

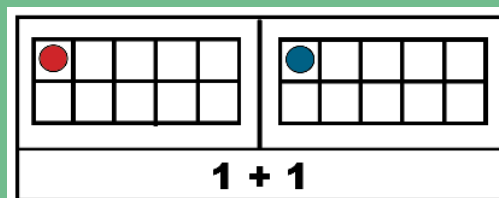
DR. NICKI NEWTON'S

# MATH FACT FLUENCY

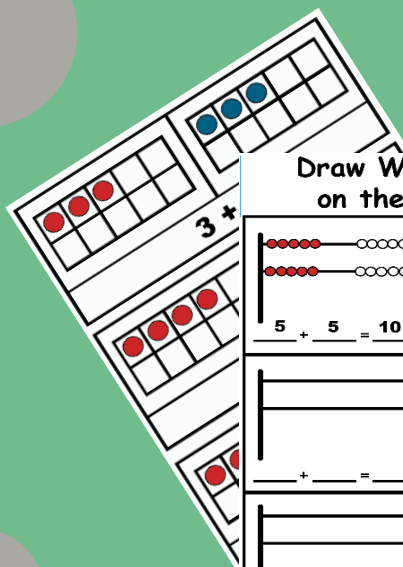
## WORKSTATIONS

#11

LOWER  
DOUBLES



$$1 + 1$$



Draw What You Did  
on the Rekenrek!

$$5 + 5 = 10$$

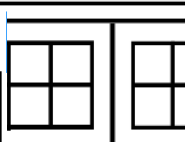
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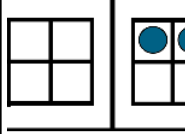
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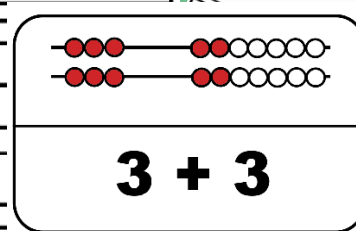
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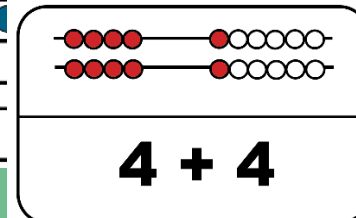
$$0 + 0$$



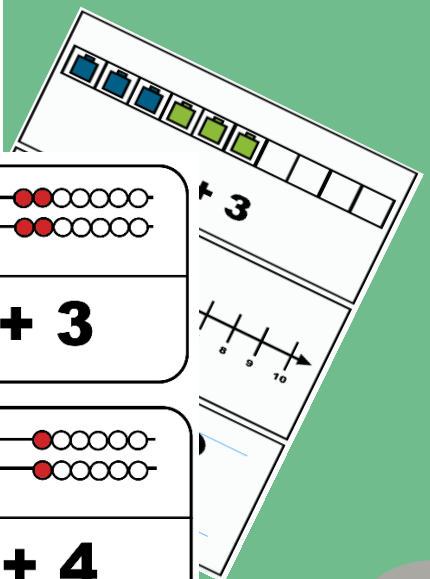
$$2 + 2$$



$$3 + 3$$



$$4 + 4$$



$$3 + 3$$

Contact Us!

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Chief Operating Officer: Dr. Nicki Newton  
Publisher: Newton Education Solutions  
Cover Design: Dr. Nicki Newton  
Text Design and Composition: Staff  
Printed in the United States of America  
Volume 1

DEDICATED TO MOM AND POPS, ALWAYS

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## PREFACE

### **Why I wrote this book**

I wrote this Fluency Practice series because I believe that workstations provide a powerful possibility for improving student achievement. Scaffolding curriculum experiences for students to practice in their zone of proximal development is one of the ways that we move student achievement. I wrote this book series specifically to show what it looks like to scaffold fluency workstations at the concrete, pictorial and abstract levels along the learning trajectory for addition and subtraction.

### **How to use this book**

Each book is divided into 3 parts: The General Overview, The Activities, The Assessment. This book has all the resources to build the Lower Doubles Workstation. Teachers should print out and laminate a variety of concrete, pictorial and abstract activities. There are many activities to choose from, however it is not necessary to put all of the workstations out at once. There should be a variety of activities though at all times. This book is to be used as part of a fluency journey. Each book in the series focuses on practice activities for a targeted strategy.

## OVERVIEW

### **What Are Differentiated Fluency Workstations?**

A workstation is a space for students to practice what they are learning and what they are supposed to know. They practice in different ways. Sometimes they practice by themselves, sometimes they practice with a partner and other times they practice in a small group. They can play various types of games as well as do different activities and projects. All of the activities should be meaningful, standards-based and rigorous.

A leveled differentiated fluency workstation is a space for students to work on their basic fact fluency. The stations are organized around the learning trajectories for addition and subtraction. Students take an assessment to see where they should begin the work and then they start at that strategy. They spend time doing various activities around a specific strategy and then they take an assessment and if they show proficiency, they move to the next strategy.

Workstations are not busy work. Workstations are not worksheets. Workstations are not supposed to be boring or frustrating. They are spaces to learn, to grow, to be challenged and to stretch. They are familiar. Students should never be at a workstation that they don't understand. Great workstations allow students to solidify their content knowledge and skills through purposeful practice in the student's zone of proximal development (Vygotsky, 1978).

### **What does the research say about independent practice?**

Teachers must understand the key ideas that their students' need to know and the skills that they must be able to do and how these concepts connect with what came before and what comes next (Ma, 1999). Teachers need to not only know what the concepts are but how to best teach them to the students. What are the learning trajectories required to fully understand the concepts and be able to do the math. Ontario Ministry of Education states that the big ideas also act as a 'lens' for: Making instructional decisions; identifying prior learning; looking at students' thinking and understanding in relation to the mathematical concepts addressed in the curriculum; collecting observations and making anecdotal records; providing feedback to students; determining next steps; communicating concepts and providing feedback on student's achievement to parents (p.4).

## **Why should students work in their zone of proximal development?**

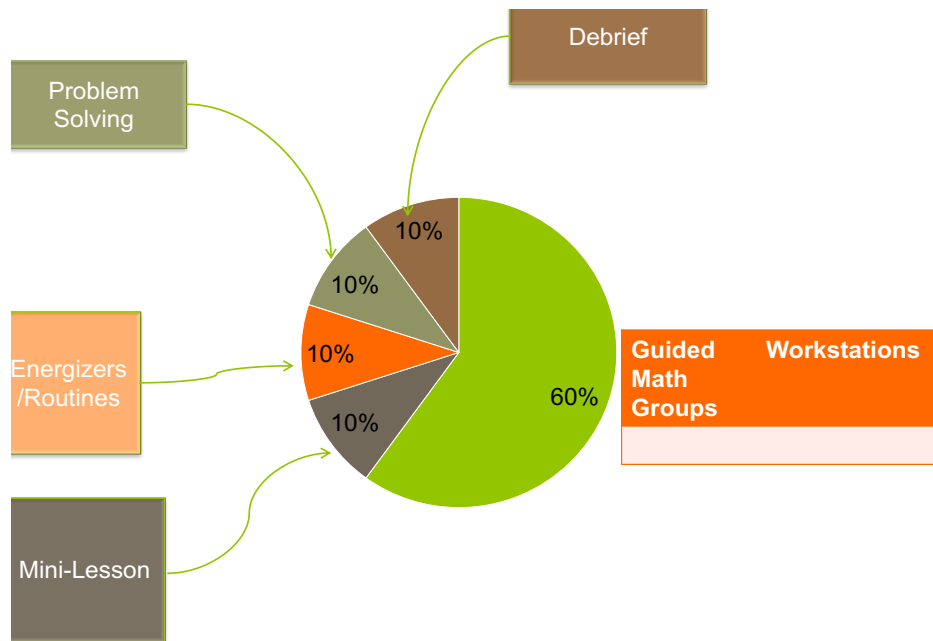
There is a developmental trajectory for learning math facts (Baroody, 2006; Batista, 2016 ). Instruction should follow it. Too often we jump from one topic to the next without students really ever having time to practice and own mathematical understandings. Differentiating fluency workstations allows students to practice in their appropriate zone so that they understand one concept before they are rushed to the next. Math topics build on each other. We know that you need to know how to do doubles before you do doubles plus 1. However, most textbooks teach these strategies back to back, not really giving the students time to understand, practice or learn much of anything.

By differentiating the workstations we allow students to practice in their zone (Vygotsky, 1976) and learn the math. The workstations are scaffolded with various concrete, pictorial and then abstract activities so that students have many opportunities to practice different strategies. Van De Walle (2007) told us that we need to give students plenty of different opportunities to practice. Differentiated workstations provide what Anghilieri (2006) calls responsive guidance. The teacher knows where the student is and then responds to that place in the learning trajectory by providing support at that level. “This guidance requires a range of support for pupils’ thought constructions, in a way that develops individual thinking as well as leading to the generation of mathematically valid understandings.” In terms of differentiated math workstations, responsive guidance is about teachers responding to students’ stages of understanding through intentional learning opportunities and practice. Teachers scaffold the learning landscapes.



# A QUICK OVERVIEW OF WHEN STUDENTS DO WORKSTATIONS

Workstations can be done as part of a math workshop or they can be done as part of a regular math program that isn't in a workshop format. Either way, the purpose of math workstations is for the students to have an opportunity to do purposeful, meaningful, independent practice. I highly encourage people to do a Math Workshop format. I have written a book on Math Workshop (which details all aspects). In a Math Workshop (see figure 1.2) there are 3 parts.



## Opening:

- Energizers and Routines
  - Problem Solving
  - Mini-Lesson

## Student Activity

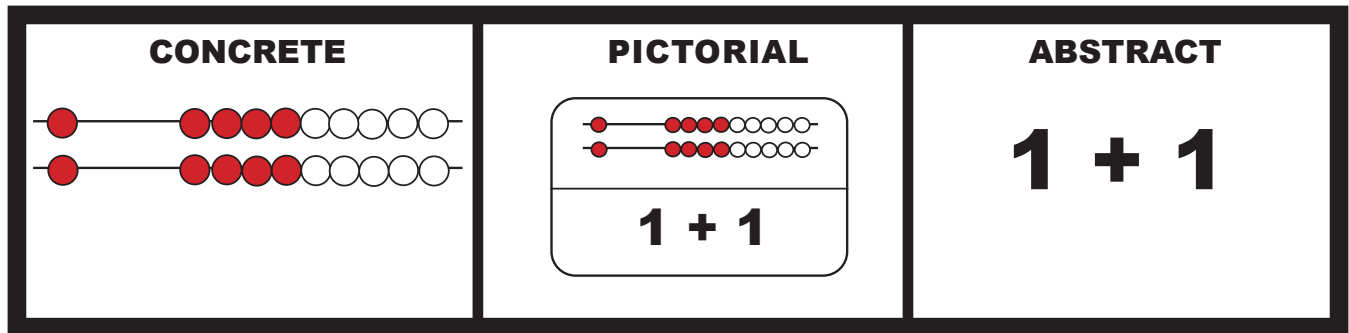
- Math Workstations
- Guided Math Groups

## Debrief

- Discussion
- Exit Slip

## What do they look like?

Scaffolded workstations are organized according to the learning trajectories. They have 3 components, concrete, pictorial and abstract activities.



## How do you manage them?

The fluency workstation is one of the 4 must have workstations (fluency, place value, word problems and the current unit of study). Students visit these workstations in a workstation rotation. It depends how many minutes the math block is on how many rotations are done in a day or a week. There are many ways that teachers build schedules. There can be schedules that are written on chart paper or digitally. Digital schedules allow for the teacher to have an ongoing record of what is happening as well quickly make adjustments. Also, the digital timer can be right there on the screen. Look here for ideas: <https://www.pinterest.com/drnicki7/math-workshop-schedule-boards/>

## How do you know who goes where?

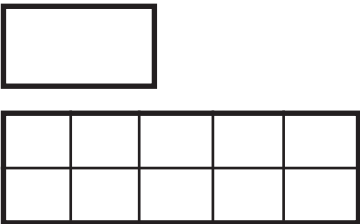
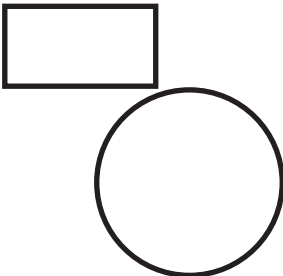
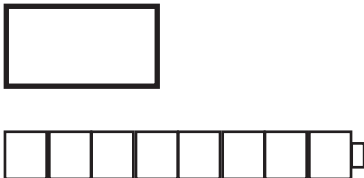
The only way to decide who goes where is to actually give a fluency assessment so that you know where the students practice level is going to be. This could be a Math Running Record or a 2 color probe. A Math Running Record is like a Fluency GPS. It is given at the beginning, middle and end of the year to find the fluency levels of the students. Find out more about Math Running Records here: <https://mathrunningrecords.com>

## **What is the role of assessment?**

Assessment is the linchpin to scaffolding fluency instruction. We have to know where students are currently working at in order to correctly scaffold where they go next. In the beginning of the year teachers should give a fluency assessment in order to start students off with the right strategy work. After every strategy unit, students are given a quiz and a quick oral assessment. Throughout the unit, the teacher confers with students and takes anecdotal notes.

## How do you make sure that students are accountable to the learning?

It is really important to have accountability measures so that you know what the students are doing. Oftentimes this is a recording sheet. Other times, students just write down in their journals the work they are doing. Here are some examples of the recording sheets.

TEN FRAME	NUMBER BRACELET	CUBE MATH
 _____ + _____ = _____	 _____ + _____ = _____	 _____ + _____ = _____

## How do you keep track?

You should have a sheet to know which stations students are currently working on and also which ones they have completed. Teachers want to have individual data about the workstations, class data about the workstation and it is also good to look at grade data about the workstations. Some workstations should be used throughout the grade level so that there is consistency across the grade in terms of the content that students are exposed to. Grade Level teachers should decide what is going to be done across the grade for the workstation by everyone and then what is free choice. Everybody has the basics and then they can add on to that as they choose. For example, it is important to be able to discuss fluency across different data sets and how different activities are impacting student achievement levels. So having agreed upon practice experiences benefits everyone in the grade.

## Class Snapshot

	Adding Zero/One	Counting On	Adding within 5/ Make 5	Adding within 10/ Make 10	Adding 10	Make 10	Doubles	Doubles +1	Doubles +2	Bridging 10	Adding Higher Facts	Review
<b>Luke</b>												
<b>Tom</b>												
<b>Maritza</b>												

## WHAT IS THE ROLE OF PARENTS/GUARDIANS?

### Helping Parents/Guardians Help Their Students

Parents play a key role in fluency. Parents need to know what the landscape of learning looks like and where their child is on that landscape. Parents need to know what is the next step and how they can best help their child to achieve that.

*Dear Parent,*

*Your child is working on using lower doubles as way to think about addition. With this strategy your child will be focusing on what it means to add a number to itself within 5. We have sent home some tools, some flashcards and a game board that focus on doubles within 10. Please work with your child by acting out the problems on the rekenrek, by working with first the visual flashcards and then the regular flashcards and by playing the boardgame. As we are working towards grade level fluency, we go through the cycle of concrete, pictorial and abstract learning so that students can understand their facts.*

*Math Note:*

*The math research tells us that fluency has 4 components: accuracy, flexibility, efficiency and appropriate strategy selection. With intentional, purposeful practice, automaticity will come.*

### Lower Doubles

**Big Ideas:** Lower Doubles is a way to think about what it means to add a number to itself within 5

**Enduring Understanding:** There are a variety of strategies for addition.

**Essential Questions:** How can I use lower doubles as a way to think about adding numbers?

# LOWER DOUBLES ACTIVITIES

<b>Concrete Activities</b> <b>Pick 3</b>	<b>Pictorial Activities</b> <b>Pick 3</b>	<b>Abstract Activities</b> <b>Pick 3</b>
<b>Flashcard Ten Frame</b> Build It!	<b>Flashcard Ten Frame</b> Draw it!	<b>Flashcard Ten Frame</b> Write the Equation!
<b>Number Bracelet</b> Build It!	<b>Number Bracelet</b> Draw it!	<b>Number Bracelet</b> Write the Equation!
<b>Rekenrek</b> Build It!	<b>Rekenrek</b> Draw it!	<b>Rekenrek</b> Write the Equation!
<b>Cube Tower</b> Build It!	<b>Cube Tower</b> Draw it!	<b>Cube Tower</b> Write the Equation!
<b>Bead Stick Addition</b> Build It!	<b>Bead Stick Addition</b> Draw it Facts!	<b>Bead Stick Addition</b> Write the Equation!
<b>Part-Part Whole Mats</b> Build It	<b>Part-Part Whole Mat</b> Build it and Draw it!	<b>Part-Part Whole Mat</b> Write the Equation!
<b>Story Mats</b> Act it out!	<b>Story Mats</b> Draw a picture!	<b>Story Mats</b> Write the Equation!
<b>Number Bond Adding Machine</b> Build It!	<b>Number Bond Adding Machine</b> Draw it!	<b>Number Bond Adding Machine</b> Write the Equation!
<b>Domino, Count and Sort</b> Build it Domino Facts!	<b>Domino</b> Draw a fact!	<b>Domino</b> Write the Equation!

## More Activities

### Give Quiz A or Quiz B

Give a quick performance test and interview (ask the students to model, show and tell you some of the Lower Doubles facts).

# Ten Frame Activity

## Goal

Students focus on the idea that lower doubles is doubling a number within 5.

## Way to Play

Students pick a flashcard and model it on a ten frame.

## Materials

Scaffolded Flashcards  
Un scaffolded flashcards  
2 sided counters (red/yellow) or 2 different colored counters

## Scaffolding the Game

There are 2 sets of flashcards.  
Set A: Ten frame flashcards  
Set B: Regular flashcards

# Directions

## Activity 1

Pull a flashcard. Model it on the ten frame using counters. Record it on the recording sheet. Explain your work using math words.  
(See below.)

## Activity 2

Pull a ten frame flashcard. Use math words to explain the problem and how you solved it.

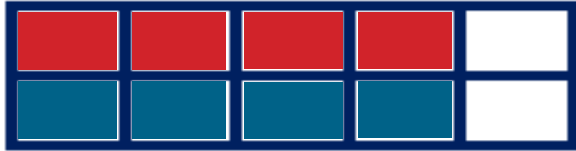
**Use your math words:**

**My problem was \_\_\_\_\_. I added \_\_\_\_\_ and then \_\_\_\_\_ more.  
My sum is \_\_\_\_\_.**





# Recording Sheet



$$\underline{4} + \underline{4} = \underline{8}$$



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$



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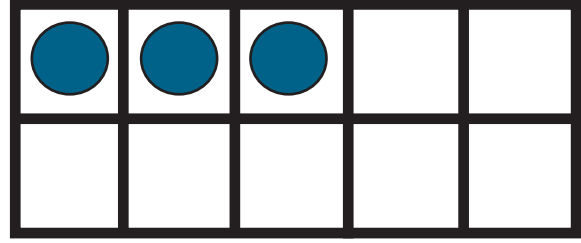
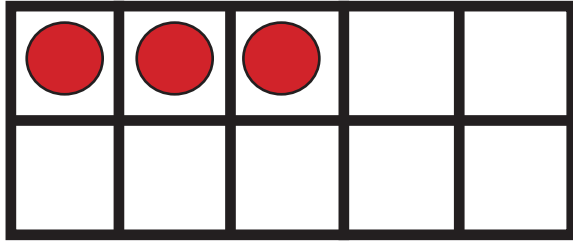
# Recording Sheet

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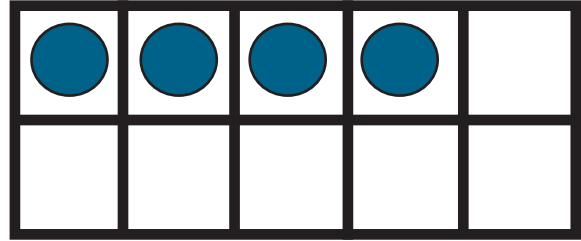
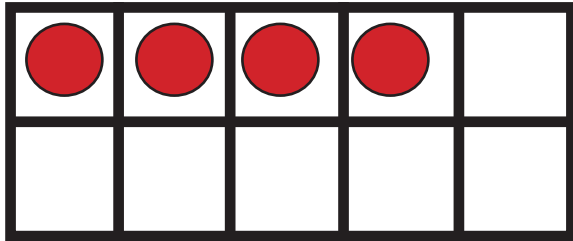
# LOWER DOUBLES FLASHCARDS

What do you notice about the addends?

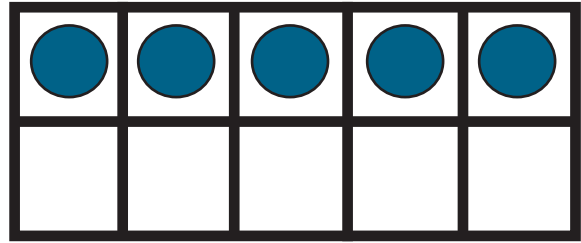
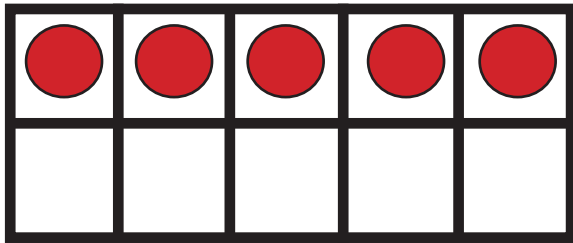
$3 + 3$	$4 + 4$	$5 + 5$	$1 + 1$
$2 + 2$	$0 + 0$	$1 + 1$	$5 + 5$
$4 + 4$	$3 + 3$	$2 + 2$	$0 + 0$



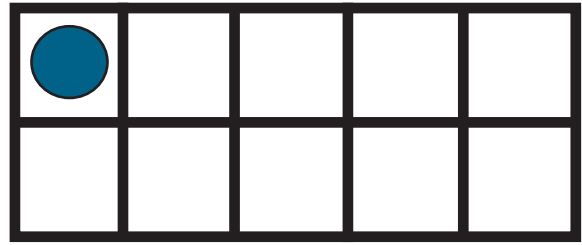
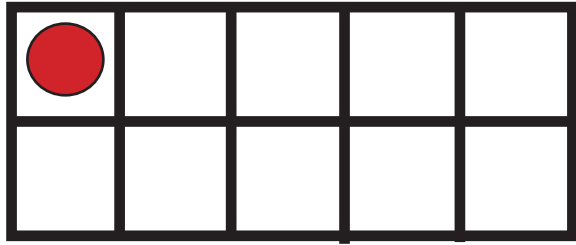
$$3 + 3$$



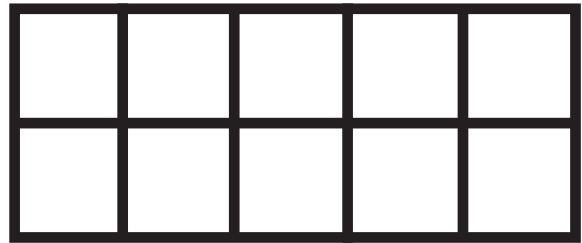
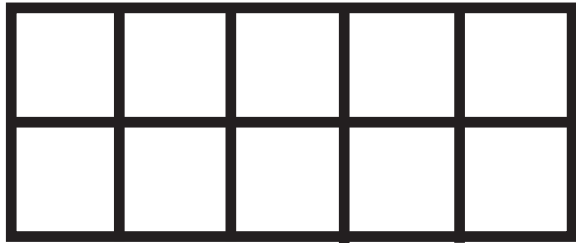
$$4 + 4$$



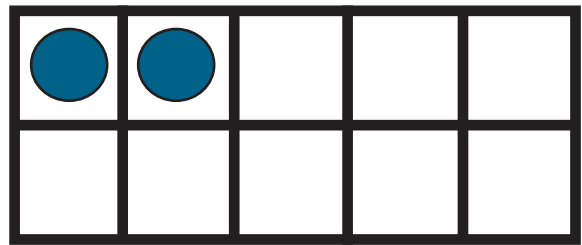
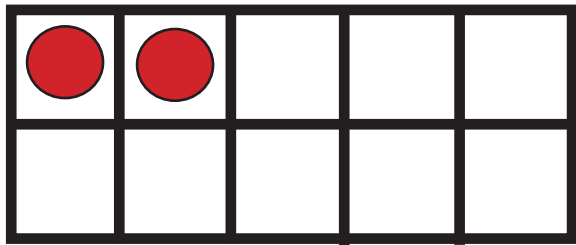
$$5 + 5$$



$$1 + 1$$



$$0 + 0$$



$$2 + 2$$

# Number Bracelets

## Goal

Students focus on the idea that lower doubles is doubling a number within 5.

## Way to Play

Students need to make number bracelets out of pony beads and pipe cleaners. Model the problem on the number bracelet.

## Materials

Number Bracelet  
Number Bracelet Templates  
Flashcards

## Scaffolding the Game

There are 2 sets of flashcards.  
Set A: Number bracelet flashcards that student makes.  
Set B: Regular flashcards.

# Directions

## Activity 1

Pull a flashcard.

Take out the number bracelet and build the doubles fact. Students draw their number bracelet model on the recording sheet. (This will be the number bracelet flashcards.) Explain your work using your math words. (See Below)

## Activity 2

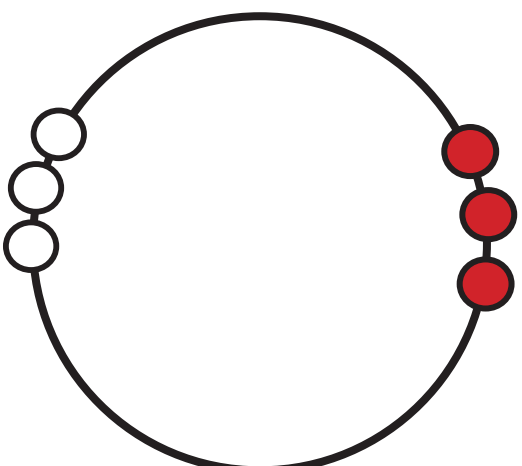
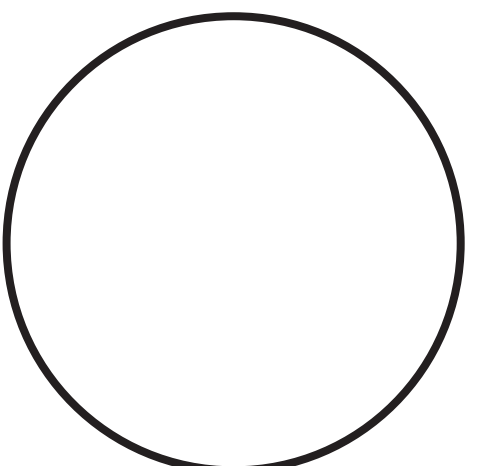
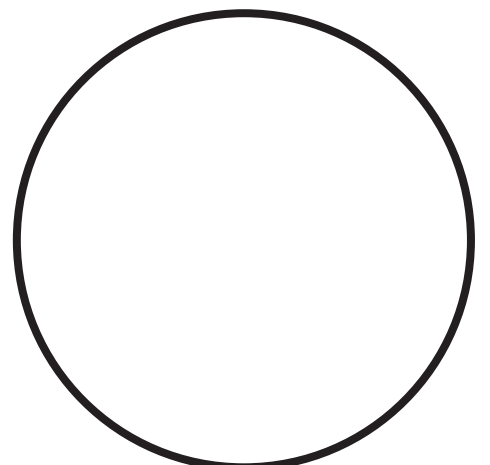
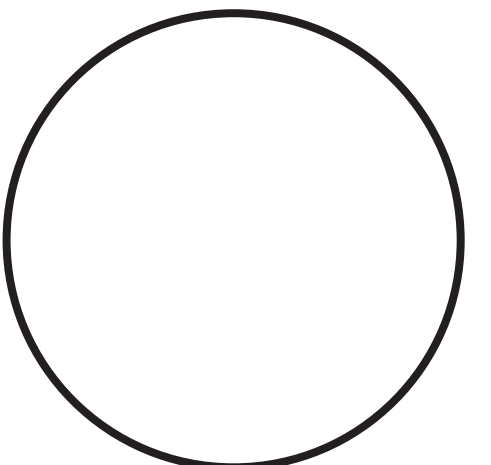
Students make up their own doubles problems and act them out on the number bracelet. Explain work using math words. (see below)

**Use your math words:**

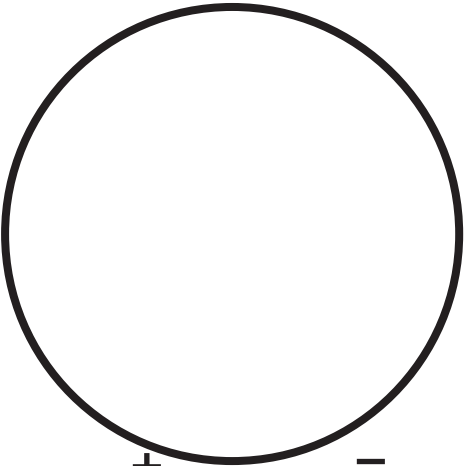
**My problem was \_\_\_\_\_. I doubled \_\_\_\_\_ which is \_\_\_\_\_.  
My sum is \_\_\_\_\_.**

# Recording Sheet

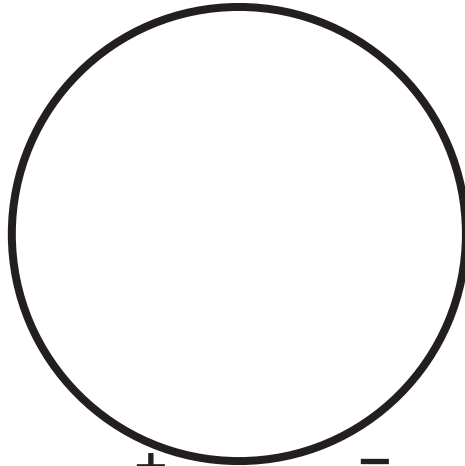
## Number Bracelets to Show Lower Doubles Facts

 $\begin{array}{r} 3 \\ \hline 6 \end{array} + \begin{array}{r} 3 \\ \hline 3 \end{array} = \begin{array}{r} 6 \\ \hline 3 \end{array}$ $\begin{array}{r} 3 \\ \hline 6 \end{array} = \begin{array}{r} 3 \\ \hline 3 \end{array} + \begin{array}{r} 3 \\ \hline 3 \end{array}$	 $\begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array} + \begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array} = \begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array}$ $\begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array} = \begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array} + \begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array}$
 $\begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array} + \begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array} = \begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array}$ $\begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array} = \begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array} + \begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array}$	 $\begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array} + \begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array} = \begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array}$ $\begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array} = \begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array} + \begin{array}{r} \phantom{0} \\ \hline \phantom{0} \end{array}$

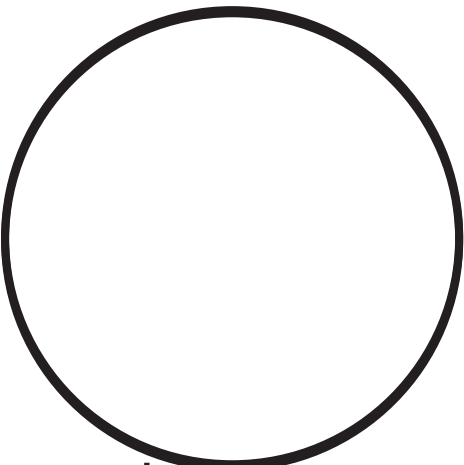




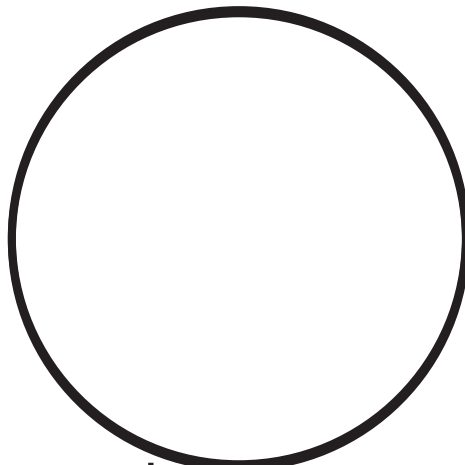
$$\begin{array}{ccccc} \underline{\hspace{1cm}} & + & \underline{\hspace{1cm}} & = & \underline{\hspace{1cm}} \\ \underline{\hspace{1cm}} & = & \underline{\hspace{1cm}} & + & \underline{\hspace{1cm}} \end{array}$$



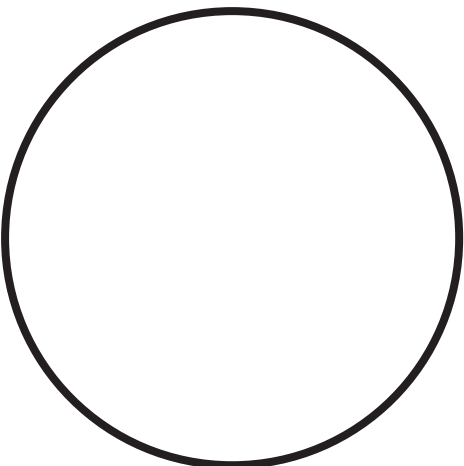
$$\begin{array}{ccccc} \underline{\hspace{1cm}} & + & \underline{\hspace{1cm}} & = & \underline{\hspace{1cm}} \\ \underline{\hspace{1cm}} & = & \underline{\hspace{1cm}} & + & \underline{\hspace{1cm}} \end{array}$$



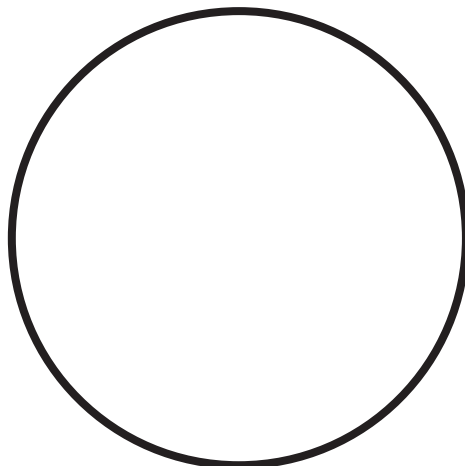
$$\begin{array}{ccccc} \underline{\hspace{1cm}} & + & \underline{\hspace{1cm}} & = & \underline{\hspace{1cm}} \\ \underline{\hspace{1cm}} & = & \underline{\hspace{1cm}} & + & \underline{\hspace{1cm}} \end{array}$$



$$\begin{array}{ccccc} \underline{\hspace{1cm}} & + & \underline{\hspace{1cm}} & = & \underline{\hspace{1cm}} \\ \underline{\hspace{1cm}} & = & \underline{\hspace{1cm}} & + & \underline{\hspace{1cm}} \end{array}$$



$$\begin{array}{ccccc} \underline{\hspace{1cm}} & + & \underline{\hspace{1cm}} & = & \underline{\hspace{1cm}} \\ \underline{\hspace{1cm}} & = & \underline{\hspace{1cm}} & + & \underline{\hspace{1cm}} \end{array}$$



$$\begin{array}{ccccc} \underline{\hspace{1cm}} & + & \underline{\hspace{1cm}} & = & \underline{\hspace{1cm}} \\ \underline{\hspace{1cm}} & = & \underline{\hspace{1cm}} & + & \underline{\hspace{1cm}} \end{array}$$

# Rekenrek

## Goal

Students focus on the idea that lower doubles is doubling a number within 5.

## Way to Play

Model the problem on the rekenrek.

## Materials

Rekenrek  
Rekenrek Paper  
Flashcards

## Scaffolding the Game

There are 2 sets of flashcards.  
Set A: Rekenrek flashcards.  
Set B: Regular Doubles flashcards

# Directions

## Activity 1

Pull a flashcard. (Choose a rekenrek flashcard or regular flashcard.)  
Take out the rekenrek and build the fact. Draw your work on the recording sheet. Use your math words to explain your work.  
(see below)

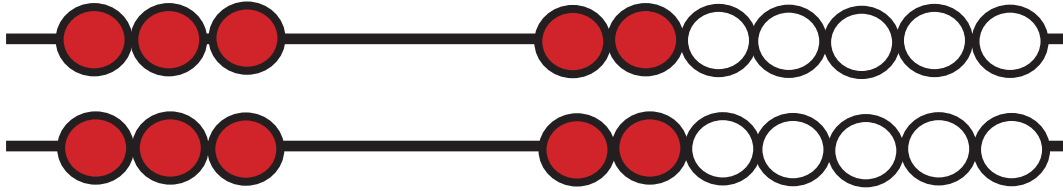
## Activity 2

Students make up their own doubles problems on the rekenrek. Build it, then draw it on the recording sheet. Explain your work using math words.

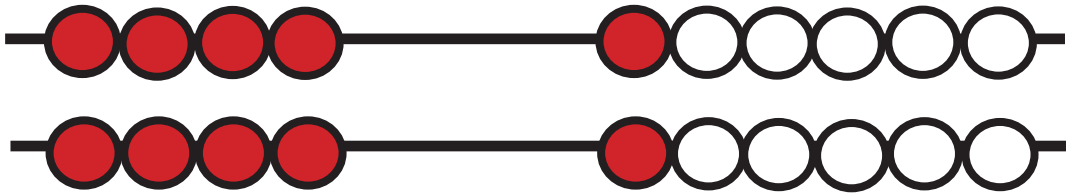
**Use your math words:**

**My problem was \_\_\_\_\_. I added \_\_\_\_\_ and then \_\_\_\_\_ more.  
My sum is \_\_\_\_\_.**

# Rekenrek Flashcards (What do you notice?)



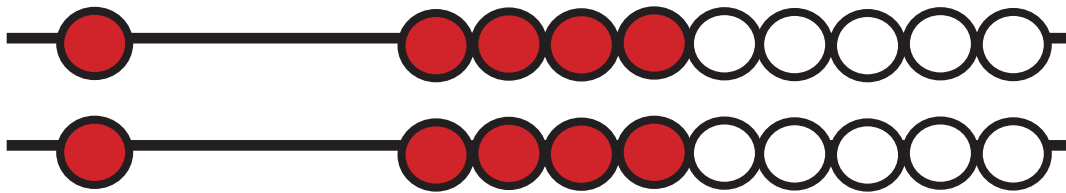
$$3 + 3$$



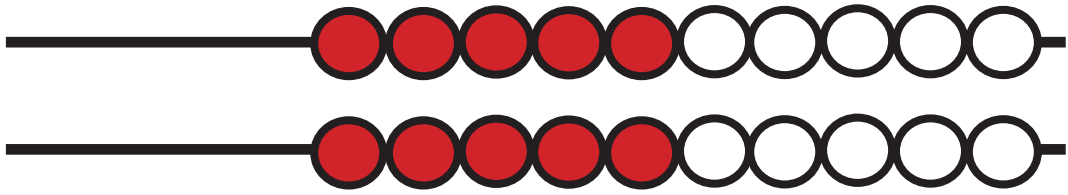
$$4 + 4$$



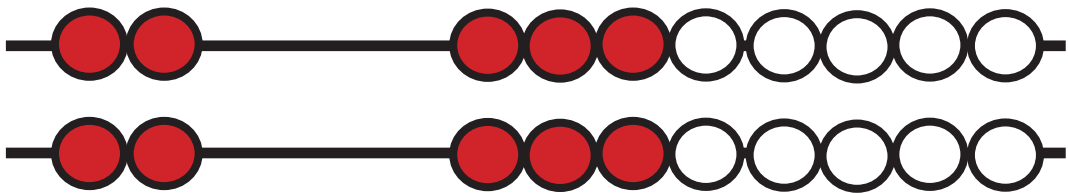
$$5 + 5$$



$$1 + 1$$



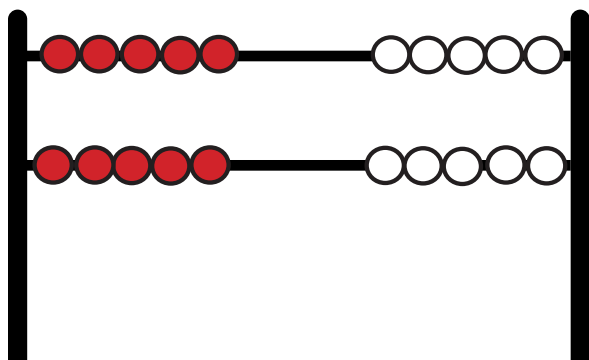
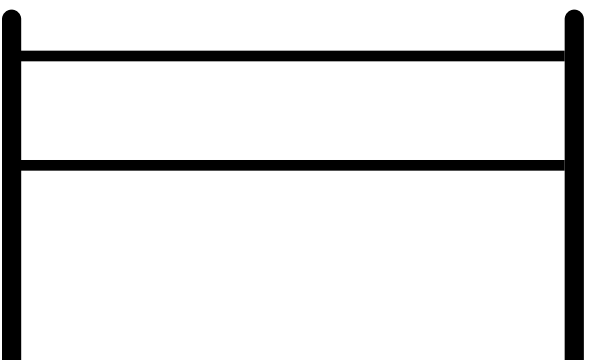
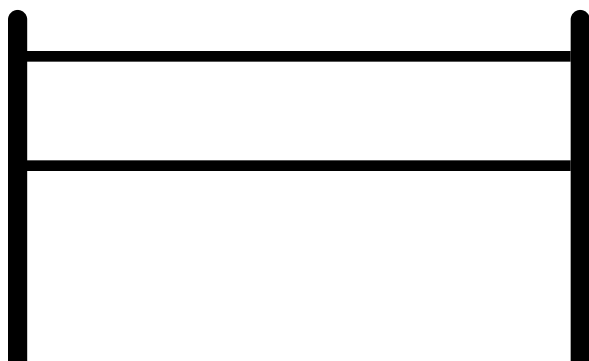
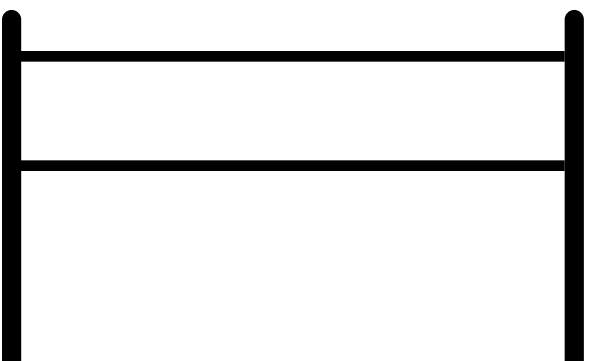
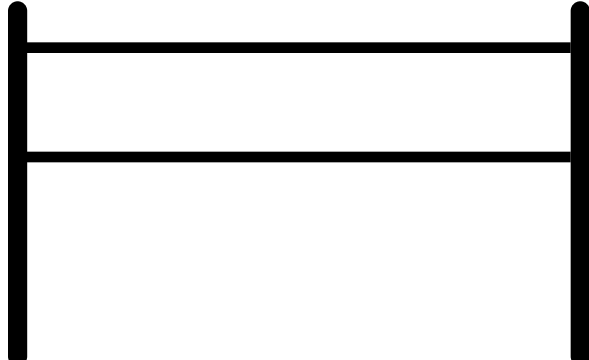
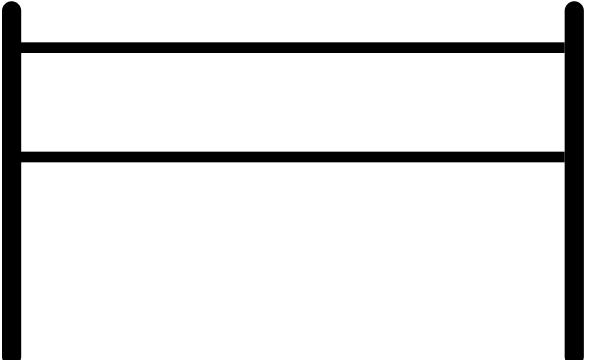
$$0 + 0$$

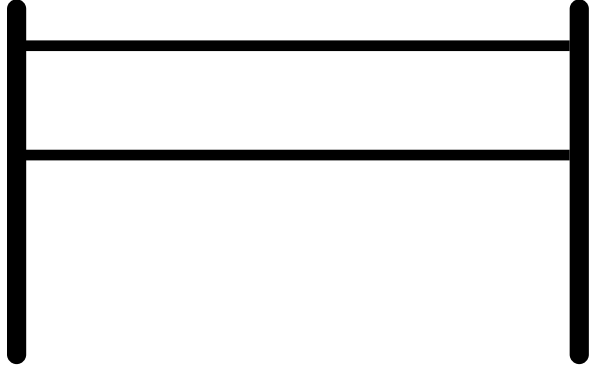
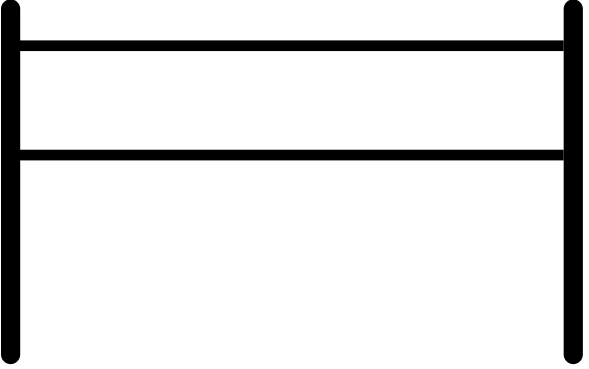
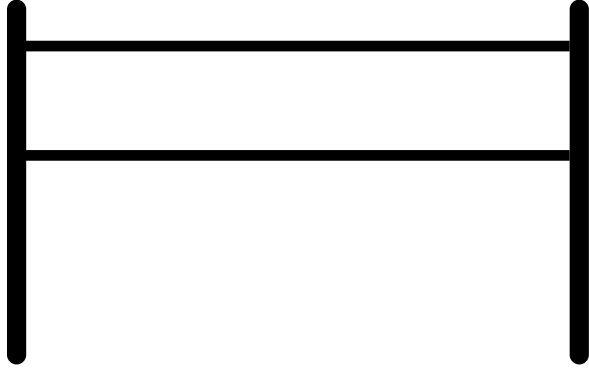
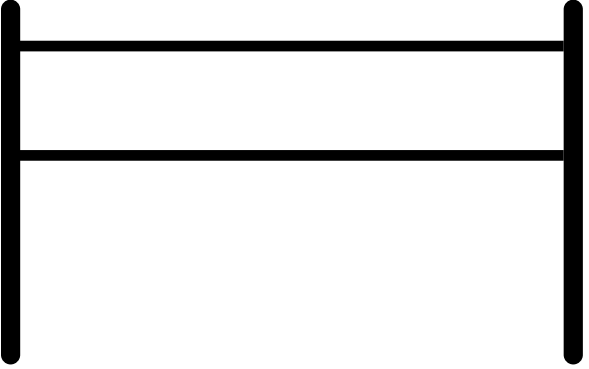
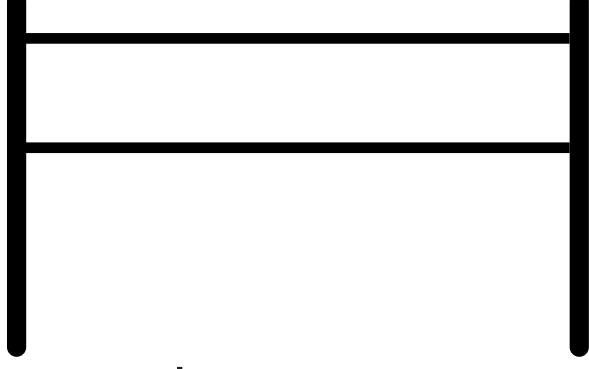
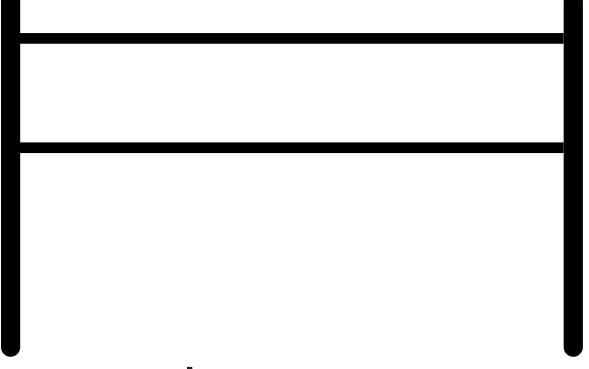


$$2 + 2$$

# Recording Sheet

## Draw What You Did on the Rekenrek!

 $\underline{\quad 5 \quad} + \underline{\quad 5 \quad} = \underline{\quad 10 \quad}$	 $\underline{\quad \quad} + \underline{\quad \quad} = \underline{\quad \quad}$
 $\underline{\quad \quad} + \underline{\quad \quad} = \underline{\quad \quad}$	 $\underline{\quad \quad} + \underline{\quad \quad} = \underline{\quad \quad}$
 $\underline{\quad \quad} + \underline{\quad \quad} = \underline{\quad \quad}$	 $\underline{\quad \quad} + \underline{\quad \quad} = \underline{\quad \quad}$

 _____ + _____ = _____	 _____ + _____ = _____
 _____ + _____ = _____	 _____ + _____ = _____
 _____ + _____ = _____	 _____ + _____ = _____

# Cube Towers and Number Lines

## Goal

Students focus on the idea that lower doubles is doubling a number within 5.

## Way to Play

Model the problem with a cube stick. Record thinking on the cube tower template/recording sheet.

## Materials

Cubes  
Cube Tower Template/  
Recording Sheet  
Concentration Cards

## Scaffolding the Game

There are 2 sets of flashcards.  
Set A: Scaffolded flashcards with cube pictures.  
Set B: Match games with models and expressions.

# Directions

## Activity 1

Pull a flashcard.  
Model it with cubes.  
Color the cube template/recording sheet.  
Solve. Explain using your math words.  
(See below)

## Activity 2

Lay out the cube cards and expressions from the Concentration Cards. (Fold so you do not see the expression on the cube card.)  
Take turns looking for the match of the expression and the model.  
Whoever finds the most matches wins.  
Check your answers by unfolding the cube cards.

**Use your math words:**

**My problem was \_\_\_\_\_. I started with \_\_\_\_\_ cubes.  
I doubled it. My sum is \_\_\_\_\_.**



# Recording Sheet

## Build Lower Doubles Facts with The Cubes!

Roll the dice or pull a card, build a cube tower of the fact. Color the cube template and write the equation.



$$\underline{3} + \underline{3} = \underline{\quad}$$



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

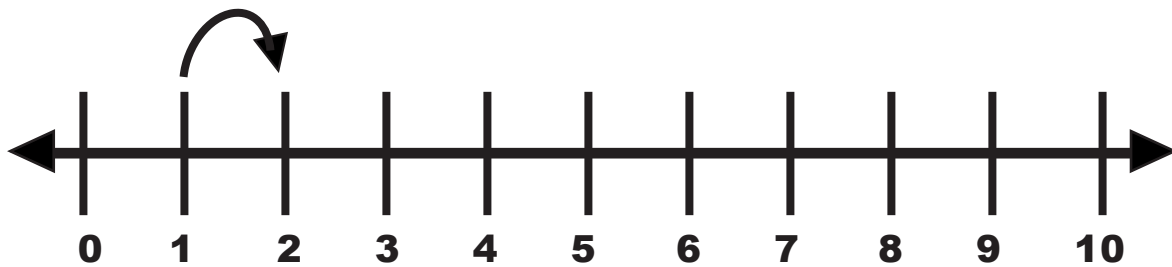


$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

## Concentration Cards



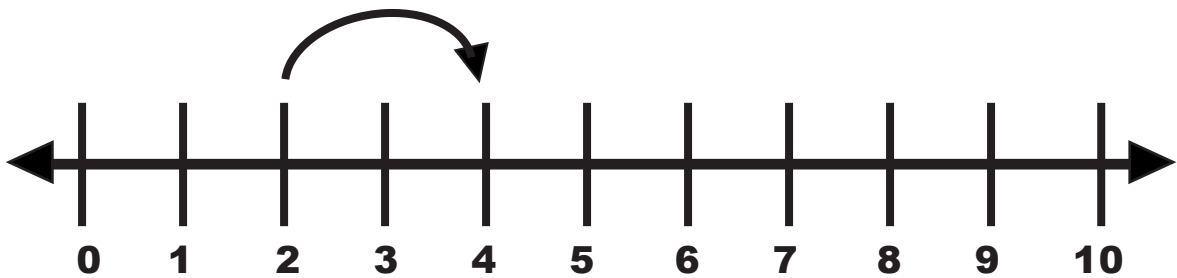
$$1 + 1$$



$$1 + 1$$



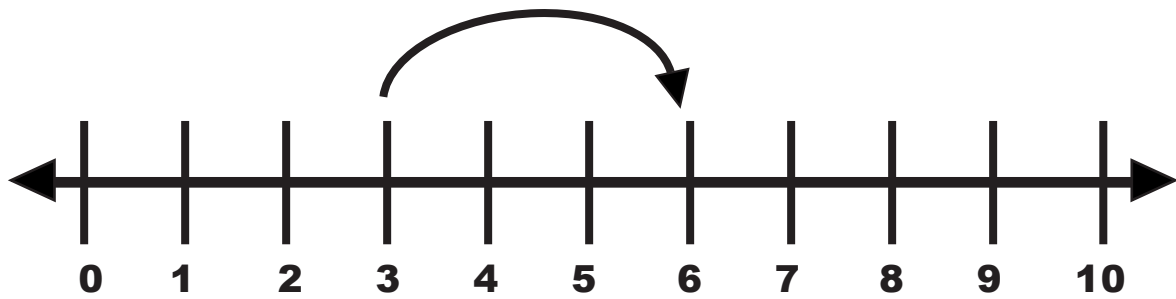
$$2 + 2$$



$$2 + 2$$



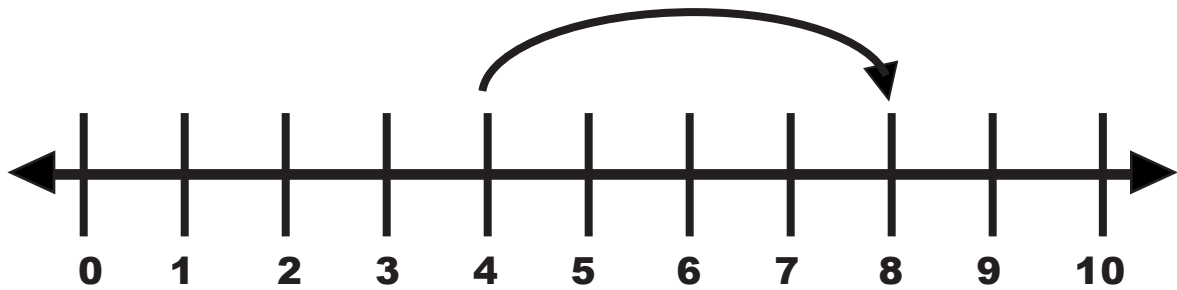
$$3 + 3$$



$$3 + 3$$



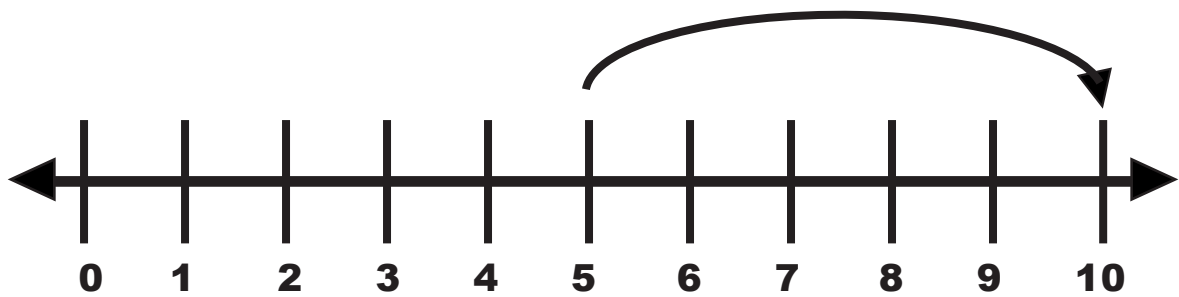
$$4 + 4$$



$$4 + 4$$



$$5 + 5$$



$$5 + 5$$

# Bead Stick

## Goal

Students focus on the idea that lower doubles is doubling a number within 5.

## Way to Play

Students need to make number bracelets out of pony beads and pipe cleaners. Model the problem on the number bracelet.

## Materials

Bead Stick  
Bead Stick Activity Sheet

## Scaffolding the Game

There are 2 sets of flashcards.  
Set A: Flashcards that model Doubles.  
(These are on the Bead Stick Activity sheet that students will complete.)  
Set B: Flashcards with sums.  
(see p. 20)

# Directions

## Activity 1

Pull a flashcard.  
Model it with the bead stick.  
Color the bead stick activity sheet.  
Solve. Use your math words to explain your work. (see below)

## Activity 2







Pull a sum.  
Model the addends on the bead stick.







**Use your math words:**

**My problem was \_\_\_\_\_. I started with \_\_\_\_\_ on my bead stick.  
Then I doubled them. My sum is \_\_\_\_\_.**



# Bead Stick Activity

 $\underline{5} + \underline{5} = \underline{10}$	 $\underline{\quad} + \underline{\quad} = \underline{\quad}$
 $\underline{\quad} + \underline{\quad} = \underline{\quad}$	 $\underline{\quad} + \underline{\quad} = \underline{\quad}$
 $\underline{\quad} + \underline{\quad} = \underline{\quad}$	 $\underline{\quad} + \underline{\quad} = \underline{\quad}$

 _____ + _____ = _____	 _____ + _____ = _____
 _____ + _____ = _____	 _____ + _____ = _____
 _____ + _____ = _____	 _____ + _____ = _____

# Part Part Whole Mat

## Goal

Students focus on the idea that lower doubles is doubling a number within 5.

## Way to Play

Model the problem with a Part-Part Whole Mat. Record thinking on the template.

## Materials

Part-Part Whole Template  
Recording Sheet  
Concentration Cards

## Scaffolding the Game

There are 2 sets of flashcards.  
Set A: Part Part Whole flashcards.  
Set B: Regular flashcards.

# Directions

## Activity 1

Pull a flashcard. Model it using manipulatives on the big part part whole mat. Then write it on the recording sheet (using pictures or numbers.) Solve. Explain your work using your math words. (see below)

## Activity 2

Roll a dice and double the number. Show it on the part part whole mat using manipulatives, then write it on the recording sheet. (Draw pictures or write numbers.) Solve. Explain your work using your math words.

**Use your math words:**

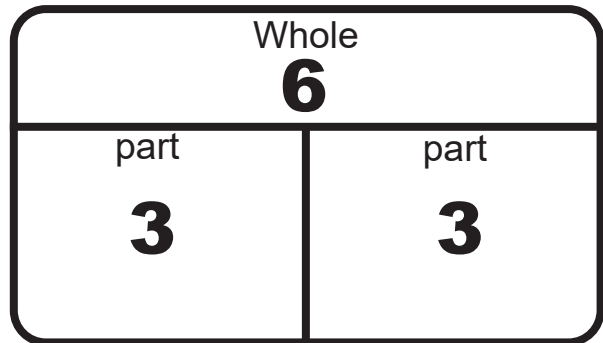
**My problem was \_\_\_\_\_. I added \_\_\_\_\_ then \_\_\_\_\_.**

**My sum is \_\_\_\_\_.**

# Part Part Whole Mat

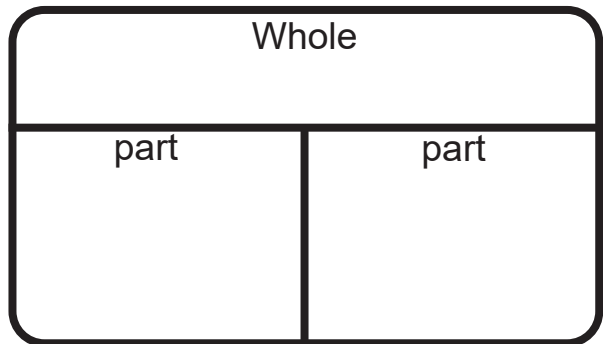
$$\begin{array}{r} 3 \\ \hline \end{array} + \begin{array}{r} 3 \\ \hline \end{array} = \begin{array}{r} 6 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \hline \end{array} = \begin{array}{r} 3 \\ \hline \end{array} + \begin{array}{r} 3 \\ \hline \end{array}$$



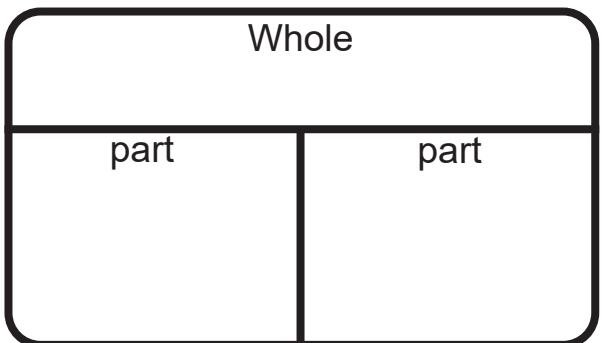
$$\begin{array}{r} \underline{\hspace{1cm}} \\ \hline \end{array} + \begin{array}{r} \underline{\hspace{1cm}} \\ \hline \end{array} = \begin{array}{r} \underline{\hspace{1cm}} \\ \hline \end{array}$$

$$\begin{array}{r} \underline{\hspace{1cm}} \\ \hline \end{array} = \begin{array}{r} \underline{\hspace{1cm}} \\ \hline \end{array} + \begin{array}{r} \underline{\hspace{1cm}} \\ \hline \end{array}$$



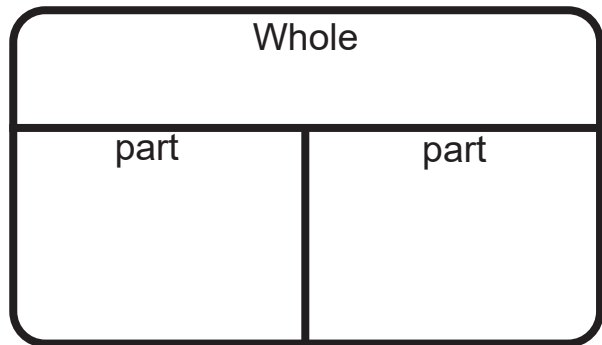
$$\begin{array}{r} \underline{\hspace{1cm}} \\ \hline \end{array} + \begin{array}{r} \underline{\hspace{1cm}} \\ \hline \end{array} = \begin{array}{r} \underline{\hspace{1cm}} \\ \hline \end{array}$$

$$\begin{array}{r} \underline{\hspace{1cm}} \\ \hline \end{array} = \begin{array}{r} \underline{\hspace{1cm}} \\ \hline \end{array} + \begin{array}{r} \underline{\hspace{1cm}} \\ \hline \end{array}$$



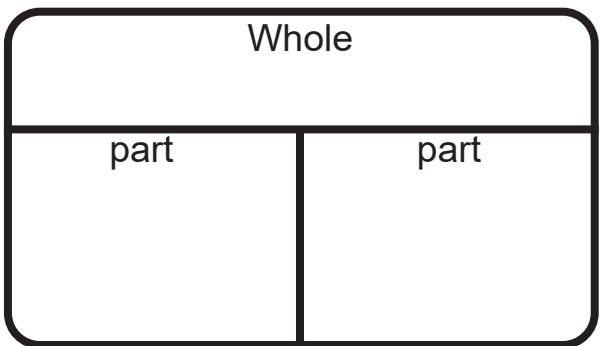
$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} = \underline{\quad} + \underline{\quad}$$



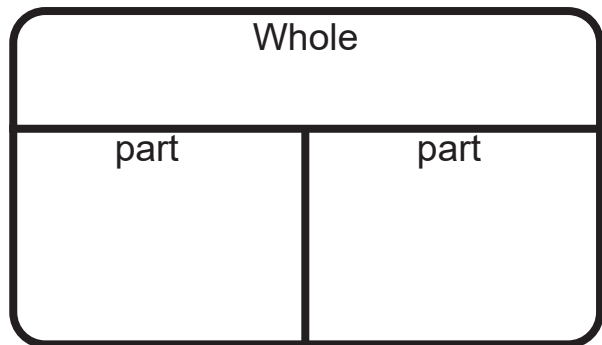
$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} = \underline{\quad} + \underline{\quad}$$



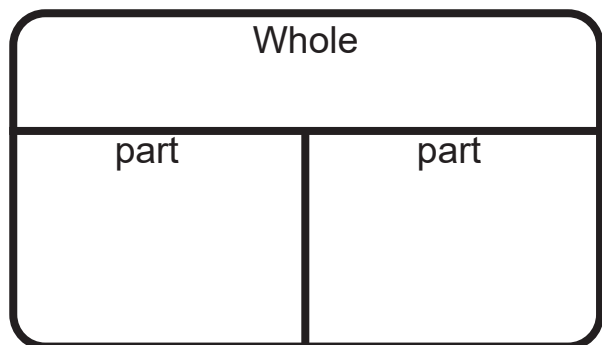
$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} = \underline{\quad} + \underline{\quad}$$



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} = \underline{\quad} + \underline{\quad}$$



# Story Mats

## Goal

Students focus on the idea that lower doubles is doubling a number within 5.

## Way to Play

Act out facts on the number mat. Students can pull a fact card and act out the problem. They can pull a story telling card and act out the problem. They can just make up their own problems.

## Materials

Story Mats  
Story Telling pieces  
Flashcards  
Story problems

## Scaffolding the Game

Use the regular flashcards or the word problem mat.  
To add more rigor, use set B flashcards from p. 75 and change up the story problems.

# Directions

## Activity 1

Pull an expression from p. 69 and act out a story using counters, pictures, or objects.

## Activity 2

Pull a word problem story mat, flashcard, and story card with recording sheet. Use the flashcard to fill in the blanks on the story card. Act out the story and fill out the recording sheet.

**Use your math words:**

**My problem was \_\_\_\_\_. I started with \_\_\_\_\_.**

**Then I doubled it. My sum is \_\_\_\_\_.**

# Word Problem Story Card with Recording Sheet

## DOGS

Karen had \_\_\_\_ dogs. She got \_\_\_\_ more. How many does she have now?

**SET-UP EQUATION:**

\_\_\_\_ + \_\_\_\_ = ?

**Drawing**

**Ten Frame**


**Answer Equation**

\_\_\_\_ + \_\_\_\_ = \_\_\_\_

**Answer:**

\_\_\_\_\_ **Dogs**

# Word Problem Story Card with Recording Sheet

## FISH

There were \_\_\_\_ fish. \_\_\_\_ more swam up. How many are there now?

**SET-UP EQUATION:**

\_\_\_\_ + \_\_\_\_ = ?

**Drawing**

**Ten Frame**


**Answer Equation**

\_\_\_\_ + \_\_\_\_ = \_\_\_\_

**Answer:**

\_\_\_\_\_ **Fish**



# Word Problem Story Card with Recording Sheet

## BALLS

The kids had \_\_\_\_ balls. They got \_\_\_\_ more. How many do they have altogether now?

**SET-UP EQUATION:**

\_\_\_\_ + \_\_\_\_ = ?

**Drawing**

**Ten Frame**


**Answer Equation**

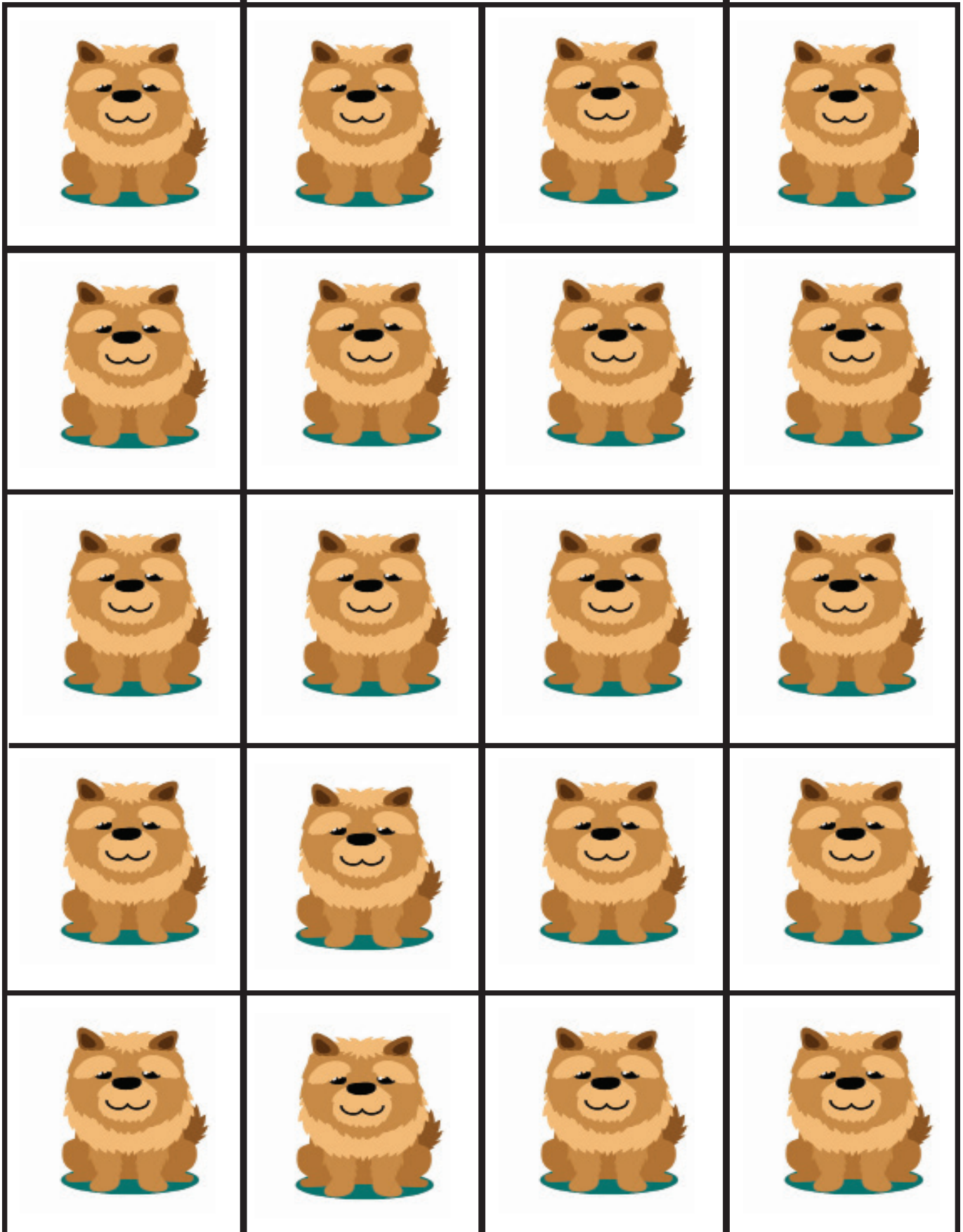
\_\_\_\_ + \_\_\_\_ = \_\_\_\_

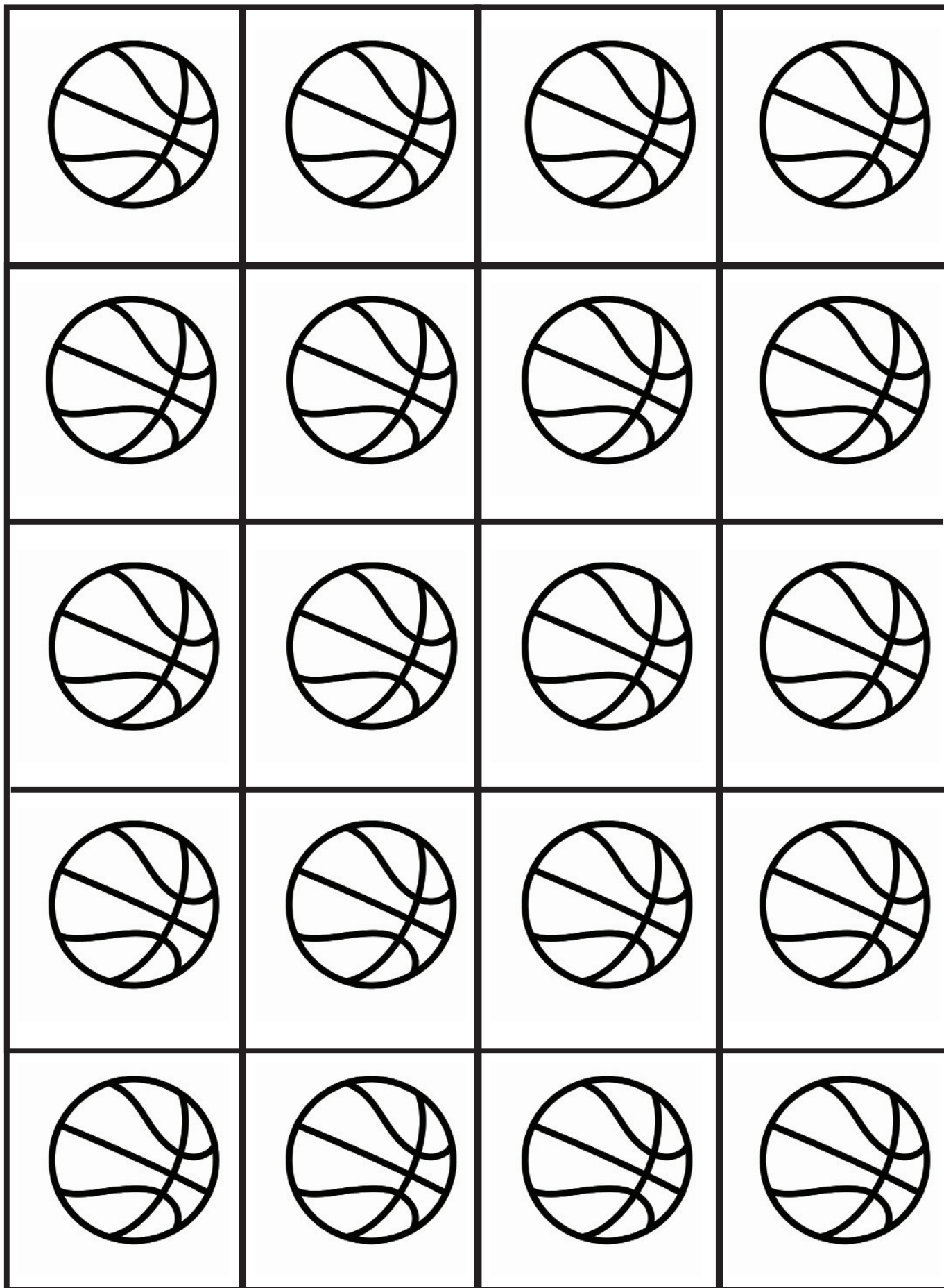
**Answer:**

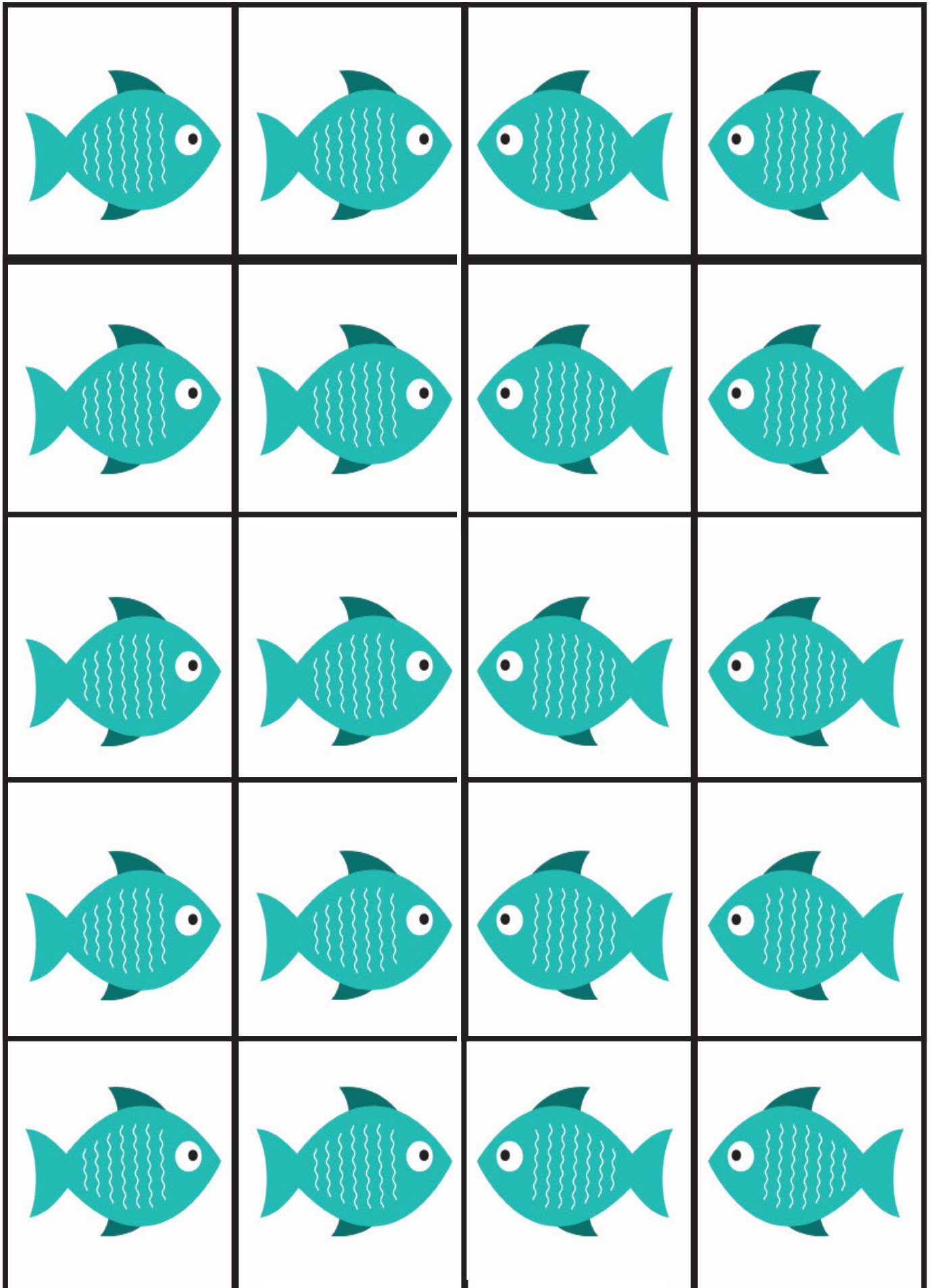
\_\_\_\_\_ **Balls**

# STORYTELLING MATS

Pull a flashcard and act it out on the story mat.  
Draw a picture of your story. Write the equation.













# Lower Doubles Flashcards

Pull and tell a story using the expression!

<b>3 + 3</b>	<b>4 + 4</b>
<b>5 + 5</b>	<b>0 + 0</b>
<b>1 + 1</b>	<b>2 + 2</b>
<b>5 + 5</b>	<b>4 + 4</b>
<b>3 + 3</b>	<b>2 + 2</b>
<b>1 + 1</b>	<b>0 + 0</b>

**Draw a picture of your story.**

**Write your equation.**

\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

**Show it on the frame.**


**Model it on the number line.**





# Number Bonds

## Goal

Students focus on the idea that lower doubles is doubling a number within 5.

## Way to Play

Pull flashcards and model on number bond template using manipulatives and/or numbers.

## Materials

Big Number Bond Template.  
Number Bond Recording Sheet.  
Manipulatives (base ten blocks)

## Scaffolding the Game

There are 2 sets of flashcards.  
Set A: Number Bond flashcards.  
Set B: Regular flashcards.  
(To add rigor, use set B flashcards from p. 75)

# Directions

## Activity 1

Pull a flashcard. Rebuild it on a number bond template using manipulatives.

## Activity 2

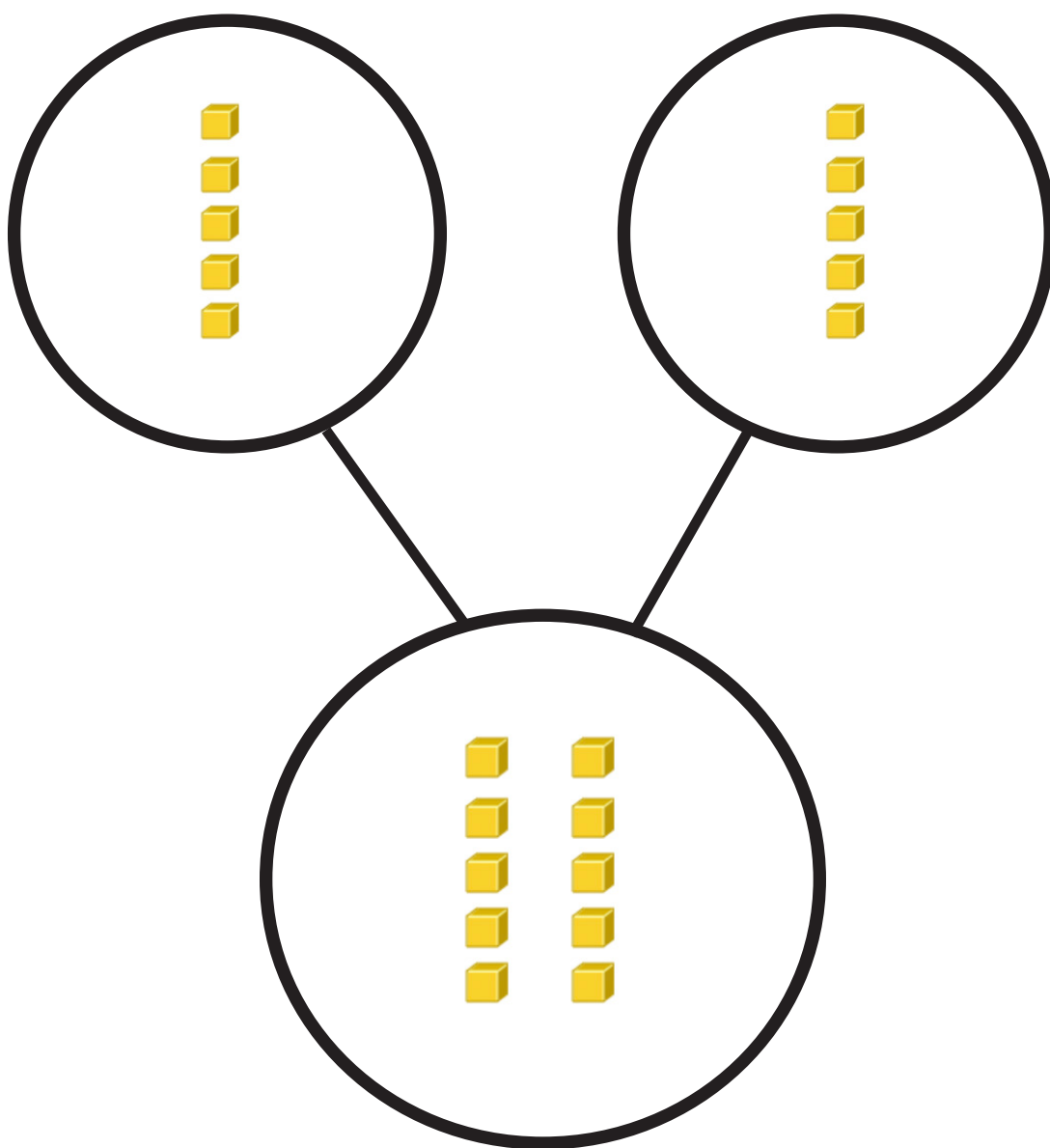
Pull a flashcard. Rebuild it on a number bond template using manipulatives. Draw it on a number bond recording sheet. Write the numbers to match inside of each circle. Solve. Use your math words to explain.

**Use your math words:**

**My problem was \_\_\_\_\_.** **My strategy was \_\_\_\_\_** **My sum is \_\_\_\_\_.**

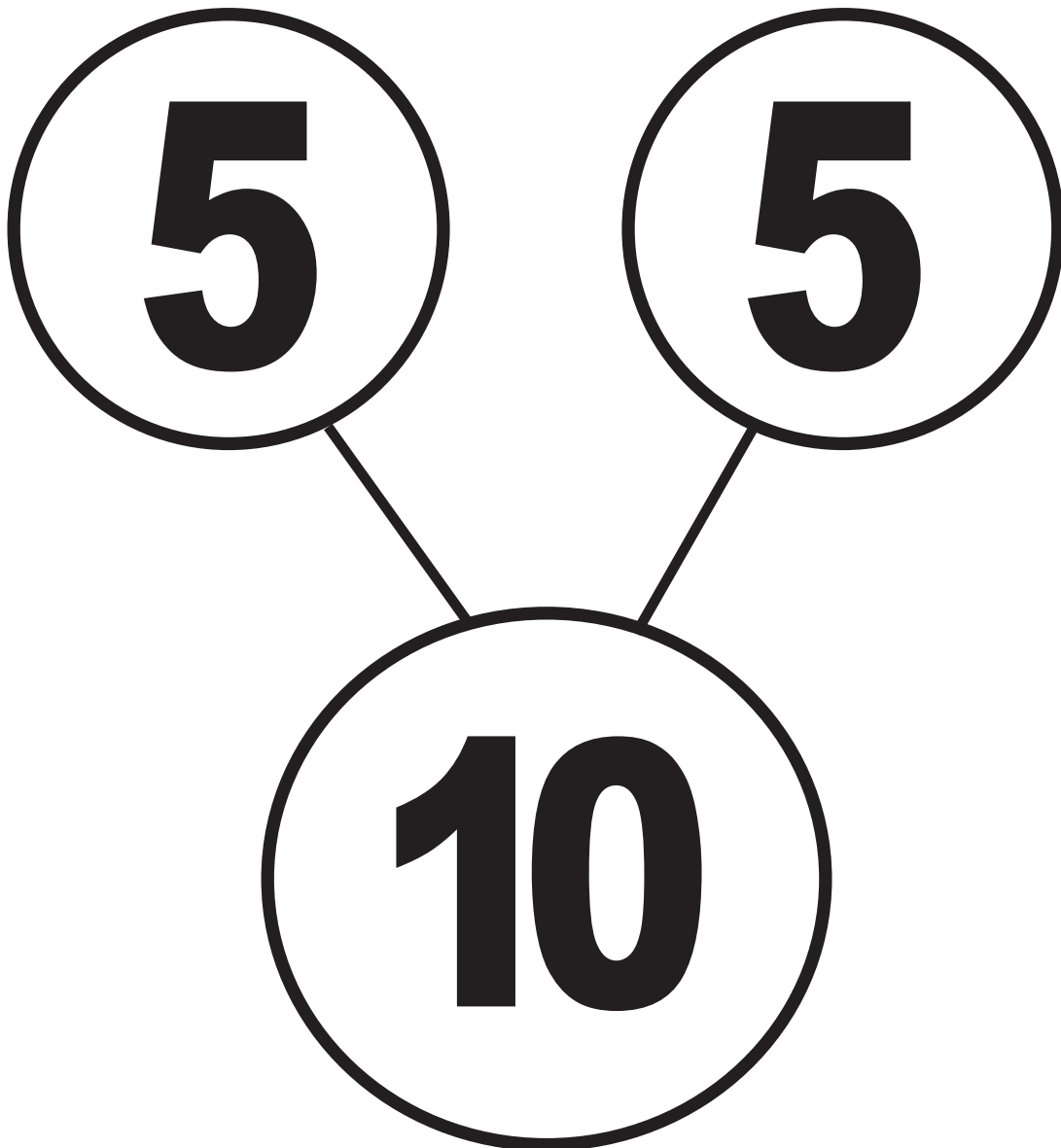
# Number Bond Machine

$$5 + 5 = 10$$
$$10 = 5 + 5$$



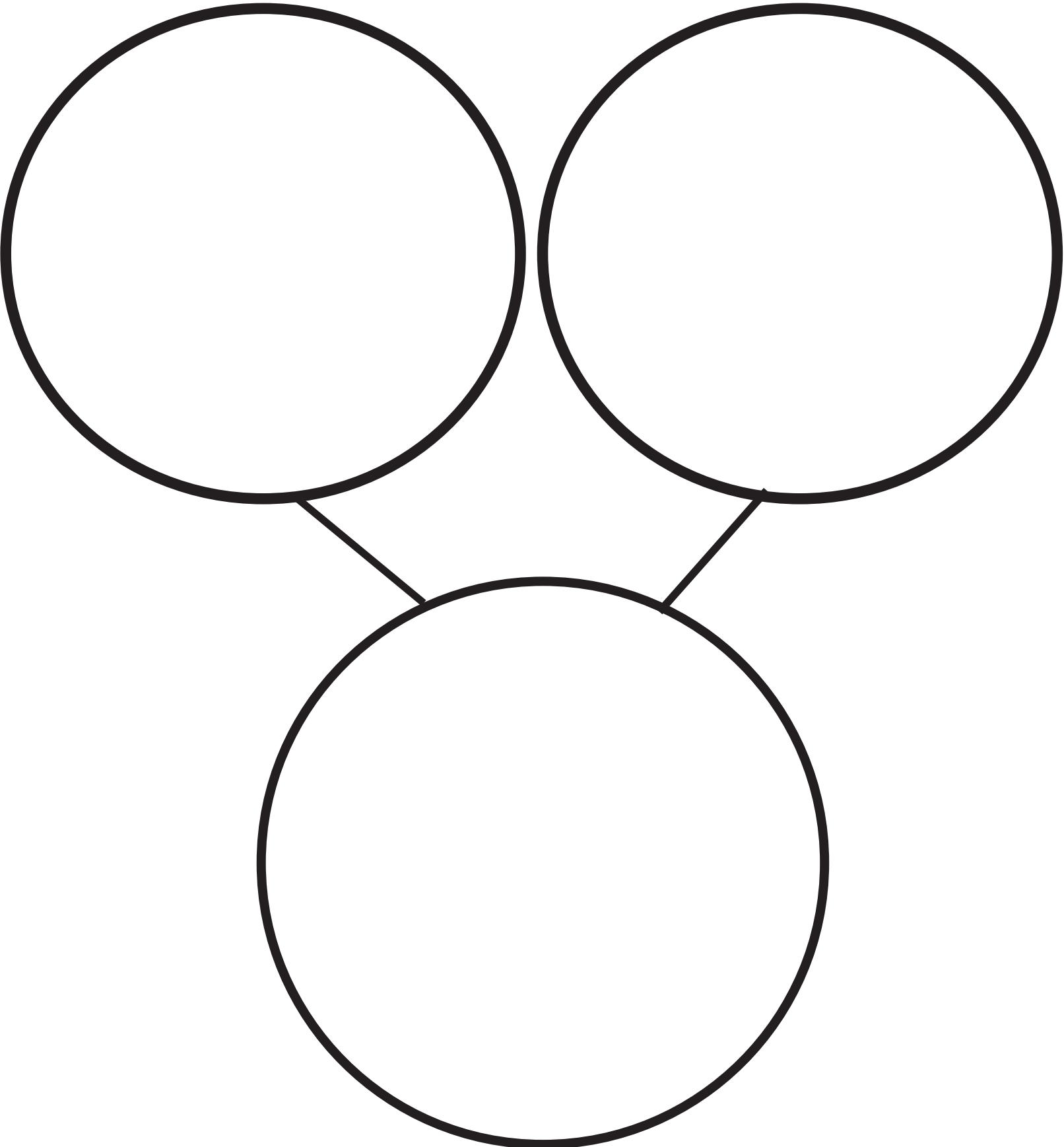
# Number Bond Machine

$$5 + 5 = 10$$
$$10 = 5 + 5$$

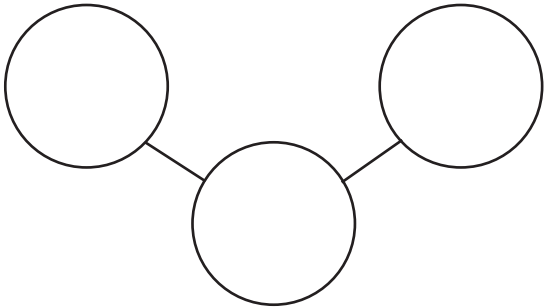
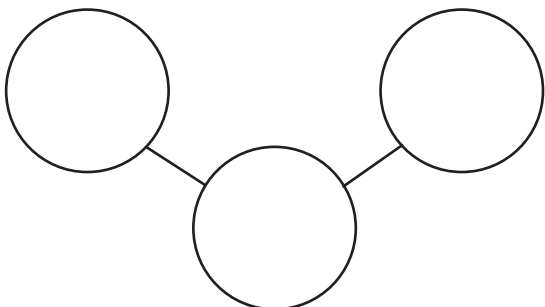
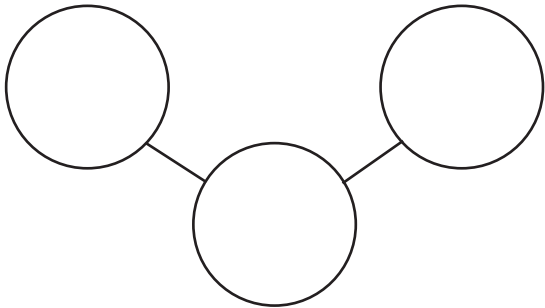
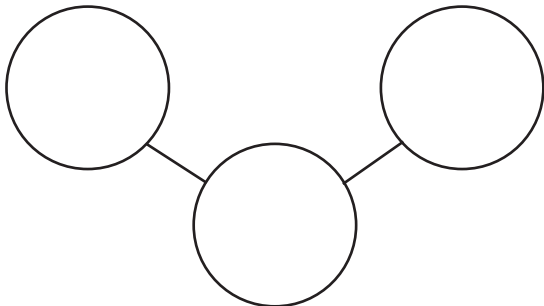


# Number Bond Template

Use this template to add with manipulatives.



# Recording Sheet for Number Bond Activity

 $\underline{\quad} + \underline{\quad} = \underline{\quad}$
 $\underline{\quad} + \underline{\quad} = \underline{\quad}$
 $\underline{\quad} + \underline{\quad} = \underline{\quad}$
 $\underline{\quad} + \underline{\quad} = \underline{\quad}$

# Draw a picture

## Goal

Students focus on the idea that lower doubles is doubling a number within 5.

## Activity

Students will pick a card and draw a picture.

## Materials

Picture template and  
Recording sheet

## Scaffolding the Game

There are 2 sets of flashcards.  
Set A: Flashcards with pictures.  
Set B: Regular flashcards.

# Directions

## Activity 1

Pull a flashcard. Draw a picture using circles or a number line and write the equation on the recording sheet.

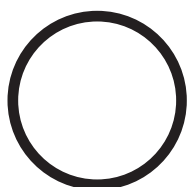
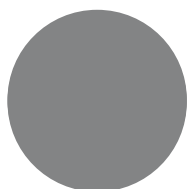
## Activity 2

Pull a picture flashcard and say the number sentence to your partner. Use your math words to explain your strategy to your partner.

**Use your math words:**

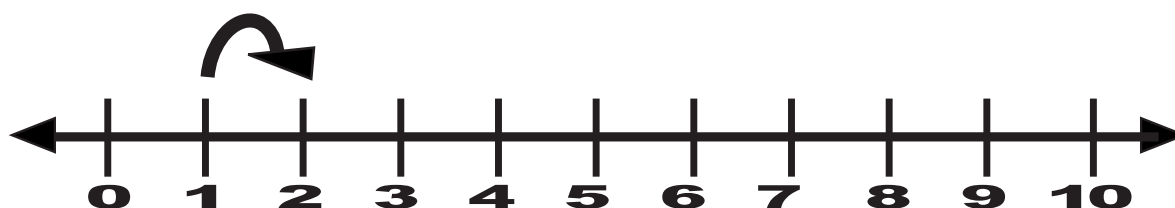
**My problem was \_\_\_\_\_.** **My strategy was \_\_\_\_\_** **My sum is \_\_\_\_\_.**

# Draw a picture



$$1 + 1 = ?$$

**You can jump on the number line**



# Recording Sheet for Pictures

Pull a card. Illustrate the problem. Write the equation.

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

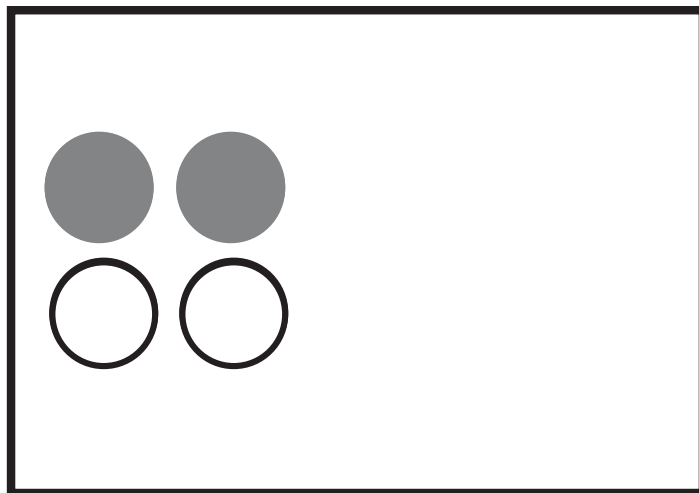
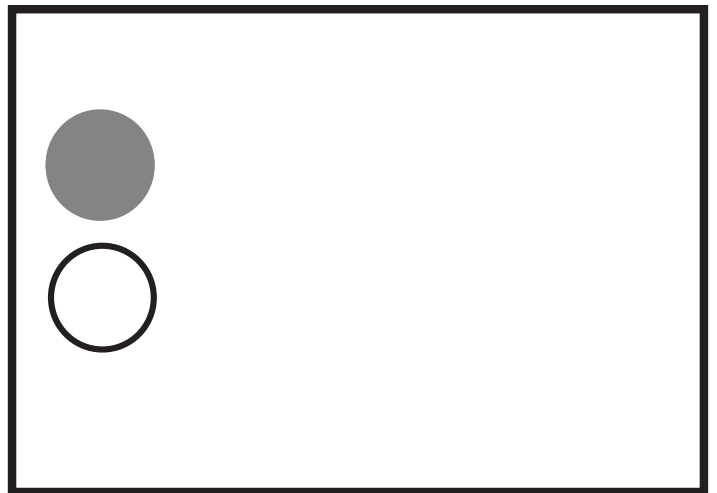
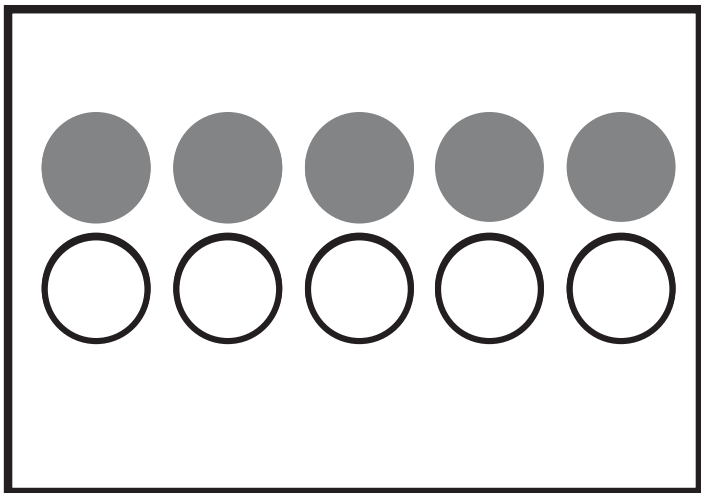
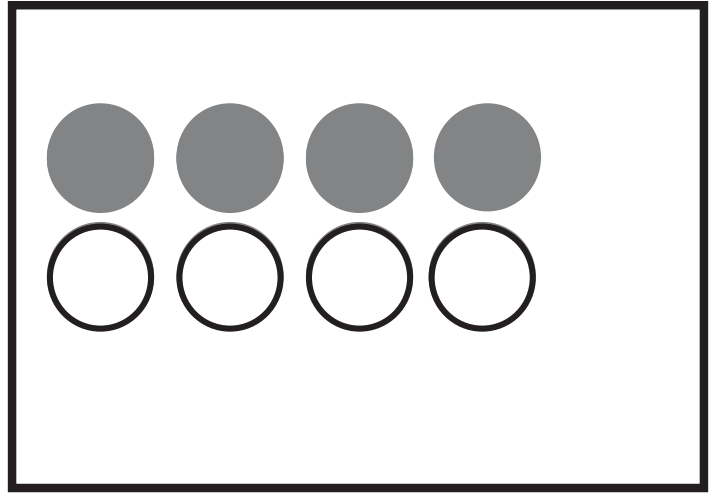
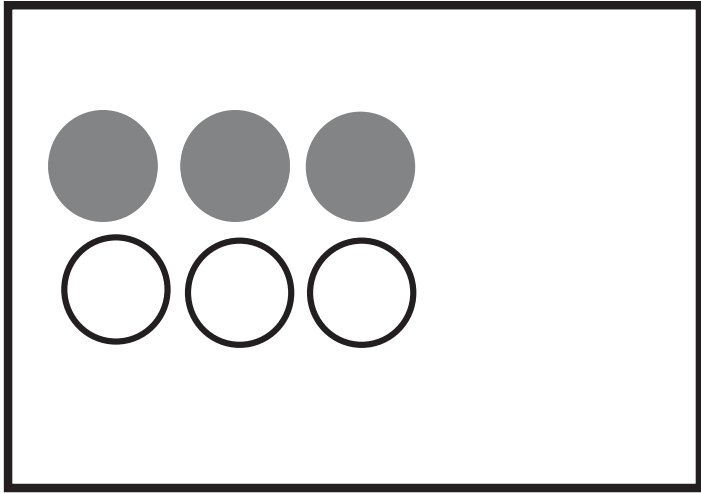
$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$





# Picture Flashcards

Pull a flashcard and tell your partner the number sentence.



# Dominos Activities

## Goal

Students focus on the idea that lower doubles is doubling a number within 5.

## Way to Play

Use the domino template to build facts. Play war with the dominos.

## Materials

dominoes, counters  
Big Domino Template  
Domino Recording Sheet  
Domino Concentration

## Scaffolding the Game

There are 2 sets of flashcards.  
Set A: Flashcards that model lower doubles (on dominoes).  
Set B: Regular flashcards.

# Directions

## Activity 1

Pull a domino (p. 70)  
Rebuild it on a big domino template.  
Draw it on domino paper.  
Solve.

## Activity 2

Lay out the dominos  
Take turns looking for the match of the problem and the domino model.  
Whoever finds the most matches wins.

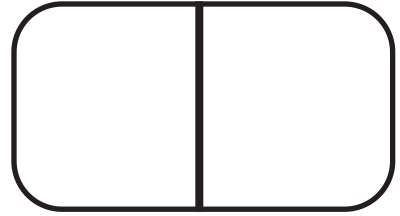
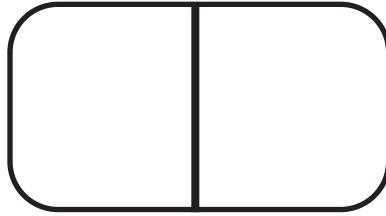
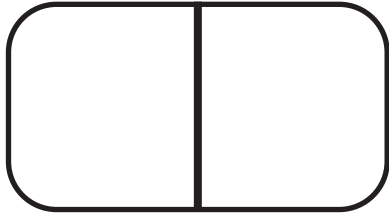
## Use your math words:

My problem was \_\_\_\_\_. I started with \_\_\_\_\_. I added \_\_\_\_\_. My sum is \_\_\_\_\_.

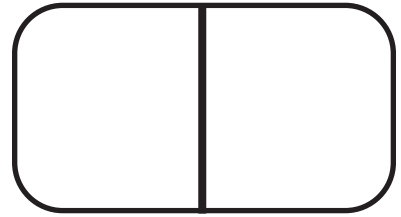
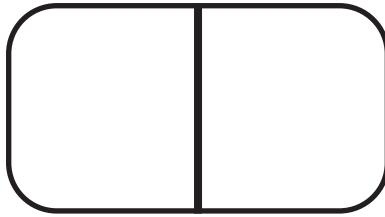
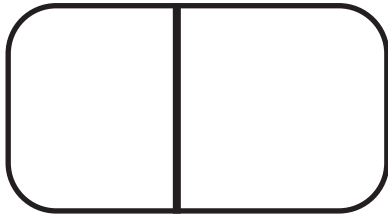
# Recording Sheet

## Domino Facts

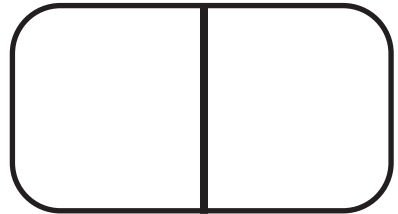
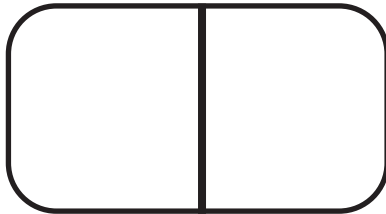
Pick a domino. Draw it and write the equation.



\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_



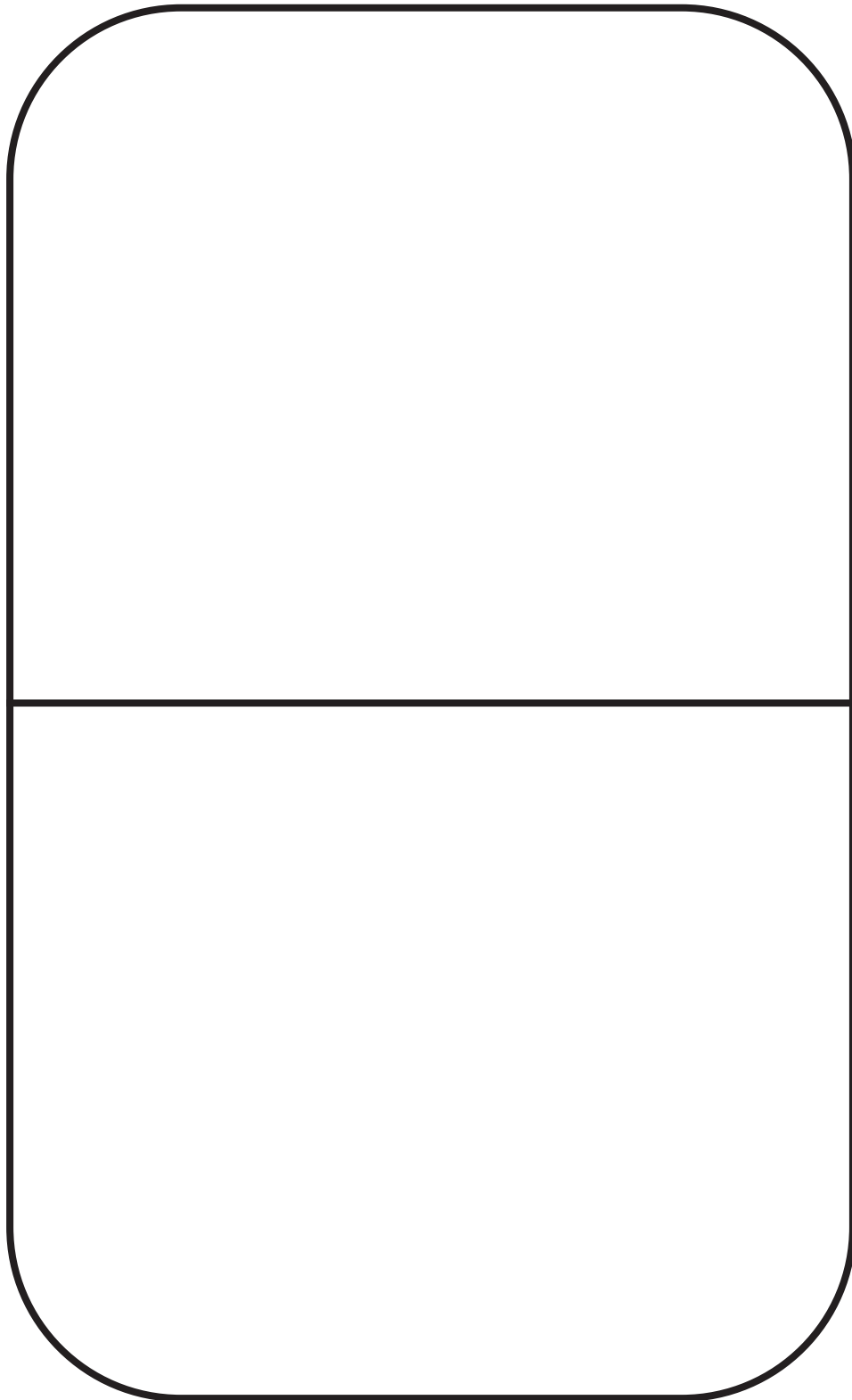
\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_



\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

# Big Domino Template

**Build it. Pull a domino card. Build it using counters and then act out the addition problem.**



# Lower Doubles

## Flashcards for Dominoes

$$3 + 3$$

$$4 + 4$$

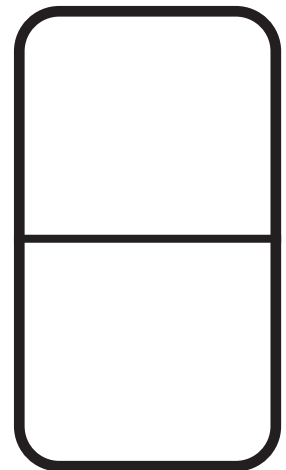
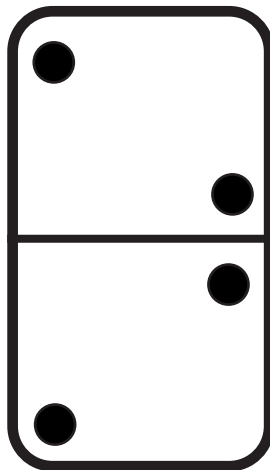
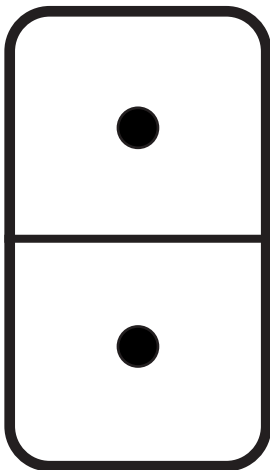
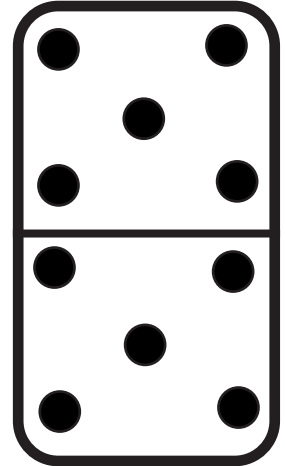
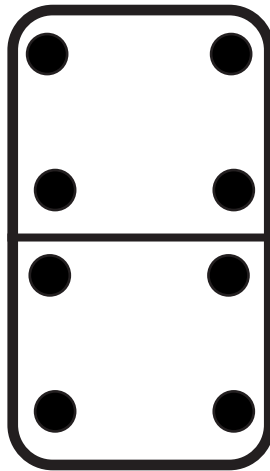
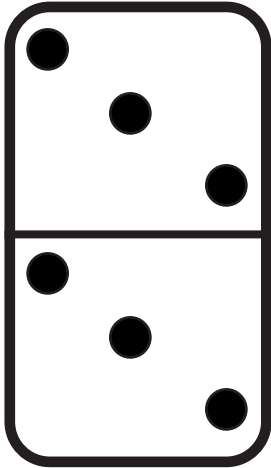
$$5 + 5$$

$$1 + 1$$

$$0 + 0$$

$$2 + 2$$

Work with a friend to match the dominos and the expressions.  
Say the expression that matches the domino.



# Model the facts

## Model it on the Ten Frame


## Model it on the Number Path

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

**Draw a picture showing a lower doubles fact!**

**Write some lower doubles facts**



# Flashcards

## Goal

Students focus on the idea that lower doubles is doubling a number within 5.

## Way to Play

Students place all cards face down. They take turns turning over the cards. Whoever has the largest sum wins those cards. When all the cards are gone, whoever has the most cards wins. Also, pull flashcards and model on number lines or double ten frames.

## Materials

Flashcards

## Scaffolding the Game

There are 2 sets of flashcards.  
Set A: Flashcards that model lower doubles.  
Set B: Missing addends flashcards.

# Directions

## Activity 1

Pull a flashcard.  
Model it on the number line.  
Say the problem out loud.

## Activity 2

Students make up their own lower doubles problems on the number line or ten frame. Solve. Use your math words to explain your strategy.

**Use your math words:**

**My problem was \_\_\_\_\_. I started with \_\_\_\_\_.  
I added \_\_\_\_\_. My sum is \_\_\_\_\_.**

# SET A

## Lower Doubles Facts!

$$3 + 3 =$$

$$2 + 2 =$$

$$5 + 5 =$$

$$1 + 1 =$$

$$0 + 0 =$$

$$4 + 4 =$$

## Lower Doubles Facts!

$$1 + 1 =$$

$$5 + 5 =$$

$$0 + 0 =$$

$$2 + 2 =$$

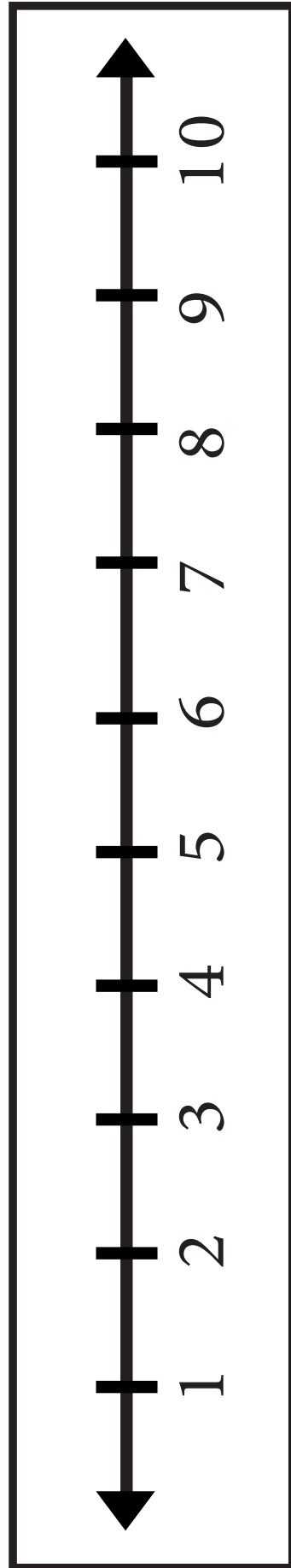
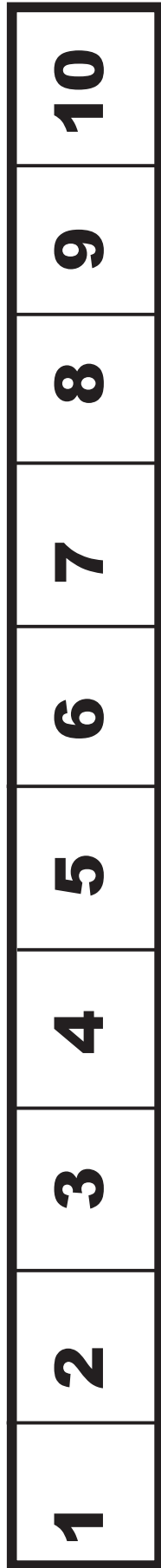
$$4 + 4 =$$

$$3 + 3 =$$

# SET B

$2 + \underline{\quad} = 4$	$3 + \underline{\quad} = 6$
$4 + \underline{\quad} = 8$	$2 + \underline{\quad} = 4$
$2 + \underline{\quad} = 1$	$1 + \underline{\quad} = 1$
$4 = 2 + \underline{\quad}$	$6 = 3 + \underline{\quad}$
$8 = 4 + \underline{\quad}$	$4 = \underline{\quad} + 2$
$4 = \underline{\quad} + 2$	$2 = \underline{\quad} + 1$
$10 = \underline{\quad} + 5$	$\underline{\quad} = 5 + 5$
$8 = 4 + \underline{\quad}$	<b>Lower Doubles Flashcards</b>

**Use the number line or number path if you need help!**



## GAMEBOARD

### Superhero Addition Lower doubles Facts

Directions: Pull a flashcard (P. 82) and the person with the highest number goes first. Pull a card and match the sum with an expression on the board. Whoever gets 4 in a row wins!

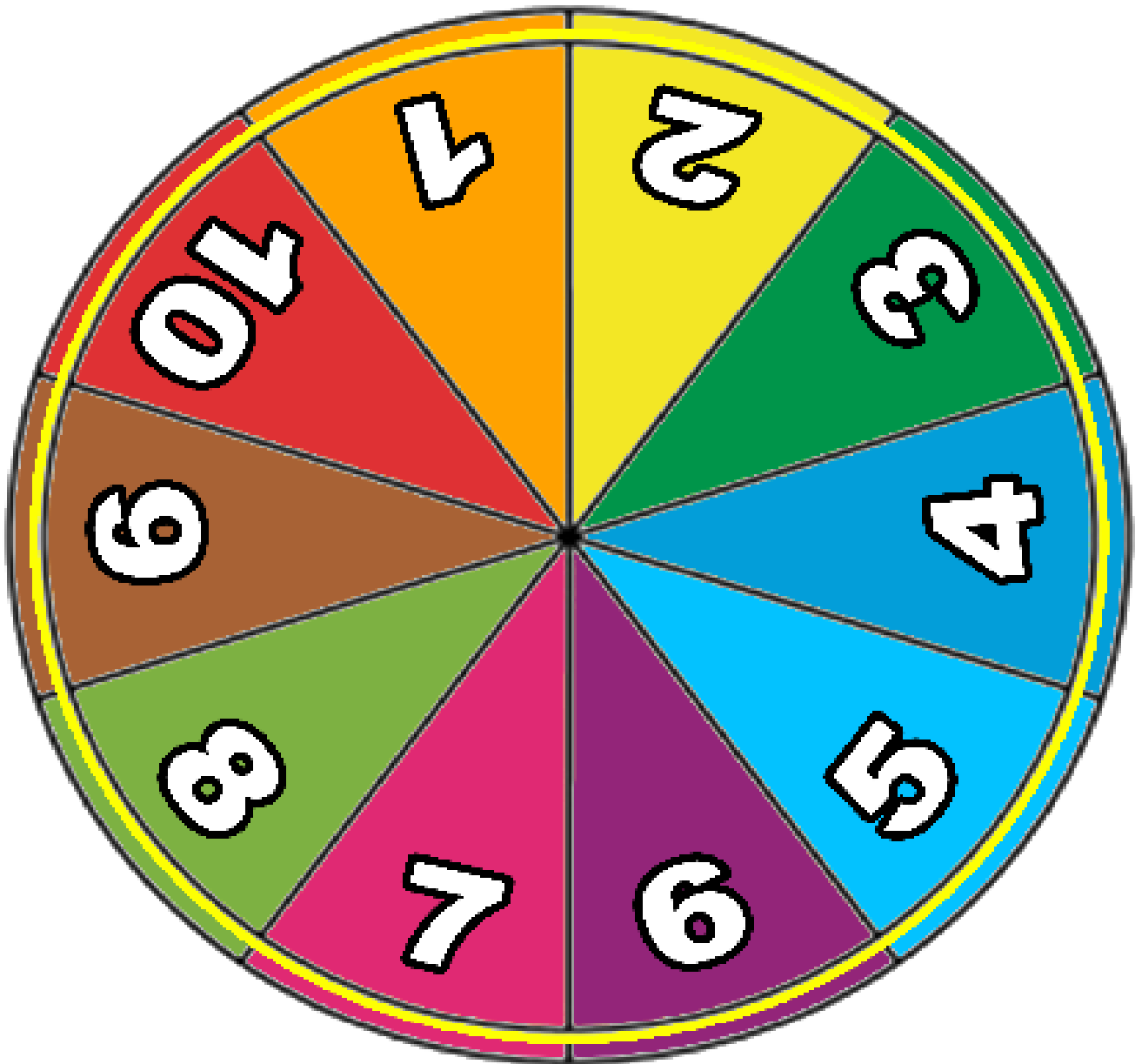


<b>3+3</b>	<b>4+4</b>	<b>5+5</b>	<b>0+0</b>
<b>1+1</b>	<b>2+2</b>	<b>4+4</b>	<b>5+5</b>
<b>3+3</b>	<b>0+0</b>	<b>2+2</b>	<b>1+1</b>
<b>4+4</b>	<b>5+5</b>	<b>3+3</b>	<b>0+0</b>
<b>0+0</b>	<b>2+2</b>	<b>4+4</b>	<b>5+5</b>
<b>5+5</b>	<b>0+0</b>	<b>2+2</b>	<b>1+1</b>



# GAMEBOARD SPINNER GAME

Each partner spins and doubles the number. Whoever gets the largest sum gets a counter. Keep track of the score in the five frame. Whoever gets 5 counters first wins.



## PARTNER A

--	--	--	--	--

## PARTNER B

--	--	--	--	--

## GAMEBOARD

Use Set A and/or set B Flashcards. Players get the same number of cards. Play war. Each player writes his/her equation on his/her side.

Write > or < to compare the equations.

Player 1	Compare your equations with a symbol: < = >	Player 2
$\underline{\quad} + \underline{\quad} = \underline{\quad}$		$\underline{\quad} + \underline{\quad} = \underline{\quad}$
$\underline{\quad} + \underline{\quad} = \underline{\quad}$		$\underline{\quad} + \underline{\quad} = \underline{\quad}$
$\underline{\quad} + \underline{\quad} = \underline{\quad}$		$\underline{\quad} + \underline{\quad} = \underline{\quad}$
$\underline{\quad} + \underline{\quad} = \underline{\quad}$		$\underline{\quad} + \underline{\quad} = \underline{\quad}$





# BUMP GAME



**Addition Lower Doubles Facts**

<b>2+2</b>	<b>4+4</b>	<b>3+3</b>	<b>1+1</b>	<b>5+5</b>
<b>0+0</b>	<b>2+2</b>	<b>4+4</b>	<b>3+3</b>	<b>0+0</b>
<b>5+5</b>	<b>1+1</b>	<b>2+2</b>	<b>4+4</b>	<b>3+3</b>
<b>4+4</b>	<b>2+2</b>	<b>3+3</b>	<b>5+5</b>	<b>1+1</b>

Use the number cards. Pull a card. Whoever has the highest number goes first. Player 1 pulls a card and finds the expression for that sum and covers it up. If player 2 pulls an expression for the same sum, they can bump player 1 off. If a player has 2 cubes on a space they have captured the space. Whoever captures the most spaces wins.

# NUMBER CARDS

0

2

4

6

8

10

0

2

4

6

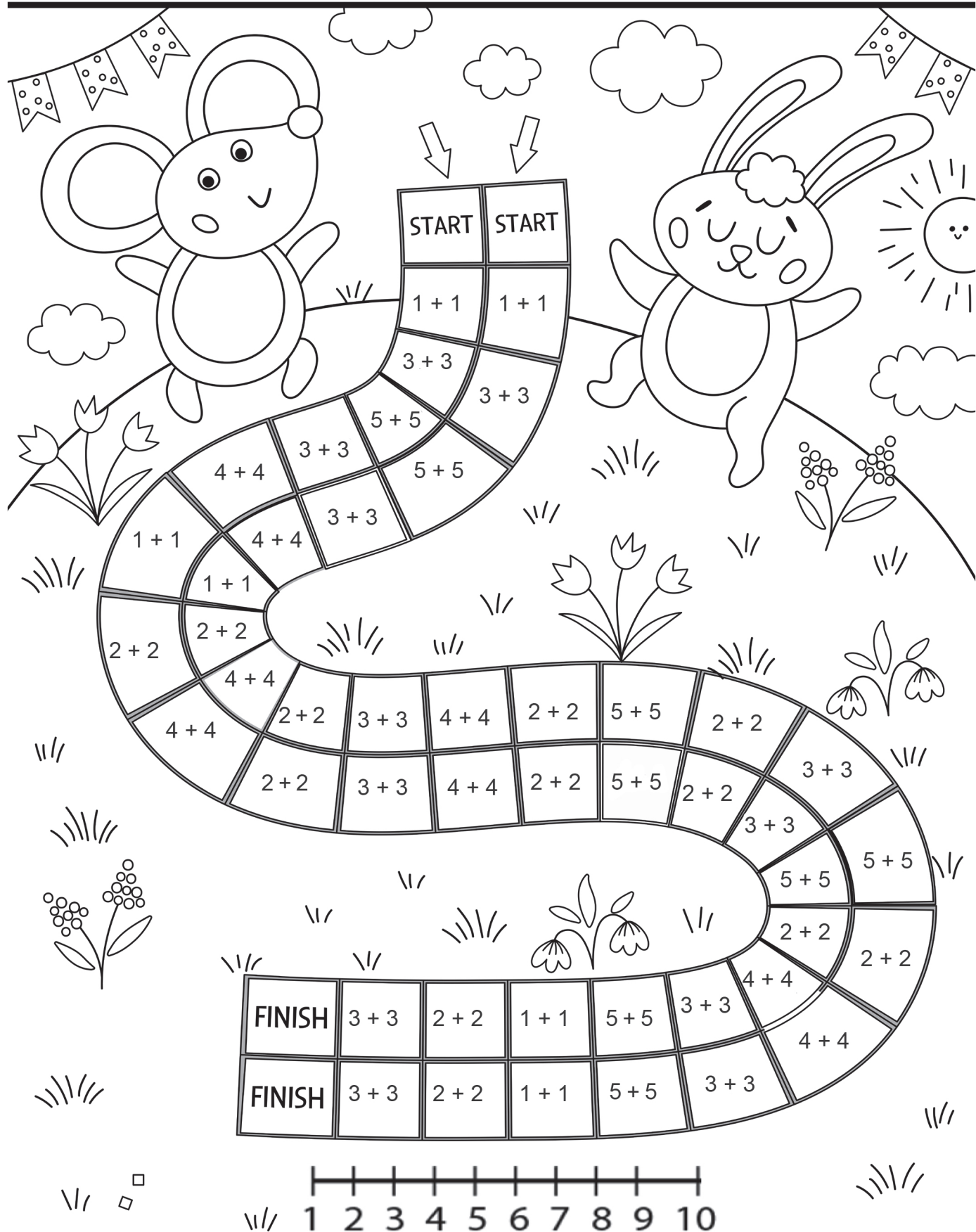
8

10



# LOWER DOUBLES

Instructions: Roll the dice. Move and solve the problem. Whoever reaches the end first wins!



# Lower Doubles Quiz

**Match the expression  
and the sum!**

<b>3 + 3</b>	<b>10</b>
<b>4 + 4</b>	<b>2</b>
<b>5 + 5</b>	<b>6</b>
<b>2 + 2</b>	<b>4</b>
<b>1 + 1</b>	<b>8</b>

**Model a Lower Doubles fact**  
\_\_\_ + \_\_\_ = \_\_\_


**Show 4 + 4**


**Solve:**

**Kiyana had 4 marbles. She got four more. How many does she have now?**

**Make the equations true.**

$$10 = 5 + \underline{\quad}$$

$$6 = 3 + \underline{\quad}$$

# Performance Quiz and Oral Interview

1. What are lower doubles facts?	2. Can you pick a flashcard and model one for me on a ten frame?	3. Can you pick a flashcard and model one for me on the number path or number line?
4. Model this problem with your counters. Marcus had 3 marbles. He got 3 more. How many does he have?	5. Show the students a few flashcards to see how they solve the problems.	6. What is easy and what is tricky about learning lower doubles facts?

