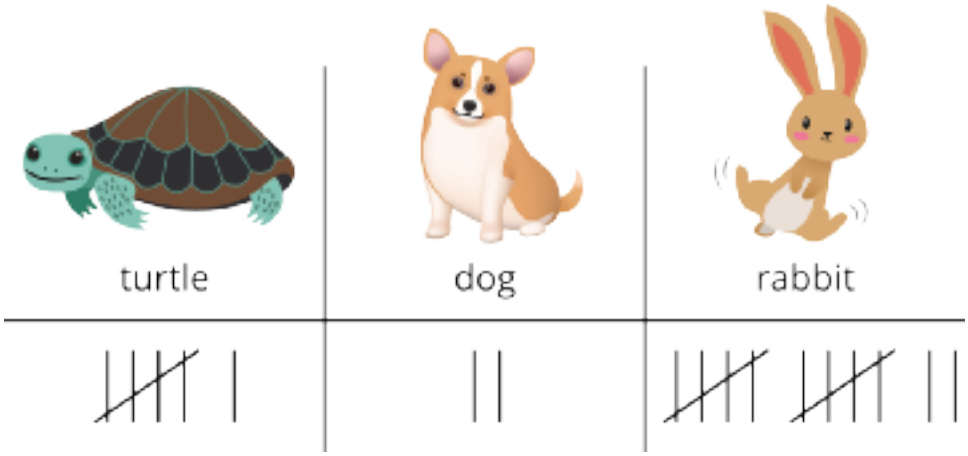
Lesson Synthesis

10 min

"Today we asked questions about our data. What do you need to think about when asking questions, to be sure they can be answered using your data representation?" (Make sure you are asking about the categories included in the data. Ask "how many" questions instead of a question like "Who chose math?")

Student Section Summary

We looked at different ways to show data.
You can show data using tally marks.



You can show data using numbers.

We asked and answered questions about data.

- How many students want a turtle as a class pet? (6)

- How many students want a dog or a rabbit as a class pet? (14)
- How many students took the survey? (20)

Think of some questions you can ask your family at home and make a representation to show the data.

Lesson 14: Center Day 3

Standards Alignments

Addressing 1.MD.C.4, 1.OA.B.4, 1.OA.C.5, 1.OA.C.6

Teacher-facing Learning Goals

- Build toward fluency by adding and subtracting within 10 in a way that makes sense to them.
- Sort objects into categories and represent the sort.

Student-facing Learning Goals

- Let's work with data and practice adding and subtracting.

Lesson Purpose

The purpose of this lesson is for students to practice working with data and adding and subtracting within 10.

Students learn a new center called Sort and Display. In this center, students sort 10–20 objects into two or three categories and then show how they sorted. They show their representation to a partner and ask questions that can be answered about their collection of objects. Students then choose from other center activities introduced in a previous section. This lesson provides the opportunity to formatively assess how students add and subtract within 10.

Instructional Routines

Number Talk (Warm-up)

Materials to Gather

- Collections of objects: Activity 1
- Materials from previous centers: Activity 2

Materials to Copy

- Sort and Display Stage 1 Recording Sheet (groups of 1): Activity 1

Lesson Timeline

Warm-up	10 min
Activity 1	20 min
Activity 2	20 min
Lesson Synthesis	10 min

Teacher Reflection Question

How effective were your questions in supporting students' thinking today? What did students say or do that showed they were effective?

Begin Lesson

Warm-up

10 min

Number Talk: Plus or Minus 2

Standards Alignments

Addressing 1.OA.C.5, 1.OA.C.6

The purpose of this Number Talk is to elicit strategies and understandings students have for adding or subtracting 2. This routine does not use related problems to encourage students to use counting on or back or other mental strategies.

Instructional Routines

Number Talk

Student-facing Task Statement

Find the value of each expression mentally.

- $4 + 2$
- $7 - 2$
- $9 - 2$
- $8 + 2$

Student Responses

- 6. I counted on. 4...5, 6.
- 5. I counted 2 back from 7.
- 7. I counted 2 back from 9.
- 10. I counted on from 8.

Launch

- Display one expression.
- "Give me a signal when you have an answer and can explain how you got it."
- 1 minute: quiet think time

Activity

- Record answers and strategy.
- Keep expressions and work displayed.
- Repeat with each expression.

Synthesis

- "How can we add or subtract 2 quickly?" (You can think about it like counting up 2 or counting back 2.)

Activity 1

20 min

Introduce Sort and Display, Any Way

Standards Alignments

Addressing 1.MD.C.4

The purpose of this activity is for students to learn a new center activity called Sort and Display. This activity gives students an opportunity to sort items, represent how they sorted, and create questions that can be answered by their representation. Students sort items in any way they choose.

To connect this center to English language arts, students may sort and represent books. Students look at the cover of a book and choose three words or three images they think will show up most often in the story and explain why to their partner. Partners record these choices as initial categories. They read or look through the book together, explore their prediction, and decide together if they want to revise their categories based on what they read. On the second read, they collect and record data for their revised categories. Lastly, students create a representation based on their data and write two “how many?” questions that can be answered about the data.

Materials to Gather

Collections of objects

Materials to Copy

Sort and Display Stage 1 Recording Sheet (groups of 1)

Required Preparation

- Make collections of 10–20 objects with up to three attributes by which to sort for each group.

Launch

- Groups of 2
- Give each group a collection of objects and two recording sheets.
- "We are going to learn a center called, Sort and Display, Any Way. First, you will work with your partner to sort your objects into two or three categories. Then, you will each show how you sorted on paper. When you are both done showing your sort, switch papers and

ask each other questions about the sort that can be answered using your representations."

Activity

- 15 minutes: center work time
- Monitor for students who make clearly labeled categories and represent how many objects are in each category.

Synthesis

- Display previously identified representation.
- “What questions can we ask about this sort that can be answered by this representation?”

Activity 2

20 min

Centers: Choice Time

Standards Alignments

Addressing 1.OA.B.4, 1.OA.C.5, 1.OA.C.6

The purpose of this activity is for students to choose from activities that focus on adding and subtracting within 10. Students choose from any stage of previously introduced centers and are encouraged to choose the center that will be most helpful for them at this time.

- What’s Behind My Back
- Number Race
- Check it Off
- Five in a Row: Addition and Subtraction
- Find the Pair

Materials to Gather

Materials from previous centers

Required Preparation

- Gather materials from previous centers:
  - What's Behind My Back, Stage 2
  - Number Race, Stage 3
  - Check it Off, Stages 1 and 2
  - Five in a Row: Addition and Subtraction, Stages 1 and 2
  - Find the Pair, Stage 2

Student-facing Task Statement

Choose a center.

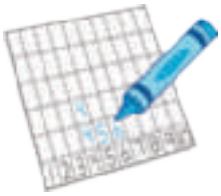
Five in a Row: Addition and Subtraction

Check it Off

Find the Pair

What's Behind My Back

Number Race



Launch

- Groups of 2
- "Now we are going to choose from centers we have already learned."
- Display the center choices in the student book.
- "Think about what you would like to do first."
- 30 seconds: quiet think time

Activity

- Invite students to work at the center of their choice.
- 8 minutes: center work time
- "Choose what you would like to do next."
- 8 minutes: center work time

Synthesis

- "What is one thing you learned or got better at by working on the activity you chose?"

Lesson Synthesis

10 min

"Today we chose activities to work on and worked with a partner during center time."

Math Community

Display chart from the previous section and read the norms to students.

"What went well? What can we continue to work on?"

Lesson 15: Animals in the Jungle (Optional)

Standards Alignments

Addressing	1.MD.C.4
Building Towards	1.MD.C.4

Teacher-facing Learning Goals

- Collect, organize, and represent data from survey questions.
- Create questions related to survey data.
- Interpret data to answer questions.

Student-facing Learning Goals

- Let's make a survey and collect and show data.

Lesson Purpose

The purpose of this lesson is for students to create a survey, collect and represent data, and ask and answer questions related to the data.

This lesson is optional because it does not address any new mathematical content standards. This lesson does provide students with an opportunity to apply precursor skills of mathematical modeling. In previous lessons, students used and interpreted survey data presented in different representations, including tally marks and numbers. Students were also given the opportunity to create their own representations. Students answered questions such as: "how many of in each category?" and "how many in all?" to analyze the data.

In this lesson, students create their own survey question and collect data. Then they interpret the data in order to answer questions they create. The task is an opportunity for students to make sense of problems and persevere in solving them (MP1). At the end of the lesson, they synthesize what they learned about the data and compare their results and approaches with their classmates. This lesson supports the development of mathematical modeling skills by providing students opportunities to make choices about the data to collect and how to best represent their findings (MP4).

This lesson is allocated to be more than 60 minutes, but it can be adjusted to meet the needs of the students. The activities can be modified or cut to fit within 1 day or extended to span over 2 days.

Access for:

Students with Disabilities

- Representation (Activity 1)

English Learners

- MLR8 (Activity 3)

Instructional Routines

Notice and Wonder (Warm-up)

Materials to Gather

- Materials from a previous activity: Activity 2, Activity 3
- Tools for creating a visual display: Activity 3

Lesson Timeline

Warm-up	10 min
Activity 1	25 min
Activity 2	20 min
Activity 3	20 min
Lesson Synthesis	10 min

Teacher Reflection Question

How did the student work that you selected impact the direction of the discussion? What student work might you pick next time if you taught the lesson again?

Begin Lesson

Warm-up

10 min

Notice and Wonder: Wild Animals

Standards Alignments

Building Towards 1.MD.C.4

The purpose of this warm-up is to invite students to mathematize a situation as they notice and wonder about wild animals. Students analyze what they see and pose questions. The synthesis provides an opportunity for students to consider ways to collect and organize data. This leads into the next activity, in which students will collect, organize, and represent data from a survey question.

Instructional Routines

Notice and Wonder

Student-facing Task Statement

What do you notice?
What do you wonder?

Student Responses

Students may notice:

- There are different kinds of animals.
- There are 4 giraffes and 1 lion.
- There are more deer than giraffes.

Students may wonder:

- How many animals are there all together?
- How many different types of animals are there?

Launch

- Groups of 2
- Display the image.
- "What do you notice? What do you wonder?"
- 1 minute: quiet think time

Activity

- "Discuss your thinking with your partner."
- 1 minute: partner discussion
- Share and record responses.

Synthesis

- Point to one question from students' responses that can be answered by collecting data from the illustration. For example: How many of each animal are there?
- "How can we use the picture to answer this question?" (Count the number of times we see each animal.)
- "What are some ways we can record this information?" (Make a list of each animal and write the number of times we see it.)
- "We're going to continue thinking about wild animals in our first activity today."

Activity 1

25 min

Collect Survey Data

Standards Alignments

Addressing 1.MD.C.4

The purpose of this activity is for students to create survey questions and collect and represent the data. Students will use the data collected in this activity in the following one and in the Unit 2 culminating lesson.

Access for Students with Disabilities

Representation: Internalize Comprehension. Some students may benefit from access to blank tables to collect and record responses.
Supports accessibility for: Organization, Conceptual Processing

Student-facing Task Statement

Let's survey our classmates.

1. Circle **1** question:
    A. Which animal would you like to meet in real life?
    B. If you could spend one day as an animal, which one would you choose?
    C. Which animal would you like to spend vacation with?
    D. Which animal would you like to talk to?
2. Animal choices: ?
3. Collect and record 10 responses.

Student Responses

Students may represent data:

- in a table
- with numbers, tallies, or drawings

Launch

- Groups of 2
- "What are some animals you might see in the wild?"
- Record student responses. Consider asking students to share what they know about some of the animals or sharing pictures of some different wild animals students might mention.
- "Today we will ask our classmates a question about animals, and record their responses. With your partner, choose a question you will ask your classmates. Then, pick three animals from our list that will be the choices in your survey. Circle the question and fill in the blanks with the three animals."
- 2 minutes: partner work time

Activity

- "Decide how you will record the responses. Ask your partner the question and record the response in your workbook. Record your response to the question too."
- 1 minute: partner work time
- "Now you will collect at least eight more responses from your classmates. With your partner, walk around the room to ask others your survey question and record

their responses. Continue asking classmates until I say to stop."

- 5 minutes: partner work time
- "Work with your partner to present your data in an organized way that makes it clear how many people picked each animal."
- 5 minutes: partner work time
- Monitor for students who create clear representations of their data using drawings, tallies, or numbers.

Synthesis

- Display previously identified representations of data.
- "How is this data organized?"
- Consider asking:
  - "What makes this a good representation?"
  - "How are the representations similar or different?"

Activity 2

20 min

Ask Our Own Questions

Standards Alignments

Addressing 1.MD.C.4

The purpose of this activity is for students to generate questions for their peers that can be answered using the collected data and representations from the previous activity.

Materials to Gather

Materials from a previous activity

Required Preparation

- Students need access to the data they collected in the previous activity.

Student-facing Task Statement

Let's come up with questions about our data and answer them.

Student Responses

Sample responses:

Partner A: How many people wanted to come face to face with a sloth?
Partner B: 3. I counted tally marks.

Launch

- Groups of 2
- Be sure students have access to the data they collected in the previous activity.
- "In the past few days we asked and answered different questions about data. What were some of these questions?" (If students have a hard time remembering, give them one example.)
- Record student responses. Make sure there are at least 3 questions.
    - How many students chose _____?
    - How many students chose _____ or _____?
    - How many students took the survey?
- "Think of two questions that you could ask about our data."
- 2 minutes: quiet think time

Activity

- "Take turns with your partner asking and answering questions. Explain or show how you found your answer."
- 5 minutes partner discussion

Synthesis

- "What questions were interesting to answer? What was interesting about them?"
- "What was the hardest/easiest question your partner asked? Why was it hard/easy to answer?"

Activity 3

20 min

Share Data

The purpose of this activity is for students to share their findings from the data with their peers. In this activity, students will use data collected in Activity 1 and their analysis of the data from Activity 2 to decide what findings to share and make choices about how to represent them.

Access for English Learners

MLR8 Discussion Supports. Synthesis: At the appropriate time, give groups 2–3 minutes to prepare to present. "Decide what you want to share about your poster. Choose who will talk about each part and then practice what you will say."
Advances: Speaking, Conversing, Representing

Materials to Gather

Materials from a previous activity, Tools for creating a visual display

Required Preparation

- Students need access to their data and questions from the previous activities.

Student-facing Task Statement

Let's make posters to share what we learned from our surveys.

Student Responses

Sample responses:

- Posters may include drawings, tallies, numbers, and tables to show what they learned.
- Posters may include equations.
- We learned that 6 people want to be a panda, 3 want to be penguins, and 3 want to be parrots.

Launch

- Groups of 2
- Give each group tools for creating a visual display and access to their data and questions from the previous activities.
- "Think of at least two things about your survey you want to share."
- 1 minute: quiet think time
- 2 minutes: partner discussion
- If students need ideas, invite students to share some examples, such as:
  - how many people took your survey
  - a fact about how many _____
  - an interesting discovery you made

Activity

- “Make a poster to show what you learned about the class that you would like to share. Be sure you can describe what you include on your poster.”
- 10 minutes: partner work time
- Monitor for students who create clear representations using drawings, tallies, or numbers.
- Regroup pairs into groups of 4.
- “Take turns to show and present what you learned from your survey. Make sure to share the question you asked in your survey."

Synthesis

- “What is one thing you learned from the other pair’s survey?”
- “How does their poster help us see that?”

Lesson Synthesis

10 min

“Today we made our own surveys and came up with mathematical questions we could ask and answer about our data.”

“You made lots of choices on your own today so your survey and representations were different from your classmates’. How were they similar? How were they different?”

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Family Support Materials

Family Support Materials

Adding, Subtracting, and Working with Data

In this unit, students add and subtract within 10 and answer questions about data.

Section A: Add and Subtract within 10

In this section, students add and subtract within 10 while working in pairs at centers. Throughout the school year students work to develop fluency within 10. At this point the emphasis is on adding and subtracting 1 or 2.

Section B: Show Us Your Data

In this section, students sort, collect, and organize data about the world around them, including conducting class surveys. Students create representations of data that make sense to them. They describe their categories and tell how many are in each category by counting.

Section C: What Does the Data Tell Us?

In this section, students look at data represented in different ways (pictures, tally marks, numbers) and ask and answer questions.

For example, these diagrams show survey data from students who were asked “Which animal would make the best class pet?” One table uses tally marks and one table uses numbers.

turtle	dog	rabbit
6	2	12

Students ask and answer questions like:

- Which animal did the most students vote for? (rabbit)
- How many students voted? (20)
- How many students voted for dog or turtle? (8)

Try it at home!

Near the end of the unit:

1. Ask your student addition and subtraction questions where the answer is 10 or less (For example, $3 + 5$ or $6 - 1$).

   Questions that may be helpful as they work:

   - How could you draw the problem?
   - Could you tell me how to count on or count back to find the answer?

2. After bringing in groceries, ask your student to sort items into categories, describe the categories, and make a representation using drawings, tally marks, or numbers.

   Questions that may be helpful as they work:

   - How did you decide to sort?
   - What questions can you answer based on your data display?

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Unit Assessments

Check Your Readiness A, B and C
End-of-Unit Assessment

Grade 1, Unit 1 Section A Checkpoint	Addition Methods • Build toward fluency by adding and subtracting within 10, in a way that makes sense to them.				
	Recognize the number of dots without counting.	Count all to find the sum.	Count on to find the sum.	Use their knowledge of the count sequence to know certain sums.	Know certain sums.

Grade 1, Unit 1 Section A Checkpoint	Subtraction Methods • Build toward fluency by adding and subtracting within 10, in a way that makes sense to them.			
	Represent all, then cross off or remove to find the difference.	Count back to find the difference.	Use their knowledge of the count sequence to know certain differences.	Know certain differences.

Grade 1, Unit 1 Section B Checkpoint	• Organize and represent data.		
	Sort objects into categories.	Represent each object with a picture of the object, symbol, or number.	Label the categories in their representation.

Grade 1, Unit 1 Section C Checkpoint	• Interpret data representations to ask and answer questions.		
	Ask and answer "how many?" questions about each category of data.	Ask and answer "how many?" questions about two categories of data combined.	Ask and answer "how many?" questions about the total number in the data set.

Adding, Subtracting, and Working with Data: End-of-Unit Assessment

1. Find the value of each expression.

   a. $8 + 2$

   b. $7 - 1$

   c. $6 + 1$

   d. $9 - 2$

2. Find the value of each expression.

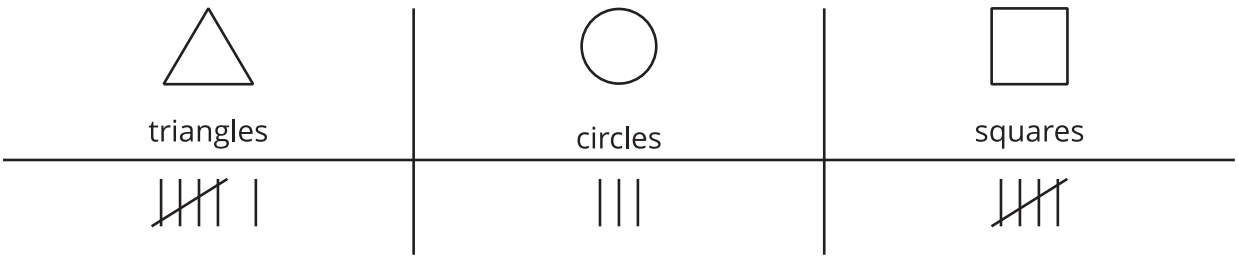
a. $3 + 6$

b. $7 - 5$

c. $10 - 6$

3. The table shows the different shapes on Jada's desk.

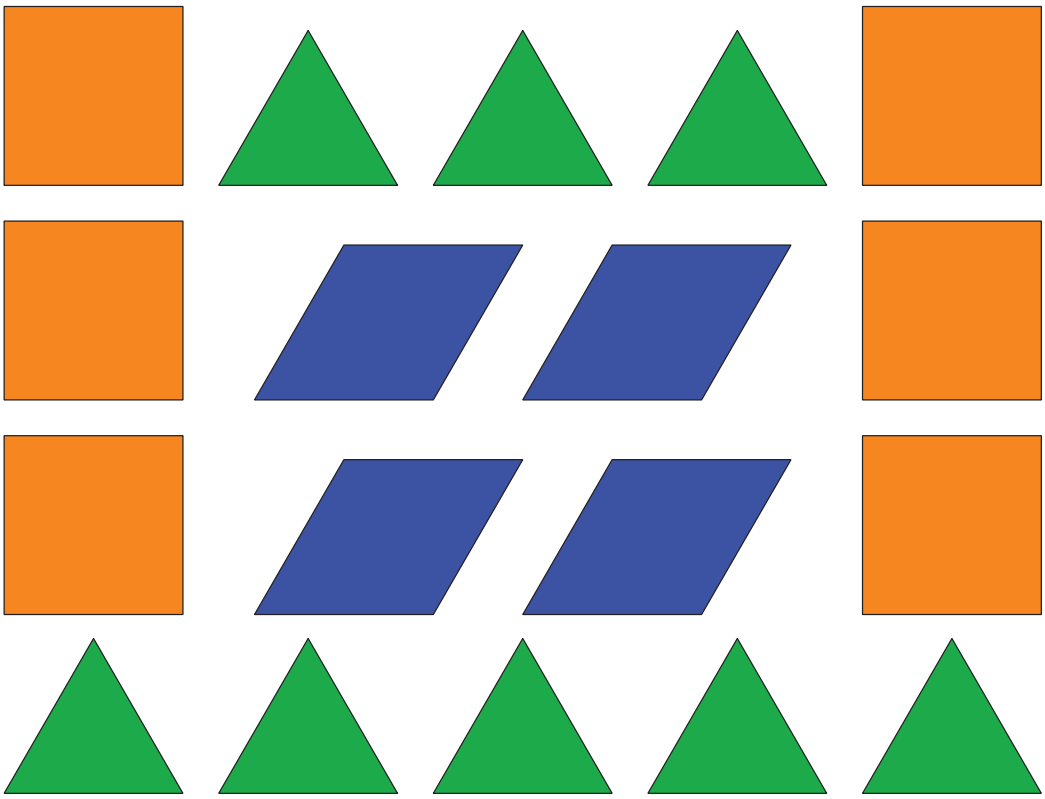
Jada's Shapes



a. How many squares are on Jada's desk? _____

b. How many shapes are on Jada's desk? _____

4. a. Fill in the table to represent how you could sort these pattern blocks.



Pattern Block Shapes

b. How many pattern blocks are there?

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Assessment Answer Keys

Check Your Readiness A, B and C
End-of-Unit Assessment

Assessment Answer Keys
Assessment: Section A Checkpoint

Teacher Instructions

For this Checkpoint Assessment, a full checklist for observation of students can be found in the Assessments for this unit. The content assessed is listed below for reference.

- Build toward fluency by adding and subtracting within 10, in a way that makes sense to them.
- Addition Methods
    - Recognize the number of dots without counting.
    - Count all to find the sum.
    - Count on to find the sum.
    - Use their knowledge of the count sequence to know certain sums.
    - Know certain sums.
- Subtraction Methods
    - Represent all, then cross off or remove to find the difference.
    - Count back to find the difference.
    - Use their knowledge of the count sequence to know certain differences.
    - Know certain differences.

Assessment: Section B Checkpoint

Teacher Instructions

For this Checkpoint Assessment, a full checklist for observation of students can be found in the Assessments for this unit. The content assessed is listed below for reference.

- Organize and represent data.
    - Sort objects into categories.
    - Represent each object with a picture of the object, symbol, or number.
    - Label the categories in their representation.

Assessment: Section C Checkpoint

Teacher Instructions

For this Checkpoint Assessment, a full checklist for observation of students can be found in the Assessments for this unit. The content assessed is listed below for reference.

- Interpret data representations to ask and answer questions.
    - Ask and answer “how many?” questions about each category of data.
    - Ask and answer “how many?” questions about two categories of data combined.
    - Ask and answer “how many?” questions about the total number in the data set.

Assessment: End-of-Unit Assessment

Teacher Instructions

Give students access to 10-frames and connecting cubes or two-color counters.

Problem 1

Standards Alignments

Addressing 1.OA.C.5, 1.OA.C.6

Narrative

Students add or subtract 1 or 2 from a number within 10. They may use any method that makes sense to them including using objects, 10-frames, or fingers. Students may also count on or count back.

Find the value of each expression.

a. $8 + 2$
b. $7 - 1$
c. $6 + 1$
d. $9 - 2$

Solution

a. 10
b. 6
c. 7
d. 7

Problem 2

Standards Alignments

Addressing 1.OA.C.6

Narrative

Students find the value of sums and differences within 10 with no context. They may use any

method that makes sense to them including using objects, 10-frames, or fingers.

Find the value of each expression.

a. $3 + 6$
b. $7 - 5$
c. $10 - 6$

Solution

a. 9
b. 2
c. 4

Problem 3

Standards Alignments

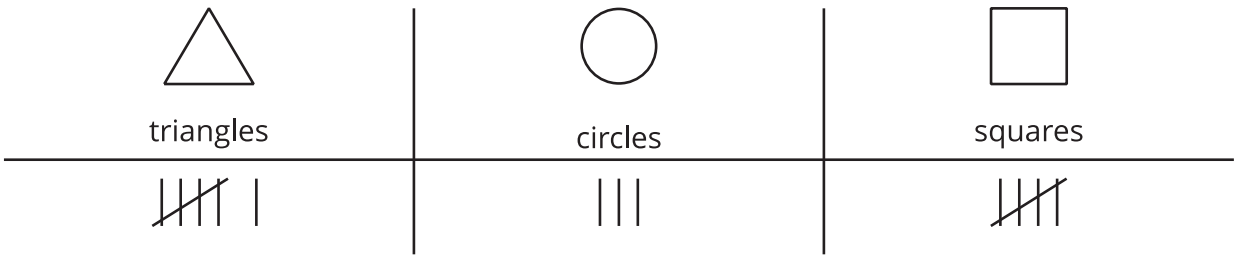
Addressing 1.MD.C.4

Narrative

Students interpret a categorical table with tally marks. They read the data and use the data to find how many total shapes are on Jada's desk. They can find the total number of shapes either by counting all of the tick marks or using arithmetic.

The table shows the different shapes on Jada's desk.

Jada's Shapes



a. How many squares are on Jada's desk? _____
b. How many shapes are on Jada's desk? _____

Solution

a. 5
b. 14

Problem 4

Standards Alignments

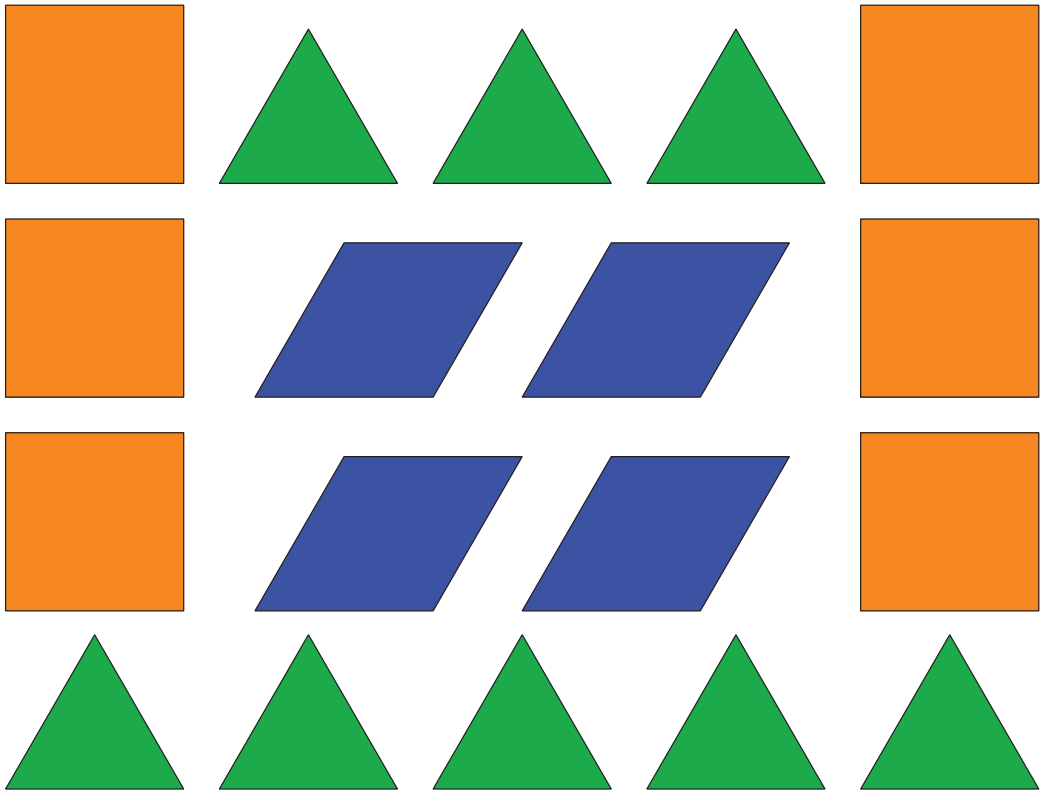
Addressing 1.MD.C.4

Narrative

Students use an image of pattern blocks to complete a table to represent how the blocks could be sorted. The shapes are organized in groups and laid out in lines on the page to facilitate counting. Students also find the total number of pattern blocks. They can do this by counting the shapes or they can use the information from the table they created.

Students could choose categories other than triangle, rhombus, and square but these are the most likely choices. For example they could choose shapes with three sides, shapes with four sides, and shapes with more than four sides and then they would have one category with no shapes.

a. Fill in the table to represent how you could sort these pattern blocks.



Pattern Block Shapes

b. How many pattern blocks are there?

Solution

a. Sample response:

Pattern Block Shapes

triangle	rhombus	square
8	4	6

b. 18

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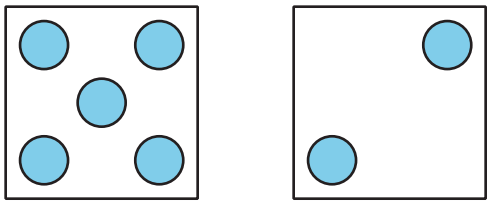
Lesson Cool Downs

Lesson 2: Explore Expressions and Sums

Cool Down: Expressions and Sums

1. Write an expression to match the dots.



_____ + _____

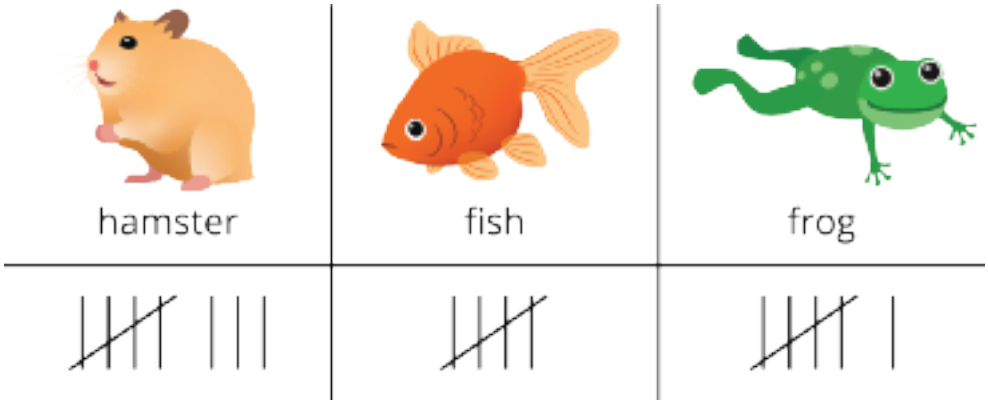
2. Find the sum of the numbers. _____

Lesson 11: Class Pet Surveys

Cool Down: Class Pet Data

Another class answered the question “Which animal would make the best class pet?”

Their responses are shown below.



Write 1 true statement about the data.

Lesson 12: How Many?

Cool Down: Favorite Sport Data

Both data representations show the same data.

soccer	lacrosse	tennis
3	9	5

Use either representation to answer the questions.

1. How many students chose lacrosse? _____

2. How many students took the survey? _____

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Instructional Masters

Instructional Masters for Adding, Subtracting, and Working with Data

address	title	students per copy	written on?	requires cutting?	card stock recommended?	color paper recommended?
Activity Grade1.1.7.1	Two-Column Table	1	no	no	no	no
Assessment Grade1.1	Checkpoint	0	yes	no	no	no
Activity Grade1.1.7.1	Three-Column Table	1	no	no	no	no
Activity Grade1.1.2.2	Check It Off Stage 1 Recording Sheet Grade 1	1	yes	no	no	no
Center	Check It Off Stage 1 Recording Sheet Grade 1	1	yes	no	no	no
Activity Grade1.1.14.1	Sort and Display Stage 1 Recording Sheet	1	yes	no	no	no
Center	Sort and Display Stage 1 Recording Sheet	1	yes	no	no	no
Activity Grade1.1.1.1	10-Frame Standard	1	no	no	yes	no
Assessment Grade1.1	Checkpoint	0	yes	no	no	no
Activity Grade1.1.12.2	Data Represented with Numbers	2	no	no	no	no
Activity Grade1.1.1.1	Counting Collections Stages 1 and 2 Recording Sheet	1	yes	no	no	no
Center	Counting Collections Stages 1 and 2 Recording Sheet	1	yes	no	no	no

Activity Grade1.1.13.2	Favorite Special Class Data	4	no	yes	no	no
Activity Grade1.1.1.2	Number Race Stage 3 Gameboard	1	yes	no	no	no
Center	Number Race Stage 3 Gameboard	1	yes	no	no	no
Activity Grade1.1.10.1	What's Behind My Back Stage 2 Recording Sheet Grade 1	1	yes	no	no	no
Center	What's Behind My Back Stage 2 Recording Sheet Grade 1	1	yes	no	no	no
Assessment Grade1.1	Checkpoint	0	yes	no	no	no
Activity Grade1.1.6.1	Find the Pair Stage 2 Recording Sheet	1	yes	no	no	no
Center	Find the Pair Stage 2 Recording Sheet	1	yes	no	no	no
Activity Grade1.1.12.1	Data Represented with Tally Marks	2	no	no	no	no
Activity Grade1.1.5.1	Check It Off Stage 2 Recording Sheet	1	yes	no	no	no
Center	Check It Off Stage 2 Recording Sheet	1	yes	no	no	no
Activity Grade1.1.2.2	Number Cards (0-10)	2	no	yes	yes	no
Activity Grade1.1.8.1	Shape Cards	2	no	yes	no	no
Activity Grade1.1.3.1	Five in a Row Addition and Subtraction Stages 1 and 2 Gameboard	2	no	no	no	no

Center	Five in a Row Addition and Subtraction Stages 1 and 2 Gameboard	2	no	no	no	no
Center	Five in a Row Addition and Subtraction Stages 1 and 2 Gameboard	2	no	no	no	no
Center	Check It Off Stage 1 Recording Sheet Grade K	1	yes	no	no	no
Center	What's Behind My Back Stage 2 Recording Sheet Kindergarten	1	yes	no	no	no

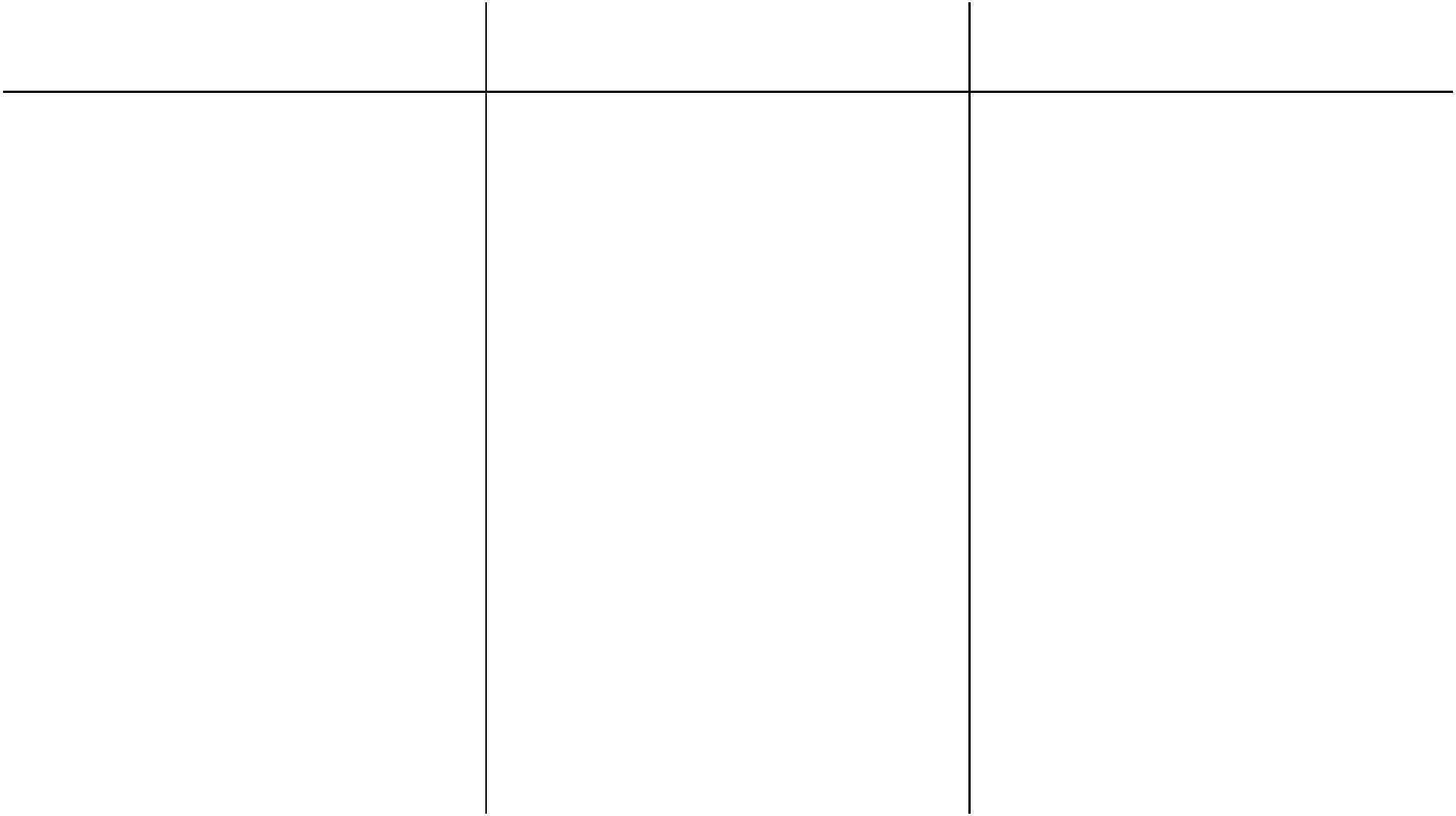
Two-Column Table

Grade 1, Unit 1 Section A Checkpoint	Addition Methods • Build toward fluency by adding and subtracting within 10, in a way that makes sense to them.				
	Recognize the number of dots without counting.	Count all to find the sum.	Count on to find the sum.	Use their knowledge of the count sequence to know certain sums.	Know certain sums.

Checkpoint

Grade 1, Unit 1 Section A Checkpoint	Subtraction Methods • Build toward fluency by adding and subtracting within 10, in a way that makes sense to them.			
	Represent all, then cross off or remove to find the difference.	Count back to find the difference.	Use their knowledge of the count sequence to know certain differences.	Know certain differences.

Three-Column Table



Check It Off Stage 1 Recording Sheet Grade 1

Directions:

- On your turn:
  - Pick 2 cards and find the sum.
  - Check off the number you found and write the expression.
- Take turns. The partner who has checked off the most numbers at the end of the game wins.

	✓ Found it!	expression
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Check It Off Stage 1 Recording Sheet Grade 1

Directions:

- On your turn:
  - Pick 2 cards and find the sum.
  - Check off the number you found and write the expression.
- Take turns. The partner who has checked off the most numbers at the end of the game wins.

	✓ Found it!	expression
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Sort and Display Stage 1 Recording Sheet

Directions:

- Choose 2 or 3 categories to sort your objects into.
- Show how you sorted.
- Show what you made to a partner. Ask them a question about how you sorted.

Sort and Display Stage 1 Recording Sheet

Directions:

- Choose 2 or 3 categories to sort your objects into.
- Show how you sorted.
- Show what you made to a partner. Ask them a question about how you sorted.

10-Frame Standard

Checkpoint

Grade 1, Unit 1 Section B Checkpoint	• Organize and represent data.		
	Sort objects into categories.	Represent each object with a picture of the object, symbol, or number.	Label the categories in their representation.

Data Represented with Numbers

Priya asked her class the question, “What is your favorite sport?”
She showed their responses.

 basketball	 swimming	 soccer
3	10	4

Answer the questions about the data.

1. How many students chose basketball? _____
2. How many students chose swimming? _____
3. How many students chose soccer? _____
4. How many students chose basketball or swimming? _____
5. How many students took this survey? _____

Counting Collections Stages 1 and 2 Recording Sheet

How many are there? Show how you counted.

My count:

How many? _____

Counting Collections Stages 1 and 2 Recording Sheet

How many are there? Show how you counted.

My count:

How many? _____

Favorite Special Class Data

Kiran asked his class the question, “What is your favorite special class?” He recorded their responses.

Group A Responses:

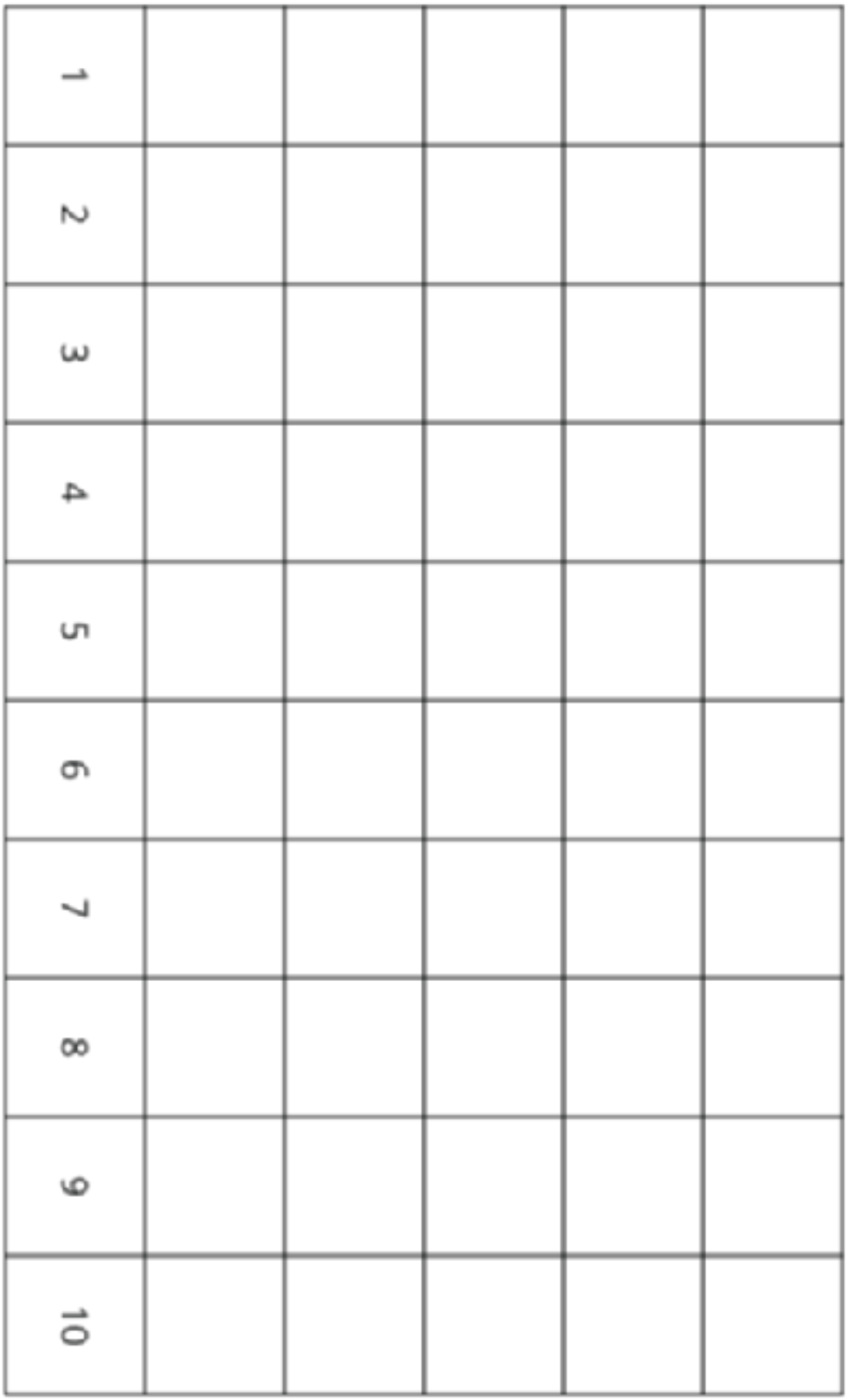
 music	 art	 physical education
8	3	5

Kiran asked his class the question, “What is your favorite special class?” He recorded their responses

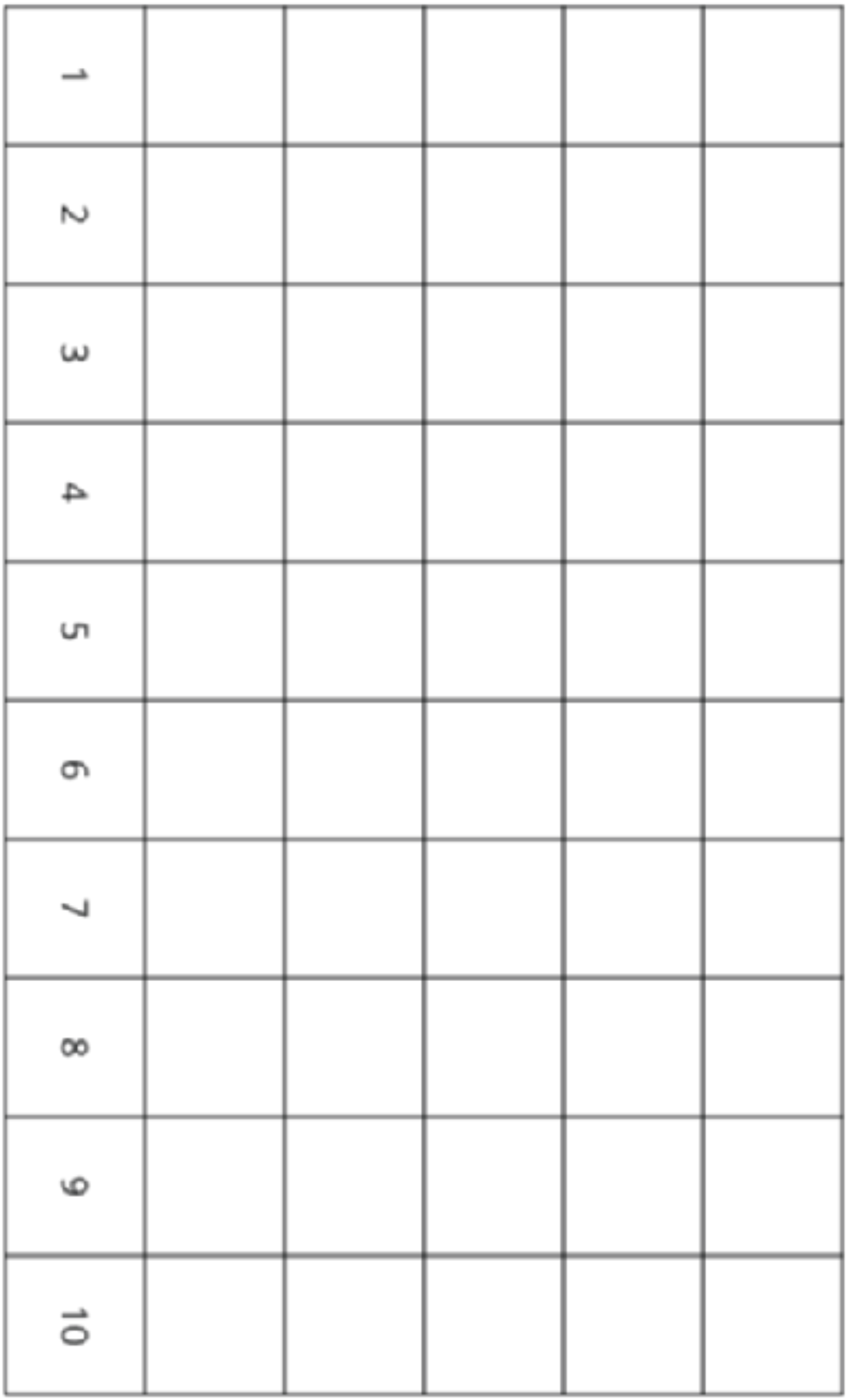
Group B responses:

 music	 art	 physical education
2	7	8

Number Race Stage 3 Gameboard

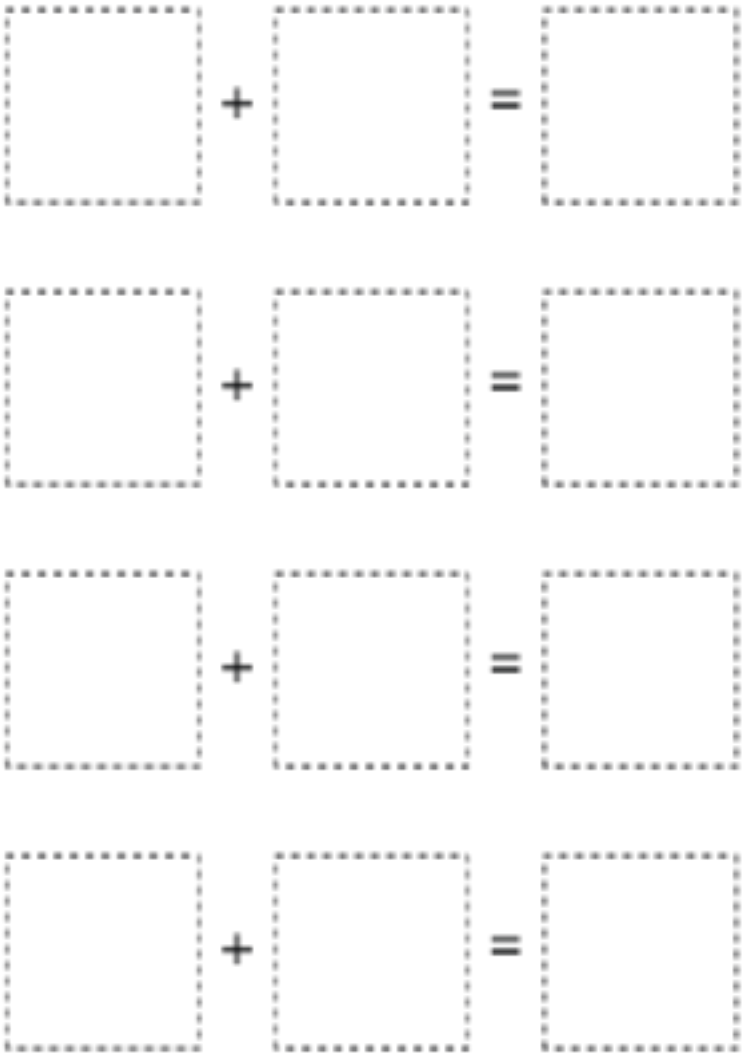


Number Race Stage 3 Gameboard

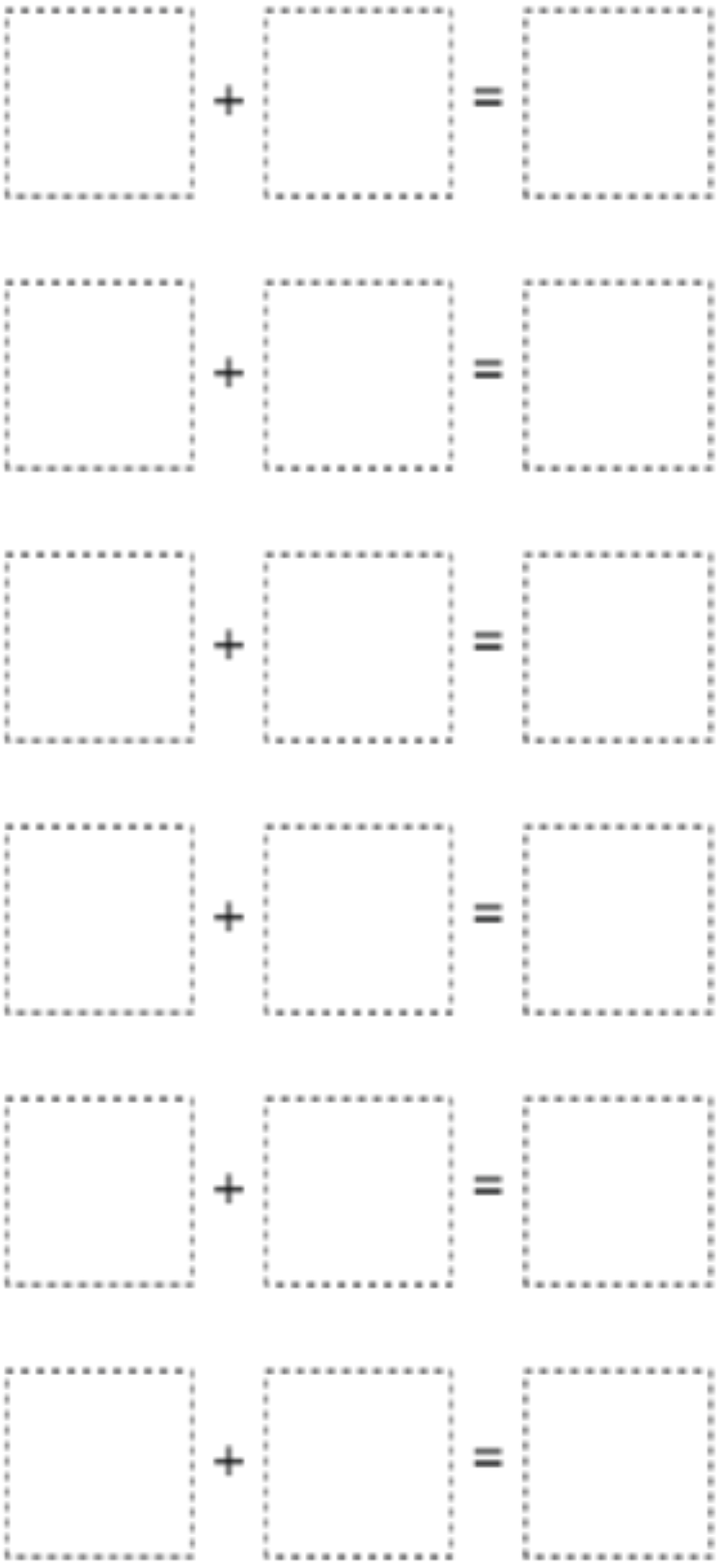


Directions:

- Start with a tower of 10 cubes.
- Partner A: Put the tower behind your back, and break off some cubes. Show your partner the rest of the tower.
- Partner B: Record an addition equation with a blank to represent the missing cubes.
- Partner A: Ask "How many are behind my back? How do you know?"
- Switch roles and repeat.

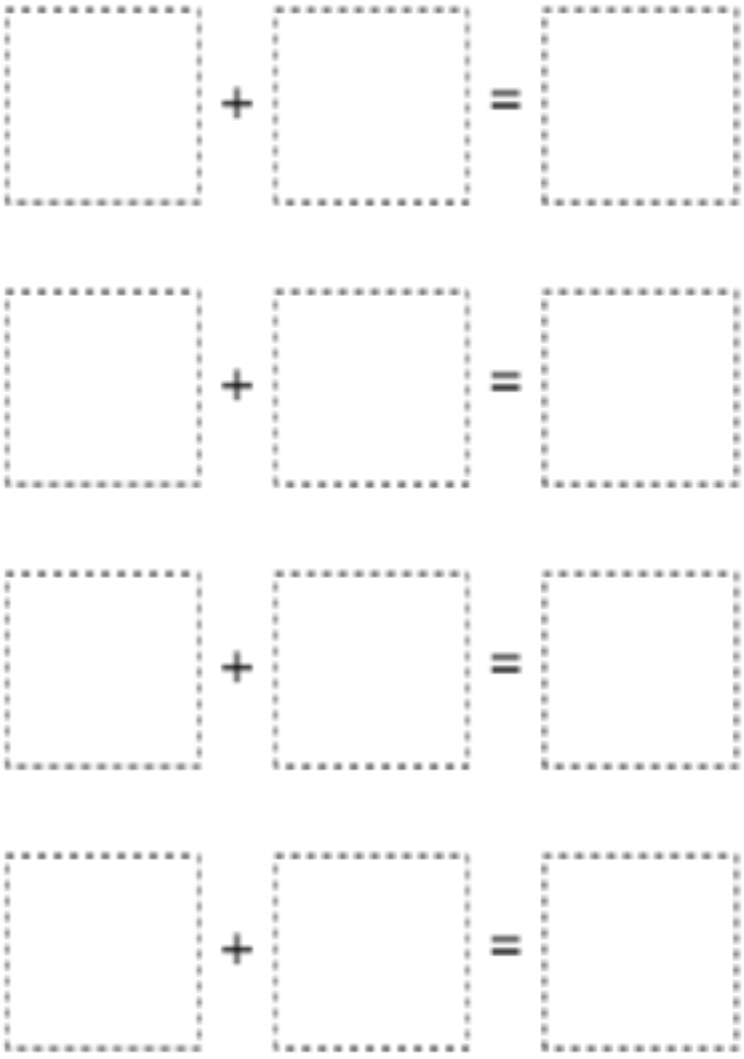


What's Behind My Back Stage 2 Recording Sheet Grade 1

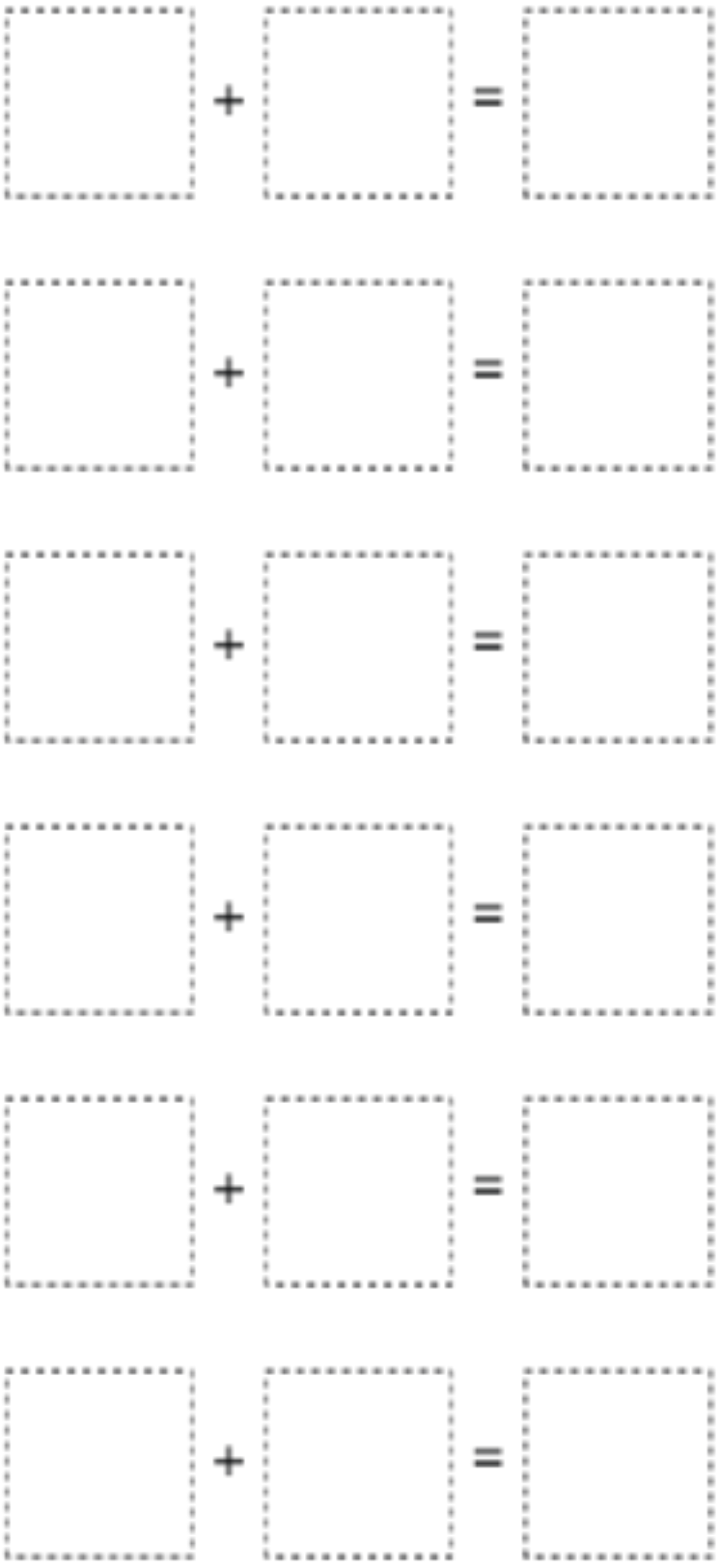


Directions:

- Start with a tower of 10 cubes.
- Partner A: Put the tower behind your back, and break off some cubes. Show your partner the rest of the tower.
- Partner B: Record an addition equation with a blank to represent the missing cubes.
- Partner A: Ask "How many are behind my back? How do you know?"
- Switch roles and repeat.



What's Behind My Back Stage 2 Recording Sheet Grade 1



Grade 1, Unit 1 Section C Checkpoint	• Interpret data representations to ask and answer questions.		
	Ask and answer “how many?” questions about each category of data.	Ask and answer “how many?” questions about two categories of data combined.	Ask and answer “how many?” questions about the total number in the data set.

Find the Pair Stage 2 Recording Sheet

Directions:

- Take 5 cards each and put the rest in a pile face down.
- Partner A:
  - Ask your partner for a number that can be added to one of your cards to make 10.
  - If they have the card, put the pair of cards down and fill in the equation.
  - If they don't have that card, pick a card from a pile.
- Take turns asking for cards. The partner with the most pairs at the end of the game wins.

____ + ____ = 10

____ + ____ = 10

____ + ____ = 10

Find the Pair Stage 2 Recording Sheet

____ + ____ = 10

____ + ____ = 10

____ + ____ = 10

____ + ____ = 10

Find the Pair Stage 2 Recording Sheet

Directions:

- Take 5 cards each and put the rest in a pile face down.
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  - If they have the card, put the pair of cards down and fill in the equation.
  - If they don't have that card, pick a card from a pile.
- Take turns asking for cards. The partner with the most pairs at the end of the game wins.

____ + ____ = 10

____ + ____ = 10

____ + ____ = 10

Find the Pair Stage 2 Recording Sheet

____ + ____ = 10

____ + ____ = 10

____ + ____ = 10

____ + ____ = 10

Data Represented with Tally Marks

Noah asked his class the question, “What is your favorite sport?”
He showed their responses.

 basketball	 swimming	 soccer
𝍸 |	𝍸	𝍸 𝍸

Answer the questions about the data.

1. How many students chose basketball? _____
2. How many students chose swimming? _____
3. How many students chose soccer? _____
4. How many students chose basketball or swimming? _____
5. How many students took this survey? _____

Check It Off Stage 2 Recording Sheet

Directions:

- On your turn:
  - Pick 2 cards and find the difference.
  - Check off the number you found and write the expression.
- Take turns. The partner who has checked off the most numbers at the end of the game wins.

	✓ Found it!	expression
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Check It Off Stage 2 Recording Sheet

Directions:

- On your turn:
  - Pick 2 cards and find the difference.
  - Check off the number you found and write the expression.
- Take turns. The partner who has checked off the most numbers at the end of the game wins.

	✓ Found it!	expression
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Number Cards (0-10)

1	2
3	4
5	6

Number Cards (0-10)

7	8
9	1
2	3

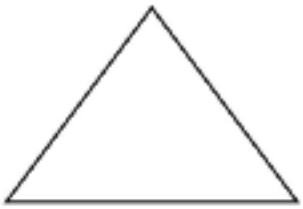
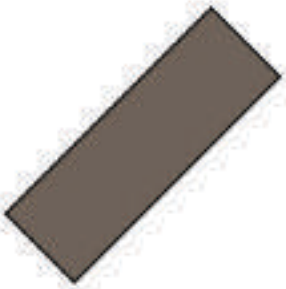
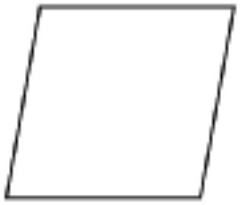
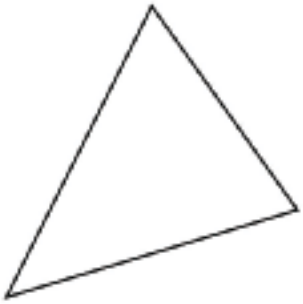
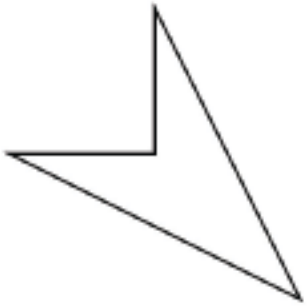
Number Cards (0-10)

4	5
6	7
8	9

Number Cards (0-10)

0	0
10	10

Shape Cards

A 	B 	C 	D 
E 	F 	G 	H 
I 	J 	K 	L 

Five in a Row Addition and Subtraction Stages 1 and 2 Gameboard

2	4	9	8	3
5	7	6	10	9
8	3	FREE	5	4
9	2	10	3	7
6	5	8	9	4

Five in a Row Addition and Subtraction Stages 1 and 2 Gameboard

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2	4	9	8	3
5	7	6	10	9
8	3	FREE	5	4
9	2	10	3	7
6	5	8	9	4

Check It Off Stage 1 Recording Sheet Grade K

Directions:

- On your turn:
  - Pick 2 cards and find the total.
  - Check off the number you found and write the expression.
- Take turns. The partner who has checked off the most numbers at the end of the game wins.

	✓ Found it!	expression
0		_____ + _____
1		_____ + _____
2		_____ + _____
3		_____ + _____
4		_____ + _____
5		_____ + _____
6		_____ + _____
7		_____ + _____
8		_____ + _____
9		_____ + _____
10		_____ + _____

What's Behind My Back Stage 2 Recording Sheet Kindergarten

 10 = ____ + ____
 10 = ____ + ____
 10 = ____ + ____
 10 = ____ + ____
 10 = ____ + ____

What's Behind My Back Stage 2 Recording Sheet Kindergarten

10 = ____ + ____

10 = ____ + ____

10 = ____ + ____

10 = ____ + ____

10 = ____ + ____

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