

# Using Base Ten: Base Ten Menu

**Silicon Valley Mathematics Initiative's**

**Formative Re-Engaging Lesson**

**First Grade**

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# Using Base Ten: Base Ten Menu

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## Mathematical goals

This lesson unit is intended to help you assess how well students are able to compose and decompose numbers within 20. Students should develop a range of strategies and be able to explain why the strategies work. The number ten is emphasized as it is key to understanding our number system. In particular, this unit aims to identify and help students who have difficulties with:

- Thinking of ten in two ways: as one ten and as ten ones
- Forming and counting groups and discovering the patterns that emerge from this process
- Composing and decomposing numbers in a variety of ways and discovering how to use this information when adding and subtracting
- Developing strategies for determining sums and differences when adding and subtracting one- and two-digit numbers
- Describing and explaining solutions clearly and effectively

## Standards addressed

This lesson relates to the following Common Core State Standards:

First Grade Number and Operations in Base Ten: Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand that the numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight or nine ones.

First Grade Number and Operations in Base Ten: Add within 100 using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

First Grade Number and Operations and Algebraic Thinking: Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

First Grade Number and Operations and Algebraic Thinking: Understand the meaning of the equal sign.

This lesson relates to the Mathematical Practices:

- Modeling: Mathematically proficient students can apply the mathematics they know to solve problems. This might mean at early grades being able to write an equation or problem to demonstrate a situation.
- Constructing Viable Arguments and Critiquing the Reasoning of Others: At the early grades, this might mean that students can compare their results with others. They might find ways to order and/or generalize about solutions. Others may find more than one solution path to a given problem.

## Introduction

This lesson unit is structured in the following way:

- Students work on their own to complete an assessment task, *Maria's Piggy Bank*, designed to reveal their current understanding and difficulties.
- Students are introduced to a series of “warm-up” or quick activities that may be continued throughout the year.
- Students work on a series of menu activities. Some are individual activities, and some involve partner work. These activities may be set up in a menu format, taught as whole class lessons or both. They may continue throughout the year.
- Students return to their work on the assessment task and try to improve their own responses.

## Materials required

Each student will need one copy of the assessment task, *Maria's Piggy Bank*.

Each pair of learners will need the following:

- Manipulatives used regularly in math class to facilitate number, operations and place values such as: paper and pencil, mini-white boards, 100s and/or 0-99 charts, ten frames (blank, filled in, and sets of playing cards), decks of number cards, dice, counters, cubes, etc.

## Time needed

The lesson will need one 20-25 minute pre-assessment session, four to seven 30-40 minute math sessions (composed of a 5-10 minute warm-up activity and a 25-30 minute menu session) or many segments throughout the unit in which the warm-up and menu activities are a part of that day's agenda, and a 15-20 minute student editing session to revise initial pre-assessment. Timings given are only approximate. Exact timings will depend on the needs of the class. The lesson closes with an optional final assessment. The final assessment will need one 20-25 minute assessment session.

## Resources

### Books

Carpenter, Thomas P.; Fennema, Elizabeth; Franke, Megan Loef; Levi, Linda and Empson, Susan B., 1999. **Children's Mathematics: Cognitively Guided Instruction**, Portsmouth, New Hampshire: Heinemann

Carpenter, Thomas P.; Franke, Megan Loef and Levi, Linda 2003. **Thinking Mathematically: Integrating Arithmetic & Algebra in Elementary School**, Portsmouth, New Hampshire: Heinemann

Corwin, Rebecca B. 1996. **Talking Mathematics: Supporting Children's Voices**, Portsmouth, New Hampshire: Heinemann

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Heibert, James et al., 1997. **Making Sense**, Portsmouth, New Hampshire: Heinemann

Richardson, Kathy 2002. **Assessing Math Concepts: Hiding Assessment**, Bellingham, Washington: Mathematical Perspectives

Richardson, Kathy 1997. **Math Time. The Learning Environment**, Norman, Oklahoma: Educational Enrichment, Inc.

Richardson, Kathy 1999. **Developing Number Concepts: Addition and Subtraction**, White Plains, New York: Pearson Education, Inc.

Richardson, Kathy 1999. **Developing Number Concepts: Place Value, Multiplication and Division**, White Plains, New York: Pearson Education, Inc.

Van de Walle, John A. 2004. **Elementary and Middle School Mathematics: Teaching Developmentally**, Boston, MA: Pearson Education, Inc.

Van de Walle, John A. 2006. **Teaching Student Centered Mathematics: Grades K-3**, Boston, MA Pearson Education, Inc

## **Videos**

“How to Teach Math as a Social Activity,” Edutopia, <http://www.edutopia.org/math-social-activity-cooperative-learning-video> - video on building community norms around math discussions.

Video episodes throughout this resource show students formulating conjectures around properties of numbers and operations: Carpenter, Thomas P.; Franke, Megan Loef and Levi, Linda 2003. **Thinking Mathematically: Integrating Arithmetic & Algebra in Elementary School**, Portsmouth, New Hampshire: Heinemann.

## Before the lesson

### Individual Assessment Task:

The assessment task, *Maria's Piggy Bank*, should be completed before the lesson. If needed, the task may be read to students. Ask students to attempt the task on their own. Explain that they should not worry too much if they cannot understand or do everything, because you plan to have other opportunities which should help them.

It is important that students are allowed to answer the questions without assistance, as far as possible. If students are struggling to get started then ask questions that help them understand what is required, but don't do it for them.

For example,

“What is this problem asking us to find out?”

“What do you know?”

### Assessing students' responses

Collect a sample of students' responses to the task and make some notes on what their work reveals about their current levels of understanding. The purpose of doing this is to forewarn you of the difficulties students may experience during the formative assessment lesson itself and so that you may prepare carefully. Do not grade students' work at this stage. Research shows that this will be counterproductive, as it will encourage students to compare their grades and distract their attention from the mathematics. Instead, try to understand their reasoning and think of ways in which you can help them. Wait to grade this task until it is revised by students at the end of this lesson. The rubric provided allows the teacher to score the work for purposes of making sense of the students' thinking (not necessarily to provide a grade). The performance task and rubric can be found in Appendix 1.

### Suggested lesson outline

Since every first grade classroom is unique, teachers should feel free to organize the following activities in ways that make the most sense for their students. For example, the warm-ups could come at the beginning of the main lesson or they might be introduced throughout the day when there are an “extra few minutes.” Likewise, some classes might be ready to handle several menu choices and others might need to stick with a whole class model. Hopefully, many of these activities will become an ongoing part of the year's curriculum. Giving students enough time with activities will provide evidence of their application of concepts. (Richardson, **Math Time**, p. 119)

### Warm-Ups

A warm-up activity should be a short time (5-10 minutes) to look at mathematical ideas together. Introduce new warm-up ideas gradually. As students do each warm-up activity repeatedly, they gain experience analyzing what is happening and strengthening their ability to justify their solutions. These warm-up activities are designed to be used with an overhead projector, a Smartboard or white board. If one of these is not available, you can present the problem(s) on a large sheet of paper.

## Warm-up Activities

### Quick Look With Ten-Frames

Students will be given a “quick look” (2 seconds) at a ten-frame and respond by holding up their fingers to match the number shown. The teacher presents the ten-frames on flash cards large enough for the class to view (these may be enlarged from those in Appendix 2, or used on an overhead projector). Students should be encouraged to justify their answers.

#### **Extensions:**

As students become more fluent with their responses they can be asked to show how many are needed to make ten.

Hold up a full ten-frame and a second ten-frame and have students record the correct number on individual white boards.

#### ***This activity gives the opportunity for students to:***

*Think of ten in two ways – as one ten and as ten ones.*

*Compose and decompose numbers in a variety of ways and discover how to use this information when adding and subtracting.*

*Develop strategies for determining sums and differences when adding and subtracting one- and two-digit numbers.*

*Describe and explain solutions clearly and effectively.*

### Roll The Dice

The teacher rolls a large die, or a regular die can be rolled and viewed by students using a document camera, and students respond by showing how many they see with their fingers. This warm-up helps students to practice subitizing, or instant recognition of small numbers. Students should be encouraged to justify their answers.

#### **Extensions:**

Roll two dice and have students record their responses on individual white boards.

The number of dice can be increased for students who have mastered beginning math facts and are ready to practice three addends.

Play Roll The Dice as a partner game and students say the number rolled rather than holding up fingers.

#### ***This activity gives the opportunity for students to:***

*Think of ten in two ways – as one ten and as ten ones.*

*Compose and decompose numbers in a variety of ways and discover how to use this information when adding and subtracting.*

*Develop strategies for determining sums and differences when adding and subtracting one- and two-digit numbers.*

*Describe and explain solutions clearly and effectively.*

## Rename That Number

The teacher selects a target number and students are asked to record that number in as many ways as possible on a mini-whiteboard. Students hold up their boards at the end of the activity for the whole group to view. Students partner share their responses and then individuals may be called on to share with the whole group.

### Example:

27

*(is written by the teacher)*

*Possible ideas seen on student white boards:*

2 tens and 7 ones

1 ten and 17 ones

$30 - 3$

$20 + 7$

And so on...

This warm-up helps students to understand that there are many and varied ways to represent numbers.

***This activity gives the opportunity for students to:***

*Think of ten in two ways – as one ten and as ten ones.*

*Compose and decompose numbers in a variety of ways and discover how to use this information when adding and subtracting.*

*Develop strategies for determining sums and differences when adding and subtracting one- and two-digit numbers.*

*Describe and explain solutions clearly and effectively.*

## What Is My Shortest Name?

The teacher asks students to record the “shorter name” for the number clues given. For example:

“I have one ten and three ones.” (13)

“I have one ten and four plus four ones.” (18)

“I have one ten and no ones.” (10)

“I have two tens and six ones.” (26)

“I have nine ones and three tens.” (39)

I have twelve ones and one ten. (22)

“I have seventeen ones and three tens.” (47)

***This activity gives the opportunity for students to:***

*Think of ten in two ways – as one ten and as ten ones.*

*Compose and decompose numbers in a variety of ways and discover how to use this information when adding and subtracting.*

*Develop strategies for determining sums and differences when adding and subtracting one- and two-digit numbers.*

*Describe and explain solutions clearly and effectively.*

## Menu

The following menu activities are designed to be introduced during a directed instructional time but done by students independently in pairs or pair partners. Provide multiple opportunities for students to practice these planned and focused activities. After students fully understand how to do a task, they will be ready to benefit from the experience. At that point, children deepen their conceptual understanding of the activity, and teachers have the opportunity to observe and listen to student thinking. Important formative assessment information can be garnered at this time.

As stated earlier, each classroom is unique, and the implementation of these menu activities may vary. What is important is that students learn the routine of the activity and have multiple opportunities to practice each experience in order to internalize the concepts and build confidence, accuracy, and consistency. Six activities of varied difficulty have been provided for you to choose from.

### Menu Activities

#### How Many Are Hiding?

This partner game gives students practice in composing and decomposing numbers within ten. It can be played using any small counting objects (chips, small stones, etc.) and a cup to hide some of the objects. This deep work with small numbers is “key” to effective counting methods, to place value, and to addition and subtraction strategies.

If possible, the teacher should individually assess children before playing the game. Start with three or four objects and ask the student to verify how many are on the table. Ask the student to close their eyes and then the teacher hides some of the counters under the cup. The student should be able to quickly and confidently identify how many objects are hiding by viewing the number showing. If the student shows mastery of this number (e.g. can identify all of the possible combinations without counting) increase the number by one until the student reaches the number where they need additional practice.

Students may be partnered with someone working on the same number. Students take turns hiding counters and identifying how many are missing. Students are encouraged to justify their answers.

#### **Extensions:**

Students may be asked to fill in a recording sheet that indicates how many counters can be seen and how many are hiding. (Appendix 4)

Students may be asked to check in with the teacher when they feel they are ready to move on to a larger number.

#### ***This activity gives the opportunity for students to:***

*Compose and decompose numbers in a variety of ways and discover how to use this information when adding and subtracting.*

*Describe and explain solutions clearly and effectively.*

### **Which Is Greater (Which Is Less)?**

This is a partner card game played with a deck of ten-frame playing cards. It gives students practice in recognizing ten-frames and developing fluency in combining numbers within twenty.

The game is played as follows:

Divide the cards into two stacks, face down.

Players determine if they are looking for the card that is greater or the card that is less (this may be decided by the teacher).

Players each turn over one card from the stack at the same time.

The player with the larger (smaller) number says, “ \_\_\_ is greater (less) than\_\_\_.”

Players may keep their own cards or the player with the “winning card” may collect both.

Play continues until all of the cards have been turned over.

Students are encouraged to justify their greater (lesser) number.

#### **Extensions:**

Players turn over two cards at a time and compare the sums.

Play with a deck of numeral dot cards or number cards. (Appendix 3)

#### ***This activity gives the opportunity for students to:***

*Think of ten in two ways – as one ten and as ten ones.*

*Compose and decompose numbers in a variety of ways and discover how to use this information when adding and subtracting.*

*Develop strategies for determining sums and differences when adding and subtracting one- and two-digit numbers.*

*Describe and explain solutions clearly and effectively.*

### **Find Tens**

Using a deck of dot numeral cards (4 each of 1-9 cards) (Appendix 3), students turn over nine cards and display them in a 3x3 grid. The first player selects all the pairs of cards that total ten and collects those cards. The missing cards are replaced from the deck and the second player finds all the pairs of two cards that total ten. Those missing cards are replaced, and play continues until combinations of ten can no longer be made. Students are encouraged to justify their selections. Students record their pairs of numbers that equal 10.

#### **Variation:**

Students may find totals of 10 using 2 or more cards.

#### ***This activity gives the opportunity for students to:***

*Compose and decompose numbers in a variety of ways and discover how to use this information when adding and subtracting.*

*Develop strategies for determining sums and differences when adding and subtracting one- and two-digit numbers.*

*Describe and explain solutions clearly and effectively.*

## How Many More?

### Materials:

How Many More game board (Appendix 5)  
Game markers (different kind for each pair)  
4 each of Numeral Dot cards 1-6 (Appendix 3)  
Paper for recording equations

This activity is played by two pairs of partners. Using the How Many More game board, the first pair pulls a card to determine how many more are needed to make 10. The pair places a marker on a dot pattern that represents the missing amount. Example: If a 2 is drawn from the cards, 8 is needed to make 10. The pair then places one of their markers on one of the 8 patterns on the game board. Pairs are required to say the math fact aloud for each turn. In this case, the pair might say,  $2 + 8 = 10$  or  $10 - 2 = 8$ .

The partner pairs alternate turns following this procedure. The first pair to place three of their markers in a row horizontally, vertically, or diagonally wins.

### Extension:

The game board remains the same, but students use cards 5- 10 in order to find How Many More to make 14.

### ***This activity gives the opportunity for students to:***

*Think of ten in two ways – as one ten and as ten ones.*

*Compose and decompose numbers in a variety of ways and discover how to use this information when adding and subtracting.*

*Develop strategies for determining sums and differences when adding and subtracting one- and two-digit numbers.*

*Describe and explain solutions clearly and effectively.*

## Grab and Count

In this activity students grab a handful of objects (counting chips, connecting cubes, small pebbles etc.) and group them into groups of tens and ones. The objects may be placed in small cups to help children with organization. Students then record the number of groups of tens and ones left over and also the “short” name of the number (recording sheet in Appendix 6). This counting is easily differentiated by adjusting the size of the objects to be counted.

### Variations:

Students work with a partner and count the combined number grabbed.

Students grab coins (pennies, nickels and dimes) for practice in counting by 1’s, 5’s and 10’s.

### ***This activity gives the opportunity for students to:***

*Think of ten in two ways – as one ten and as ten ones.*

*Practice adding 1’s, 5’s, and 10’s using coins.*

## **Spin to One Hundred**

Materials: 100 Number Chart and spinners (Appendix 7), marker for each player

Players take turns spinning and moving their markers the appropriate number of spaces on the 100 Number Chart. The goal of the game is to get to 100. Four different spinners are provided: adding 5 or 10; adding 1, 5, or 10; adding/subtracting 1, 5, or 10; and adding 10, 20, 30, 40, or 50. The teacher may assign a specific spinner based on the students' skill in moving on the 100's chart.

***This activity gives the opportunity for students to:***

*Think of ten in two ways – as one ten and as ten ones.*

*Find a number that is ten more or ten less than a two-digit number.*

*Add and subtract 10 and multiples of 10.*

*Practice adding 1's, 5's, 10's and multiples of 10 from different points on the 100's Chart.*

## **Sharing Strategies and Solution Paths Around Number, Operations and Place Value**

The focus of this formative assessment lesson is to have students deepen their conceptual understanding of our base-ten number system and to use this understanding to add and subtract accurately and efficiently. In order for children to learn, understand, and remember, they need time interacting with ideas, thinking about where these ideas fit in relation to what they already know, uncovering the logic, and then applying it to their thinking around these ideas. Explaining their reasoning helps to solidify and extend their understanding.

As such, correct and incorrect ideas should be accepted during the discussion of strategies and solution paths. Students and teachers need to respectfully accept correct and incorrect responses during mathematical discussions. It is important to establish a classroom atmosphere where students feel safe to share their ideas. Students should be guided to understand that learning can occur even when a response is incorrect. Questions are posed by the teacher and by students that will move all towards the underlying mathematics that determines the correctness of answers.

When learners are first introduced to sharing their strategies and solution paths, it is important to explain the purpose and to describe how they should work during these discussion times. The emphasis is on understanding. We need to think and talk about problems to solidify our learning. In order for all to benefit from these sharing of ideas, we need to remember these things:

- We share ideas and listen to others.
- We ask “why does this work” until we understand
- We respect one another’s opinions
- We know that we learn from mistakes as well as from correct answers.
- Our goal is for the students, the teacher and the mathematics to agree in the end!

The table that follows includes some common issues confronted when students begin sharing their thinking around place value, number and operations. The suggested questions and prompts are a beginning list that will grow as you work with students to understand and make sense of the mathematics. As you start the sharing of ideas, do so by asking one or two types of questions. This gradual implementation is important for students as well as for their teachers.

Common Issues	Suggested Questions and Prompts
<b>Warm-up Activities</b>	
<b>Quick Look With Ten-Frames and Roll That Dice</b>	
Students are unable to respond after seeing the ten-frame for a short time.	When this activity is first introduced it may be necessary to give students a “second look” and allow them to view the card for a longer period of time. Give students enough time so that individuals do not “shutdown” and feel that they do not have access to the problem. <i>MP7 Look for and make use of structure.</i>
Students shown two ten-frames know the names but may be unable to think of the total number of dots as tens and extras.	Use the base ten language (i.e. one ten and four ones) showing the base ten model and also the standard language (fourteen). Emphasize that the teens sound “backwards” and do not fit the patterns of larger counting numbers. <i>MP4 Model with mathematics.</i> <i>MP 7 Look for and make use of structure.</i>
Students hold up varied answers on their white boards to totals of two ten-frames.  Students hold up different numbers of fingers after seeing the dice roll.	The teacher may say: “Will someone share how they are thinking about their answer?” or “Will someone share with us how you found the total number of dots?”  The teacher may say, “I see 3, 4, 5 and 6 fingers. Could all of those answers be correct?” Then ask different students, “Tell us how you saw the number.” <i>MP3 Construct viable arguments.</i>
When asked to explain their thinking, a student might say something like, “I just thought of it.”	The teacher may say to that student or to another, “Can you show us why that answer makes sense?” or, “Would you use this picture of ten-frames (or a drawing or objects) to show us why your answer makes sense?” <i>MP3 Construct viable arguments and critique the reasoning of others.</i>
<b>Rename That Number and What Is My Shortest Name?</b>	
Students have a limited number or no responses.  Only a few of the students in the class are sharing their solutions and justifications	Allow quiet think time and then suggest: “Turn to one other person and share your answer and how you thought about it.” Then prompt: “Let’s list some of the answers you heard”. Then ask, “Let’s share how these answers make sense.”  Ask, “Who thought of it in a similar way?” “Who thought of it in a different way?” or “Does anyone have the same answer but a different way to explain it?” <i>MP3 Construct viable arguments and critique the reasoning of others.</i>
Answer error	It is important to ask these questions frequently and

	<p>not just for answers in error:  “Do you agree or disagree with this?” “Why?”  “What might a model or drawing for that look like?”  “Can someone make a model or drawing for that?”  <i>MP3 Construct viable arguments and critique the reasoning of others.</i>  <i>MP4 Model with mathematics.</i></p>
<b>Menu Activities</b>	
<b>How Many Are Hiding?</b>	
No response from student when ask how many are hiding, or, the student makes an unreasonable response to the number hiding.	<p>The number is too big and the child cannot visualize how many are hiding. Try using the next smaller amount of counters.  <i>MP4 Model with mathematics</i>  <i>MP 7 Look for and make use of structure.</i></p>
The response is close but not correct, or, the student thinks long about what’s hiding and figures out the correct answer by counting each object.	<p>Shows some understanding of the parts of the number but needs more practice with that number of counters.  <i>MP4 Model with mathematics.</i>  <i>MP 7 Look for and make use of structure.</i></p>
The student responds quickly and accurately.	<p>The parts of the whole have been internalized and student is ready to work on the next larger amount of counters.  <i>MP4 Model with mathematics.</i>  <i>MP 7 Look for and make use of structure.</i></p>
<b>Which Is Greater? (Which Is Less?)/ Find Tens/How Many More?</b>	
When using ten-frames a student does not easily recognize the amount of dots.	<p>Students may be more successful using the referent of 5 before they can internalize the 10 in the ten-frame.</p>
The pair, or pairs of partners, has trouble getting started.	<p>“What do you need to find out?”  “What do you already know?”  “How might you begin?”  <i>MP4 Model with mathematics.</i>  <i>MP 7 Look for and make use of structure.</i></p>
The student names the correct answer but does not justify the answer.	<p>“Tell us how you thought about that answer. Can you use these counters to prove your answer?”  “Do you think your answer is reasonable?”  Or  Ask the partner to respond, “Do you agree/disagree with ___’s answer? Can you explain why you agree/disagree with that answer?”  “Can you convince me that the answer makes sense?”  <i>MP3 Construct viable arguments and critique the reasoning of others.</i>  <i>MP4 Model with mathematics.</i>  <i>MP 7 Look for and make use of structure.</i></p>
The student names an incorrect answer.	<p>“Tell us how you thought about that answer. Can you use these counters to prove your answer?”  Or  Ask the partner to respond, “Do you agree/disagree with ___’s answer? Can you explain why you agree/disagree with that answer?” “Can you convince me that the answer makes sense?”</p>

	<i>MP3 Construct viable arguments and critique the reasoning of others.</i> <i>MP4 Model with mathematics.</i> <i>MP 7 Look for and make use of structure.</i>
The teacher wants to know more about what the student is thinking about the activity in general.	“What strategy are you using to solve this?” “What patterns do you see?” “What relationships between the numbers do you see?” “Why did you...?” <i>MP3 Construct viable arguments.</i> <i>MP 7 Look for and make use of structure.</i>

## Guidelines for Final Assessment

**Final Performance Assessment:** The final performance assessment is entitled *Nina’s Numbers* (Appendix 8). It should be administered during a class period. Most students will complete the task in about 20 minutes, although time should not be a factor. The teacher should provide a reasonable amount of time for all students to finish. The students should be allowed to use any tools or materials they normally use in their classroom. The task can be read to the students and all accommodations delineated in an IEP should be followed. Each task has a specific rubric.

### Task Instructions

On the day of the assessment, before students begin, read the following instructions to the students:

“I have some interesting problems for you to try. I want to see what each of you can do with them, so work on your own. I will read the question to you first. If you have trouble understanding a question as you are working, call me over and I’ll help you read it.” (If some students need this kind of help, just read the problem with them - don’t explain it.)

“The questions require you to show your work and explain your thinking. You may use drawings, words, and numbers in your explanations. Your answers should be clear enough so that another person can read it and understand your thinking. It is important that you show all you work.”

### Time for the task:

Time should not be a constraint for students being successful on the performance task. Hopefully students will be able to have as much time as they need to complete work. However, work on any particular task should be limited to one sitting. At the end of the assessment period, collect the work and review it at a convenient time in order to see what students are able to do and find any misconceptions that may need to be addressed.

### Scoring the task:

The task is accompanied with an analytical rubric. A score of 5 points meets standard.



## Maria's Piggy Bank

1. Maria's piggy bank fell off her desk and broke! There are pennies, nickels and dimes everywhere. Maria needs 25 cents to buy ice cream. What coins could she use to pay the 25 cents? Show your answer using pictures, numbers and words.

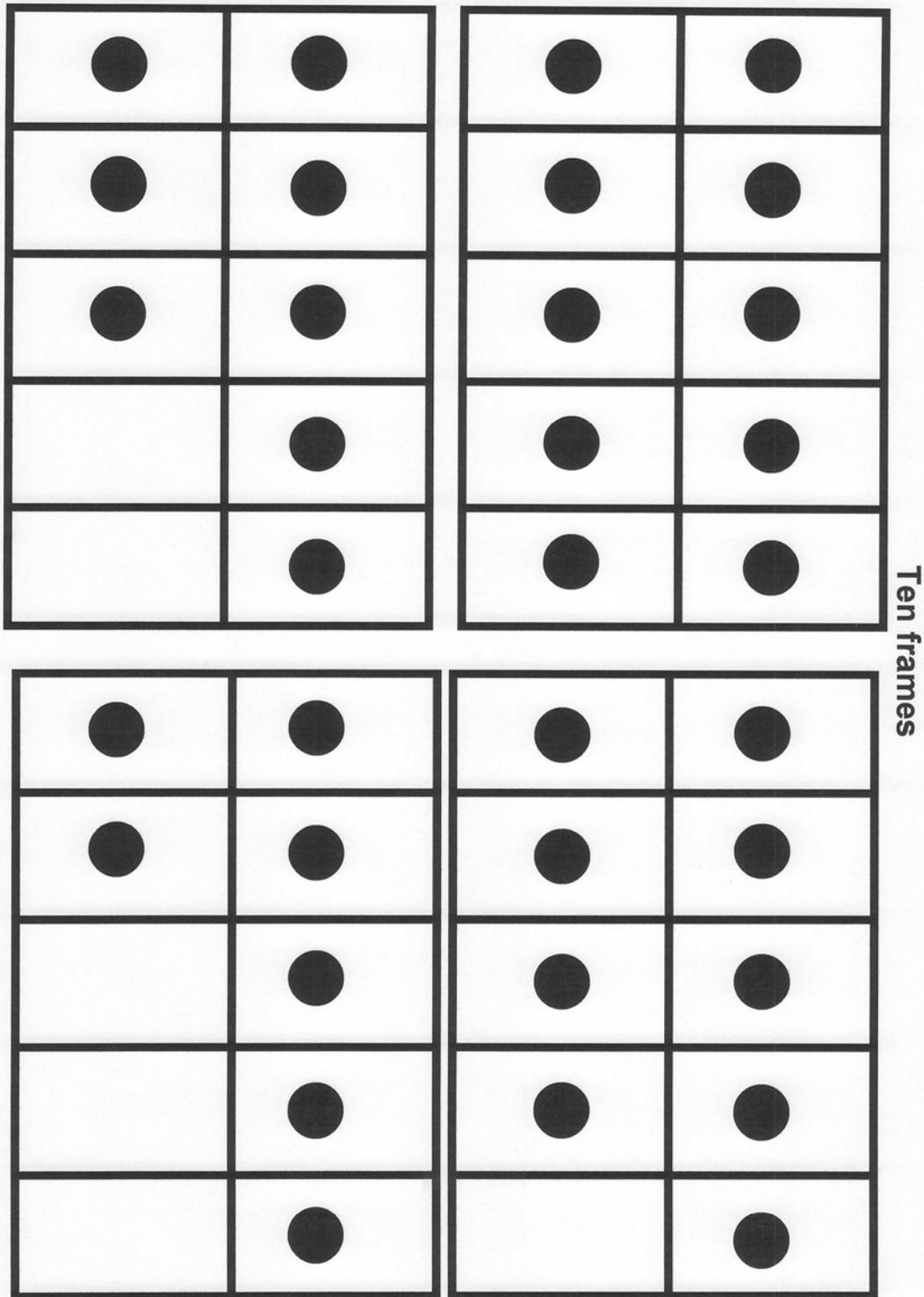
2. Show a different combination of coins that Maria could use.

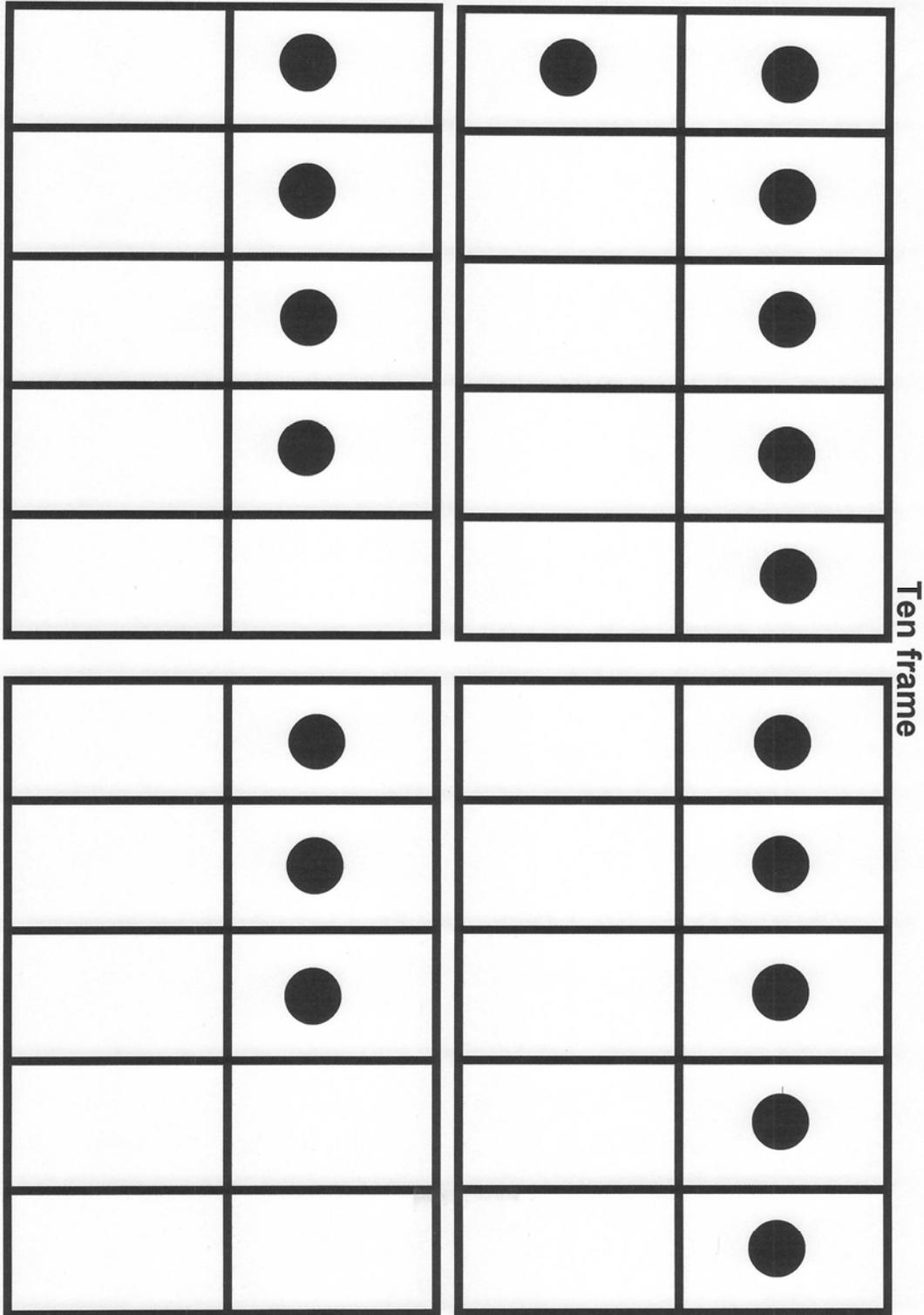
3. Are there other ways to make 25 cents? \_\_\_\_\_  
Show the other ways that you can make 25 cents.

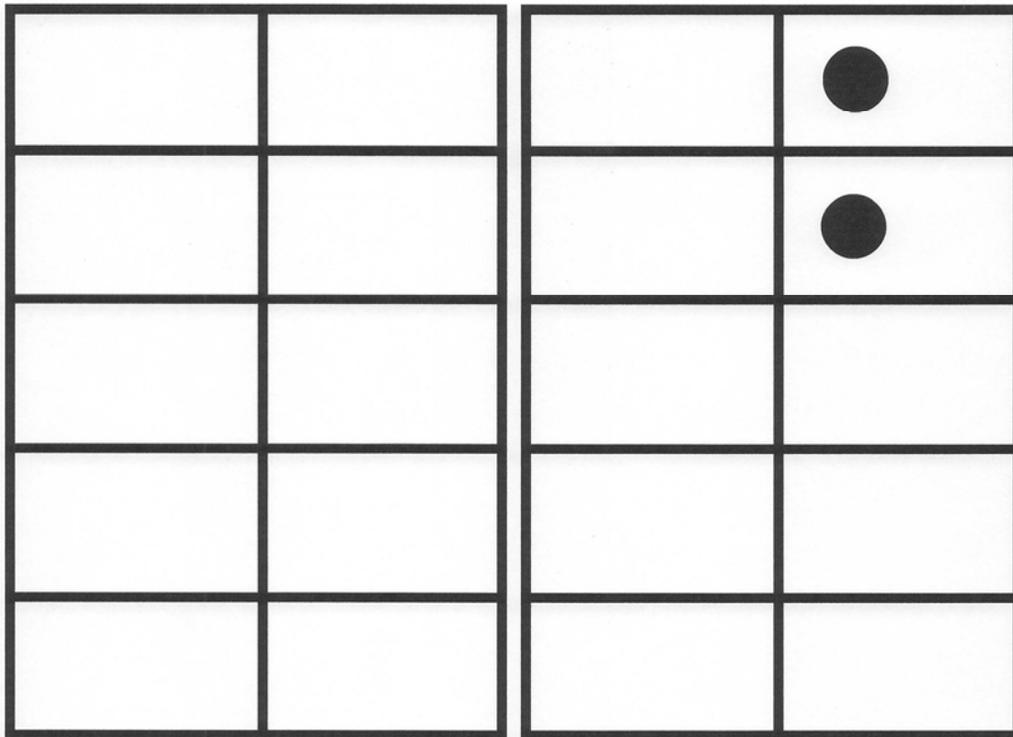
# Mathematics Assessment Collaborative

## Performance Assessment Rubric Grade 1

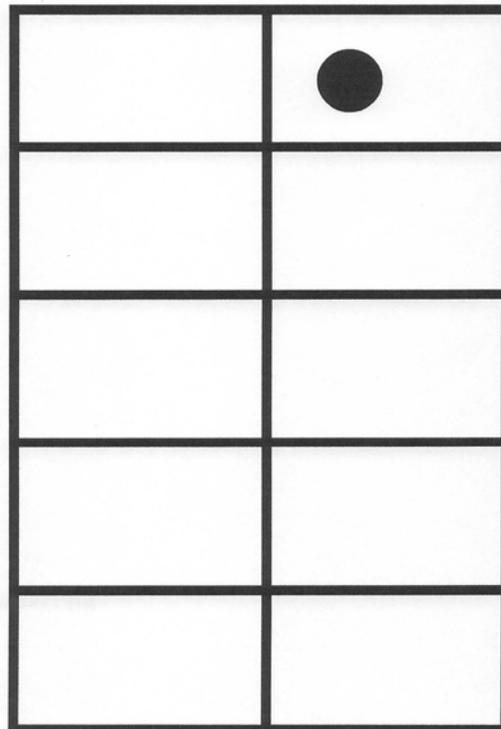
<b>Maria's Piggy Bank Grade 1:</b>	Points	Section Points
<p>The core elements of the performance required by this task are:</p> <ul style="list-style-type: none"> <li>• Uses operations to solve problems</li> <li>• Represents equivalent forms of the same number (i.e. <math>8 = 4 + 4</math>, <math>8 = 5 + 3</math>)</li> <li>• Understands the constraints of the problem</li> </ul> <p>Based on these core elements, credit for specific aspects of performance should be assigned as follows:</p>		
<p>Shows one correct combination of coins to make a total of 25 cents such as:</p> <p><b>25 pennies or 5 nickels 2 dimes and one nickel 2 dimes and five pennies 1 dime and 3 nickels 1 dimes, one nickel and 10 pennies etc.</b></p> <p style="text-align: center;"><b>or</b></p> <p>Shows two different correct combination of coins to make a total of 25 cents</p> <p style="text-align: center;"><b>or</b></p> <p>Shows three different correct combination of coins to make a total of 25 cents</p> <p>Partial credit: quarter (give credit once)</p> <p>After 3 correct solutions, deduct 1 point for any number of incorrect solutions</p>	<p><b>1x3</b></p> <p><b>2x3</b></p> <p><b>3x3</b></p> <p><b>(1)</b></p> <p><b>-1</b></p>	<p><b>9</b></p>
<b>Total Points</b>		<b>9</b>



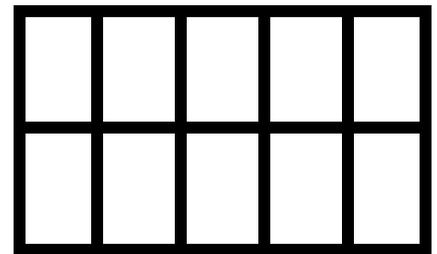
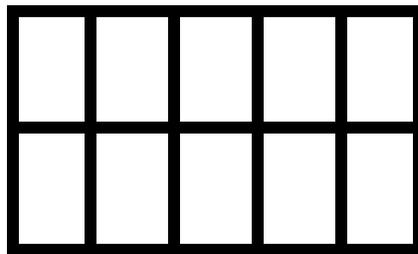
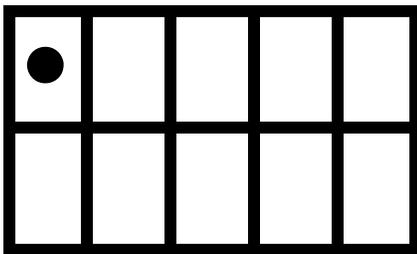
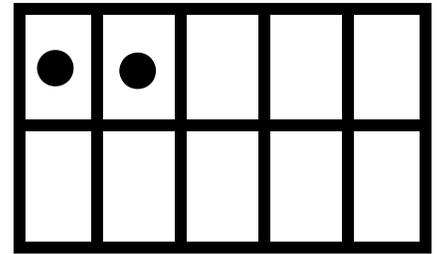
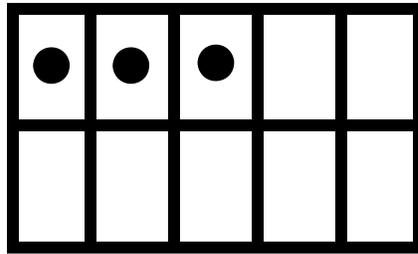
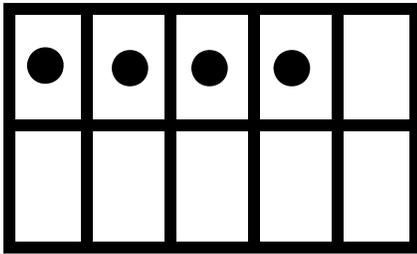
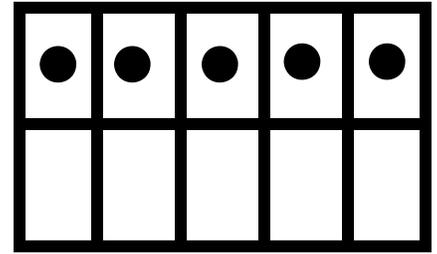
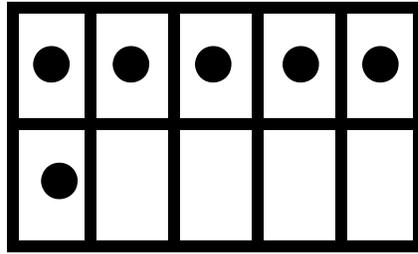
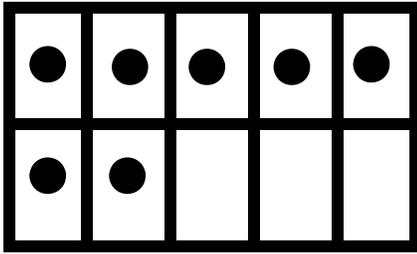
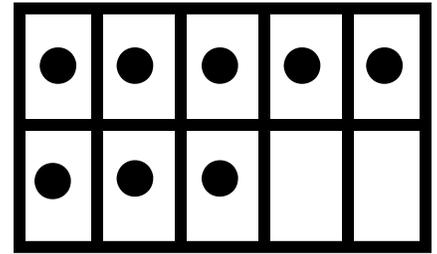
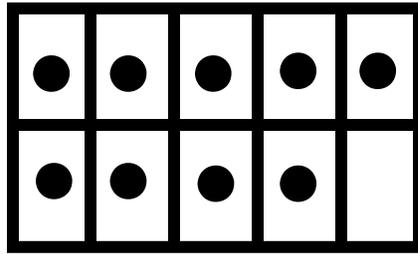
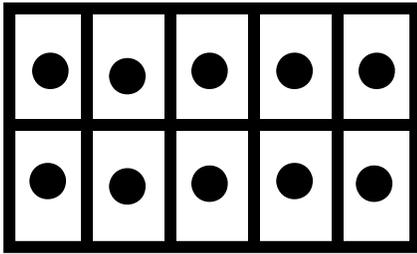




Ten frame



# Ten Frames



Numeral Dot Cards

1	•
2	••
3	•••
4	••••
5	•••••
6	••••••
7	•••••••
8	••••••••
9	•••••••••
10	••••••••••

# How Many Are Hiding?

## Game 1

Number in all \_\_\_\_\_

Hiding	Out

# How Many Are Hiding?

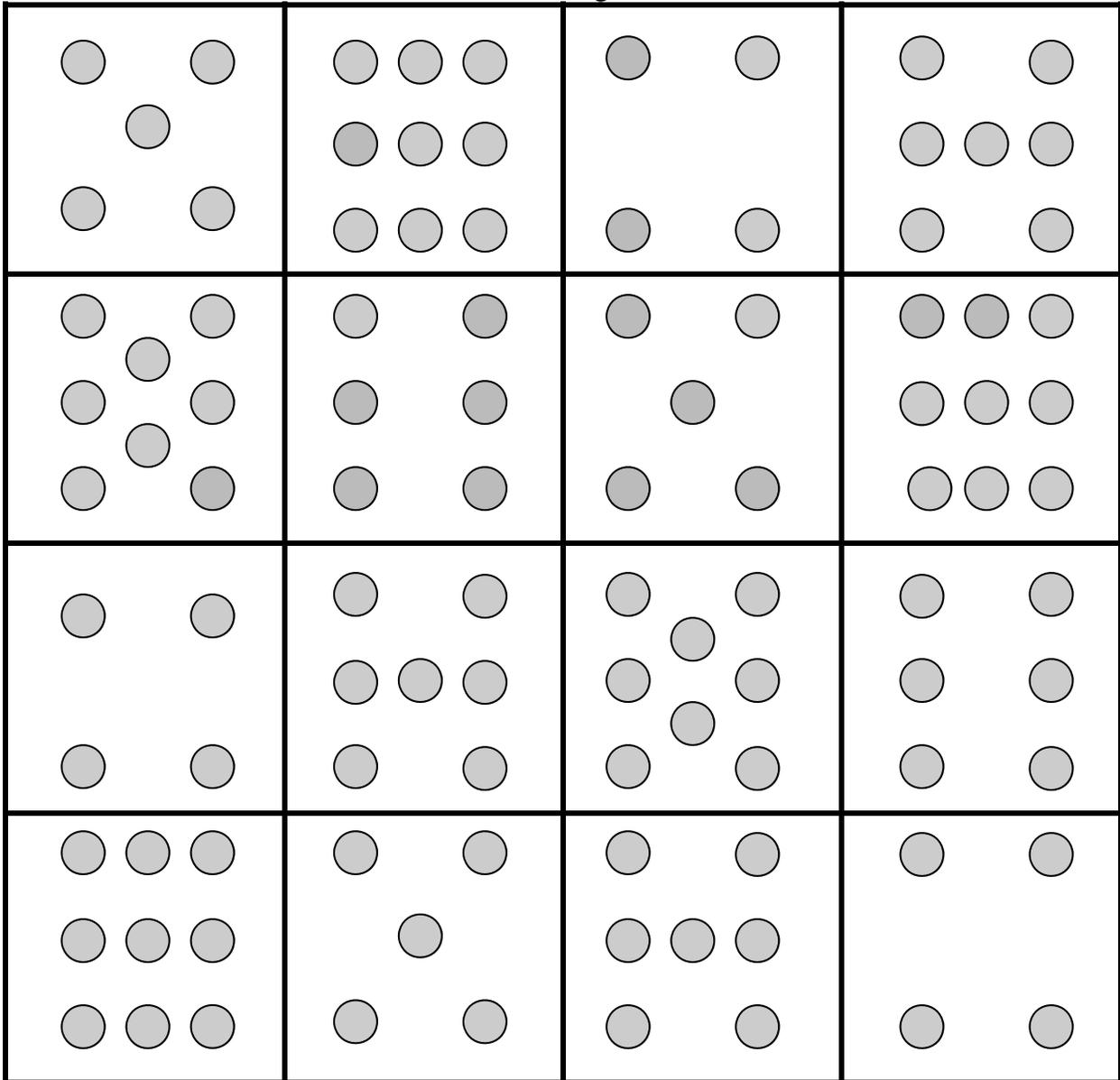
## Game 2

Number in all \_\_\_\_\_

Hiding	Out



# How Many More?



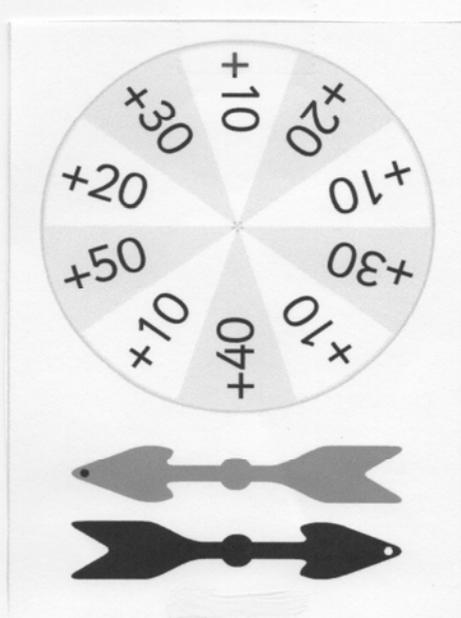
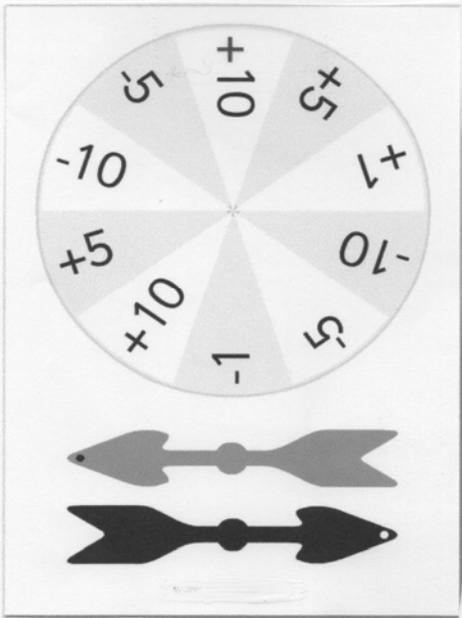
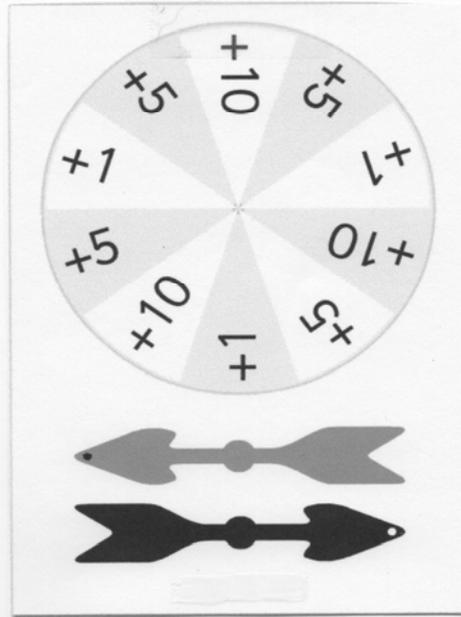
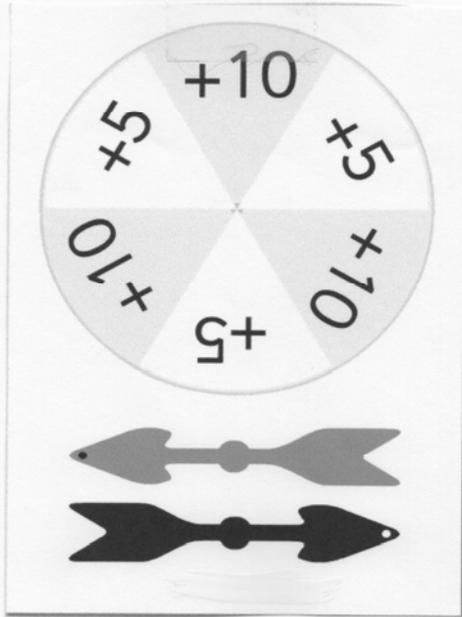
# Grab and Count Recording Sheet

Appendix 6

<b>Groups of 10's and 1's</b>	<b>Short Name</b>
_____ <b>tens</b> _____ <b>ones</b>	

# One Hundreds Chart

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



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## Nina's Numbers

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Nina loves to play the Fill in the Blank games.

1. Write the numbers that belong in each blank.

a) 25, \_\_\_\_\_, 35, 40, \_\_\_\_\_, 50

b) 4, 7, \_\_\_\_\_, 13, \_\_\_\_\_, 19, \_\_\_\_\_, 25

Nina has three number cards.

5

3

8

2. What is the largest two-digit number Nina can make using these cards?

Write that number in the boxes below.

--	--

3. Fill in the missing number to make this number sentence correct.

$$58 + \square = 65$$

Show your work using pictures, words, and numbers.

# Mathematics Assessment Collaborative

## Performance Assessment Rubric Grade 1

	<b>Nina's Numbers Grade 1:</b>	Points	Section Points
	<p>The core elements of the performance required by this task are:</p> <ul style="list-style-type: none"> <li>• Extends counting sequences</li> <li>• Understands and applies place value in operations on whole numbers</li> <li>• Compares whole numbers based on place value principles</li> <li>• Understands the constraints of the problem</li> </ul> <p>Based on these core elements, credit for specific aspects of performance should be assigned as follows:</p>		
1	<p>a) <b>30 and 45</b></p> <p>b) <b>10, 16, and 22</b></p>	<b>1</b>	
		<b>1x3</b>	<b>4</b>
2	<b>85</b>	<b>1</b>	<b>1</b>
3	<p><b>7</b></p> <p>Correct explanation such as: 2 to get to 60 and 5 more to get to 65, <math>2 + 5 = 7</math></p> <p>With correct answer accept: "I used my fingers" or "I used the 100s chart"</p>	<b>2</b>	
		<b>1</b>	
	<b>Total Points</b>		<b>8</b>