

Viewing Guide



Moving into Math Stations

K-2



Debbie Diller

Viewing Guide Contents

DVD Contents	3
Introduction	5
Introduction <i>and</i> What Are Math Stations?	6
Math Manipulatives	7
Finding Space for Math Stations	9
Finding Time for Math Stations	10
Management Board	11
The Value of Whole-Group Instruction	12
Sharing Time	14
Math Talk	15
“I Can” Lists	17
Sitting Side by Side <i>and</i> DVD Extras: Making a Stations Map and Moving from Stations to Small Group	19
Math Stations Seen in the Video	21
Appendix A: Math Room and Stations Venn Diagram	26
Appendix B: Storing Manipulatives in Sage’s and Asma’s Classrooms	27
Appendix C: Materials Used for Organizing Math Manipulatives	28
Appendix D: How to Organize Your Math Manipulatives	29
Appendix E: Materials Used for Setting Up Math Stations	30
Appendix F: Math Schedules for Sage’s and Asma’s Rooms	31
Appendix G: Planning Sheet for Math Work Stations	32
Appendix H: Sharing Time Cards	33
Appendix I: How to Make an “I Can” List with Your Class	39
Appendix J: Shape Hunt Recording Sheet	40
Appendix K: Sums of Ten Board	41
Appendix L: Caterpillar Counting Mats and Cards	42

Stenhouse Publishers
www.stenhouse.com
Copyright @ 2013 by
Stenhouse Publishers

All rights reserved. This guide
may be photocopied for staff
development use only.

Math Work Stations is available
at www.stenhouse.com

DVD Contents

Introduction	00:00–01:45
What Are Math Stations?	01:45–04:09
Math Manipulatives	04:09–13:36
Using Manipulatives: Exploration	04:09–06:56
Using Manipulatives: Geometry Activity	06:56–07:40
Using Manipulatives: Cleanup	07:40–08:21
Using Manipulatives: Stations Work	08:21–08:40
Storing Manipulatives: Sage’s Room	08:40–11:10
Storing Manipulatives: Asma’s Room	11:10–13:36
Finding Space for Math Stations	13:36–20:55
Sage’s Self-Contained First-Grade Classroom	13:36–16:50
Asma’s Second-Grade Classroom: Portable Building	16:50–20:55
Finding Time for Math Stations	20:55–23:18
Management Board	23:18–29:08
Using the Management Board	23:18–26:14
Moving to Math Stations and Cleanup	26:14–29:08
The Value of Whole-Group Instruction	29:08–49:40
Whole-Group Lesson: Shape Hunt in First Grade	29:08–33:22
Finding Ideas for Math Stations	33:22–34:20
Shape Activity Moved to Math Stations	34:20–34:36
Whole-Group Lesson: Measuring Distance with Cars in Second Grade	34:36–40:41
Measurement Activity Moved to Math Stations	40:41–42:43
The Opening Routine: Number of the Day in First Grade	42:43–47:42
Number of the Day Routine Moved to Math Stations	47:42–49:40
Sharing Time	49:40–53:20
Sharing Time: First Grade	49:40–51:04
Buddy Sharing: Second Grade	51:04–53:20
Math Talk	53:20–63:53
Introducing a New Word, <i>Estimate</i> , in Whole Group	53:20–56:28
Using <i>Estimate</i> in Whole-Group Activity	56:28–56:43
Using Math Talk at Stations	56:43–60:14
Sharing Time and Math Talk	60:14–63:53

"I Can" Lists	63:53–75:19
Making an "I Can" List: First-Grade Geometry Station	63:53–69:30
Making an "I Can" List: Second-Grade Measurement Station	69:30–75:19
Sitting Side by Side	75:19–78:00
DVD Extras	00:00–06:04
Making a Stations Map	00:00–03:11
Moving from Stations to Small Group	03:11–06:04

Introduction

Moving into Math Stations was taped during three days at Askew Elementary, a grades pre-K–4 school in the Houston Independent School District, a large urban school system in Houston, Texas. Located in an ever-changing neighborhood, like so many neighborhoods throughout North America, this is the school Debbie's own children attended twenty years ago. In this video, Debbie Diller works with first-grade teacher Sage Carnahan in a self-contained classroom and with second-grade teacher Asma Ahmed in a portable building. You will view math stations in action four months into the school year and have the opportunity to see how the teachers introduce, manage, and sustain math work stations as part of their math workshop time. There is also behind-the-scenes footage on how teachers use limited space and time and how they store, teach with, and manage math manipulatives.

This viewing guide is designed to help you maximize learning in professional development settings. Included are helpful hints for facilitators, questions to guide viewing and discussion, connections to Debbie's book *Math Work Stations*, and suggestions for implementing ideas from the video in classrooms. The appendix contains helpful lists, forms, and figures.

Introduction and What Are Math Stations?

View these two segments together to provide background for the rest of the video. Here you will meet Debbie Diller, national consultant and author of *Math Work Stations*, along with the two teachers with whom she works in this video, Sage Carnahan and Asma Ahmed. The first math stations were introduced during the first week of school in late August and had been built upon through December when this video was filmed. Debbie worked in these classrooms weekly for more than a year before filming this video to help the teachers and their students learn about math work stations.

Discussion Questions

- What are students doing at math stations?
- What do you notice about how space is utilized for math stations in each classroom? (NOTE: Sage's room is a self-contained classroom, whereas Asma works in a portable building.) What kinds of materials are used?
- Why does Debbie recommend math stations?

Activity

- Use a Venn diagram to compare your math classroom and—if you are already using them—math stations to Sage's and Asma's. A note-taking form is included in Appendix A.

Using the Book with the Video

Have teachers read Chapter 1, “What Is a Math Work Station?” in *Math Work Stations*. Discussion questions for reflection and dialogue can be found on page 18 of the book.

Math Manipulatives

You might break the viewing of this portion of the video into two parts. First, look at the sections on using manipulatives (Exploration, Geometry Activity, Cleanup, and Stations Work), using the corresponding questions to discuss how to teach with math manipulatives. Then investigate how to organize and store manipulatives by viewing the segments on storing manipulatives in Sage's first-grade self-contained classroom (with built-in cabinets) and in Asma's second-grade portable building with very limited storage (she uses a tall, freestanding shelf in a corner). Before they watch these two clips, ask teachers to pay attention to things they *can* do and may be able to adapt from Sage and Asma's rooms (rather than think about how nice it would be to have built-in cabinets). Viewers might take notes on things they liked from each classroom and how to incorporate and use these in their classrooms.

Discussion Questions: Using Manipulatives

- What do you notice about the math manipulatives students are using at each station? What quantity is included? How are they stored? How are children handling them?
- What is the purpose of manipulatives?
- How is student talk related to manipulatives?
- What is the role of exploration in manipulatives? Why is this important?
- How does Debbie facilitate students' math talk with manipulatives?
- Why is it important to model how to clean up manipulatives?
- How do materials move from instruction to math stations?

Discussion Questions: Storing Manipulatives

- How does Sage store his materials and manipulatives? What can you use or adapt for your classroom? What can you do if you don't have built-in cabinets for storage?
- What did you learn from Asma's room?

Activity

- Plan for and have "math manipulative sorting parties" after school, on a Saturday, or in the summer. It is really important to work as a team to build collaboration, find out what materials are available, and provoke discussion on how to teach math using what you've got. If everyone works together, it will only take an hour or so per classroom. (NOTE: Do not purchase containers before organizing. Most teachers, including Sage and Asma, have all the containers they need already in their closets. When organizing, we placed materials in the right-sized containers and found we shifted the contents of many materials to different containers the teachers already owned.)
- You might distribute copies of the recording sheet, "Storing Manipulatives in Sage's and Asma's Classrooms" (found in Appendix B), and have teachers watch this video segment a second time. Encourage them to look closely and jot down ideas they like and want to try in their classrooms.

- Suggested materials for organizing manipulatives can be found in Appendix C.
- Steps for helping organize math materials can be found in Appendix D. Use this to help teachers work together for sorting and storing manipulatives.

Using the Book with the Video

Have teachers read Chapter 2, “Organizing and Managing Math Materials,” in *Math Work Stations*. Have them help each other sort and label their math materials, taking before-and-after pictures to celebrate their accomplishment. Post these somewhere where others can view them. Organization is contagious and will help teaching (and math stations) go much more smoothly.

Finding Space for Math Stations

To get started with math stations, it's important to think about space and time. I find that many teachers are surprised by how little space they need for math stations. In this segment, they'll learn how to find a location in the classroom for storing stations that children can easily access.

In these two classrooms, math stations are part of the classroom math corner. Math stations are stored in numbered, clear plastic, lidded containers on inexpensive plastic shelves in a convenient spot. There is also a place for manipulatives currently being used that are easily accessible to the children and the teacher. (Other math materials not currently utilized are stored in cabinets or on shelves in another part of the room.)

Discussion Questions

- What do you notice about the storage containers used for math stations in Sage's and Asma's classrooms? What advantages are there to using containers with lids?
- How are the math stations organized in Sage's and Asma's rooms? How might this help students be independent in their use of these stations?
- Look at the classroom math corner (the materials the teacher is using for teaching current math topics) in each room. How are the materials organized? How much space is needed? What kind of space do you have that could be utilized in a similar way?
- How does Sage use space in his classroom so students know where to take each math station?
- Discuss how Asma displays her anchor charts for math in one area. How could this help students work independently?
- How do the labels and the "I Can" lists on Asma's math stations help to focus the work her students will do there?

Activity

- Go on a field trip and visit each other's classrooms. Work together to plan for space for math stations and, possibly, a math corner. If some teachers already have a classroom math corner set up, visit their rooms and work together to set up one in each other's classrooms.
- Appendix E lists materials Sage and Asma used for setting up math stations. Teachers might use this to help them think about what they already have, and what they might want, to set up stations.

Using the Book with the Video

Have teachers look at the photos on pages 8–9 in *Math Work Stations* and read the accompanying text, "Areas Within the Classroom," which starts on page 7. Also, peruse photos throughout the book to examine how much space stations utilize and what kinds of areas teachers use for stations (tables, desks, floor space, etc.).

Finding Time for Math Stations

Sage has sixty minutes a day for math instruction in his first-grade classroom, whereas Asma has ninety minutes a day in her second-grade room. Your school or district may have specific requirements for a math block that you must follow. Use the ideas from this video to spark conversation about how to find time for math stations within your math time. You might start with trying to find just fifteen minutes a day where students could go to one math station daily, which is what Sage and Asma did at first.

Discussion Questions

- How do Sage and Asma find time for math stations?
- How might posting and using a daily schedule help you (and your students) find time for math stations?

Activity

- Print and distribute math schedules from Sage's and Asma's classrooms (these can be found in Appendix F of this guide). Compare your schedules to theirs. Teachers might jot down each daily math routine they use (e.g., calendar, warm-ups, number talks, mini-lessons, etc.) on an individual sticky note and place that beside an area of the schedule, such as Opening Math Routine or Whole-Group Activity. Talk about the most useful routines and which might be shortened or even replaced. Work on finding fifteen to thirty minutes a day for math work stations and small-group math instruction or observation.

Using the Book with the Video

Ask teachers to read the section "Scheduling for Math Work Stations" on pages 65–66 of *Math Work Stations*. Have them bring their lesson plans and place a star beside each thing students did last week that truly helped them become better mathematical thinkers and problem solvers, as suggested in this portion of the book. Discuss their schedules and how to get the most out of their math instruction with a consideration for how to provide for meaningful independent work.

Management Board

Many questions teachers have about math work stations revolve around management. I have found it helpful to use a system so students easily know which math station to use at what time. This segment offers a simple solution for how to use a management board during math stations. The board shown in this video is available from Really Good Stuff (www.reallygoodstuff.com), under Debbie Diller Designs. The star-shaped music wand, available from www.musicwands.com, is used as an audible signal to help students move from station to station.

In Sage's classroom, first graders go to two math stations a day. First, they go to the station with the green bordered card, and then, after fifteen minutes, they switch to the station with the blue bordered card. In this section, Sage explains how his management board works. You'll also see students use the board to go to two different stations, as well as transition between the two, and then do final cleanup.

Discussion Questions

- Why does Sage place students' photos and names on the left side of his management board?
- How does Sage partner children at math stations? What if you have an odd number of students?
- Sage changes which stations students go to each day. About how long does it take for him to move the icons on the stations board?
- Watch children use the management board and work at stations. What routines are in place that help students work independently and manage their own behavior? What strategies or tools do Debbie and Sage use to help students move to and from stations?

Activity

- Create a management board system to use in the classroom. Have teachers take digital photos of their students and use these to create picture and name cards for the board. Use a pocket chart or magnets on the back of the cards attached to a magnetic board for the management system.
- If teachers have already created management boards, visit each other's classrooms to look at and discuss how these are working.

Using the Book with the Video

Have teachers read pages 60–62 in *Math Work Stations* to learn about using a management board. Photos from several classrooms are included to give teachers a visual reference as they create their own boards. Reproducible icons for making a management board can be found on pages 221–223.

The Value of Whole-Group Instruction

In this segment, you will view three mini-lessons. The first lesson occurs in first grade, where students go on a shape hunt; in second grade, children measure distances traveled by toy cars. Each of these lessons begins with Debbie modeling clear expectations for student behavior during math exploration time. The third lesson shows a number sense routine called Number of the Day, which Sage uses daily to kick off his math workshop. All of these lessons are eventually moved into math stations once students are familiar with the math concept and expectations for behavior.

You will notice students communicating and representing in these lessons. They use community journals in the second and third station segments; these are inexpensive spiral notebooks that are used jointly by the whole class. Instead of each child carrying a notebook to the stations, one or two community journals are placed at selected stations where students can represent their mathematical thinking. Teachers can then glance through just these journals (instead of twenty or more), and students can look at each others' representations as well.

Discussion Questions

- How do Debbie and Sage structure math activities in whole group so that students clearly know what to do? Why do you think they introduce these in whole group first? How do the teachers engage students in these demonstrations and explorations?
- How are ideas for math work stations generated? What is the source of these ideas?
- What do you notice about Debbie and Sage's language? The language of the students?
- How do children record what they are doing and learning? Be sure to discuss the use of community journals at some stations.
- What math concepts are included in Number of the Day? Compare this opening routine to what you use in math workshop.
- How is each activity in this segment moved from whole group to a math station? What is the value of whole-group instruction?

Activity

- Work as a team to plan whole-group mini-lessons for math that connect to topics currently being studied. Discuss what needs to be modeled and what math talk should be included, as well as how these teaching moves will later affect students at stations.
- Use the three-column planning sheet found in Appendix G to guide and record planning for whole-group lessons and math stations. Be sure to utilize resources provided by your school or district, including curriculum documents, pacing guides, and core program materials. Plan to meet again in a few weeks to share what teachers have tried; ask them to bring artifacts from stations to show and discuss.

- Talk about which stations might include community journals, and then make some together (I simply place a sticker that says “community journal” on the front of a spiral notebook). Ask teachers to have students use these and then bring them to a meeting in a few weeks to share how children used them at math stations.
- * Examine your opening routines for math workshop. Some teachers might try Number of the Day and bring back ideas to share from their experiences with this routine.

Using the Book with the Video

Chapters 4–8 in *Math Work Stations* include a section called “What the Teacher Needs to Model.” Choose a math concept currently being studied, such as addition and subtraction, and have teachers read this section in the corresponding chapter. Then use some of these ideas to plan for stations with the graphic organizer found on page 272 of the book.

You might also have teachers read and discuss pages 183–185, which provide a planning scenario from a first-grade team related to teaching measurement concepts.

Sharing Time

To close math workshop and stations, the class gathers for five to ten minutes on the carpet for “sharing time” to reflect on the learning they did as mathematicians that day. Debbie uses sharing time cards to help her remember the kinds of questions she’d like students to reflect on in Sage’s first-grade classroom. Second graders in Asma’s classroom learn to “buddy share” so that they can show each other the work they did that day.

Discussion Questions

- Why is sharing time important?
- What are some different ways to structure sharing time that you saw in this video? What does Debbie do to limit the time the class spends on sharing time (so it doesn’t extend to an additional fifteen minutes)?
- What questions does Debbie ask during sharing time? What does she learn from the students? What do the children learn from one another?

Activity

- Work as a team to make a plan that builds in time for this valuable sharing time at the end of math workshop and stations. It’s easy to run out of time for reflection, but this is such a worthwhile learning experience. Experiment with ways to try sharing time in your classroom, and come prepared to tell others what you learned from and with your students.
- You might make the sharing time cards included in Appendix H of this viewing guide. Simply print the cards on colored card stock, laminate and hole-punch them, and then put them on a ring and place them in your whole-group teaching area so you remember to use them. If you forget to use them, you might put a student in charge of sharing time. As one teacher told me, “I never forget to use the cards when I put a child in charge!”

Using the Book with the Video

Ask teachers to read the section titled “Sharing Time” on pages 62–63 in *Math Work Stations*. Have them pay particular attention to the classroom dialogue on page 63. If teachers are willing, have them record their students during sharing time and describe what they noticed about the conversation. Share these recordings and findings with one another.

Teachers will find a master for making the sharing time cards on pages 224–229 of the book.

Math Talk

There are four segments to watch in this section on math talk. In the first one, you'll see Debbie introducing a new word, *estimate*, to second graders in a whole-group mini-lesson. The second clip takes place the next day and shows students using that new word in a whole-group measurement activity.

Next, you'll see students in first and second grade using math talk (that was previously introduced in whole-group lessons) at a variety of stations. Two different pairs of first graders play Sums of 10 and use the math talk, “ plus equals and the turnaround fact is plus equals .” In second grade, you'll see two students sort addition facts by the strategy used to solve each. And at a third station, first graders play Grab and Graph and choose between several math talk cards to support their talk.

In the final portion on math talk, you'll get a glance at kids reflecting on their use of academic language during sharing time at the close of stations in Sage's first-grade classroom. He leads a discussion using the prompt, “What math talk did I hear or use today?” He also talks with the class about station #1, where they use the picture book *Elevator Magic* by Stuart J. Murphy to build conceptual understanding of subtraction, a new concept the class has been exploring. At this station, students use the book to retell the story using Unifix cubes. They build the elevator with cubes and then break it apart, one cube at a time, and tell the corresponding subtraction sentence.

In these clips you'll be introduced to math talk cards. Debbie creates and uses math talk cards with children to help them learn academic language. These cards provide a scaffold to help kids use math talk as they're working at stations and exploring mathematical concepts. The goal is for students to use math talk rather than just saying “I win” when playing a counting game. It takes time and thought to create these math talk cards but it's well worth the effort when you see and hear young children using the language of mathematicians.

Discussion Questions

- Why is math talk important?
- How does Debbie introduce the math vocabulary word, *estimate*, in whole group? About how many times do Debbie or the children say this new word, hear it, and see it in writing?
- How is the new word then used in a measurement activity with the whole class?
- How are math talk cards used by children at math stations? What specific math talk did you hear?
- Why is it important for the teacher to spend time with children at stations to support math talk?
- How do Debbie and Sage support student use of math talk?
- What does Sage learn about math talk during sharing time? What will he do the next day as follow-up?
- How might you use the structures of math talk cards or sharing time to reflect on student math talk?

Activity

- Listen to students during math stations time. What math talk do you already hear? What math talk would you like to hear? Be specific.
- Work as a team to create sample math talk cards for your grade level (I use 4-x-6-inch white index cards). Draw a speech bubble on the card with a brightly colored, thick marker to help students pay attention to it. Then write the words you'd like to hear, using a sentence frame inside the bubble. Be sure to use blanks where you want students to insert numbers to keep the use of these cards flexible. Use a different color to highlight important words and add visuals as needed to support students' talk.
- Ask teachers to record their students using math talk cards at stations. Share the clips and actual math talk cards used by students at a grade-level meeting.

Using the Book with the Video

Teachers can get more information about math talk cards by reading pages 53–54 in *Math Work Stations*. Also, near the beginning of each chapter in Chapters 4–8 there is a colored vocabulary box with two columns labeled “Basic Vocabulary” (Kindergarten) and “Taking It Further” (Grades 1–2). A bulleted list of important math words for that grade level is included under each heading. Compare these words to those required in your core math curriculum and state standards and adjust the list accordingly.

Teachers may use the index in the back of *Math Work Stations* to find examples of math talk cards throughout the book. Examine these and use them as models for making your own math talk cards that match the concepts and academic language you'd like your students to use.

"I Can" Lists

This segment begins with a discussion among Debbie, Sage, and Asma about creating “I Can” lists with students. They talk about the value of using these lists with students to give direction to their independent work. Instead of just telling kids what to do and hoping they will remember it, generating “I Can” lists with children helps them remember what tasks to focus on during their time at each math station and provides an opportunity for review. Sometimes the lists take the form of directions—especially in second grade, where students can read a larger amount of text. Other times, an “I Can” list is a menu of choices students can make when they use this station, as shown in the first-grade clip. The lists are made using 8.5-x-11-inch plain white paper and colored markers. They are then taped inside the lids of the matching math work stations for easy student reference.

You will see the creation of both kinds of “I Can” lists in the next two segments. First, Debbie works with the first-grade class to make an “I Can” list of what they can do when they work with the geometry concepts recently taught with a Shape Hunt activity. Then you’ll watch her create directions for the Measuring Cars activity done previously as a whole-group lesson with second graders.

Discussion Questions

- What purposes do you notice for the “I Can” lists?
- Why is making the lists *with* the students important?
- How do visuals (photos, sketches, or diagrams) enhance “I Can” lists for students?
- How does Debbie involve students in the process of making the “I Can” lists?
- Where are the “I Can” lists placed for use at the stations? How might this help students work independently of the teacher?

Activity

- Watch this video section a second time and then make a list of “How to Make an ‘I Can’ List” together to clarify the steps for this procedure. Compare your thinking with “How to Make an ‘I Can’ List with Your Class” (found in Appendix I).
- Create an “I Can” list with your students for a specific math station. You might distribute copies of Appendix I to guide their work, or use the steps you identified as a group in the preceding activity. Bring your list to a grade-level meeting and share how this experience helped your students work independently.
- Count the number of classrooms in your grade level and prepare that number of cards (i.e., if there are five first-grade classrooms, you’ll need five cards). Then have each teacher write his or her name on one of the cards. Mix up the cards, hold them face down, and ask each teacher to choose a card and then take a field trip to that classroom (it cannot be their own).

While there, have them take notes about what kids are currently working on at math stations, even if students are not in the classroom at the time. (NOTE: They can look at “I Can” lists for math stations.) Have them come back together and share what they found.

Using the Book with the Video

Begin by having teachers read pages 52–53 in *Math Work Stations* to review the concept of using “I Can” lists at math stations. Then have them use the index to find visual examples of “I Can” lists throughout the book. Have sticky notes available for teachers to mark pages of samples they might use to help them create specific “I Can” lists for math stations in their classrooms. Ask teachers to think about which math stations would benefit from these lists in their rooms. You might make a sample together, but remind teachers that it is beneficial to create the lists with their classes so the students remember what to do and have ownership of the learning.

Sitting Side by Side and DVD Extras: Making a Stations Map and Moving from Stations to Small Group

It is important to observe students while they work at math stations, as well as to occasionally meet at a table to work with a small group of students during this time. As Debbie, Sage, and Asma walked around and talked with children working at math stations, they noticed things to address in stations mini-lessons and what to do with students in small group.

In these clips, you'll see two stations mini-lessons that were taught to help children work more effectively and efficiently at math stations. In the first lesson, Debbie addresses the importance of sitting side by side when working with numbers to avoid confusion. In the second lesson, she integrates social studies concepts during math to create a classroom map that shows the location of each station; this helps the students find where to go and quickly get to work. The third lesson shows Sage working with a small group of first graders on subtracting and counting using a differentiated game board that he and Debbie designed when they noticed that the commercial Chutes and Ladders board was causing confusion.

Discussion Questions: Sitting Side by Side

- Why is it important for students to sit side by side during math work stations?
- How does Debbie structure the math stations mini-lesson to help children understand the importance of sitting side by side when they work with numerals?

Discussion Questions: Making a Stations Map

- What supports are placed in the money-related station to help students?
- Why does Debbie make a stations map with the children? How does she involve the students in this process?

Discussion Questions: Moving from Stations to Small Group

- How do Debbie and Sage change the commercial Chutes and Ladders game to match the math concepts being taught?
- What makes the commercial game board difficult for a few students?
- Why do you think Debbie and Sage make a different board rather than try to reteach how to use the commercial board?
- How does Sage support a few children in this small group to work independently at math stations?

Activity

- Watch your students during math work stations with an eye for things to teach in stations mini-lessons that will help children work more effectively and efficiently. Make note of these and then plan stations mini-lessons to address these issues. Share what you learned and how your mini-lessons helped students.
- Make a stations map with your class, if needed, and share it with your grade-level team. Discuss what you noticed and what students learned by creating this map together.
- Observe children during math stations and take notes on their understanding and confusion. Use your notes to plan small-group math lessons for several students at a time. Bring your notes and lesson plans to share with others in your grade level.
- Carefully examine commercial materials that you plan to use at math stations. Do any of them need adaptation to be used more effectively with students in your classroom? If so, make the necessary adjustments. You might look at some of these together as a grade-level team.

Using the Book with the Video

Before or after viewing this section of the video, it may be helpful for teachers to read and discuss “Math Work Stations Progression: A Daily Routine” on pages 46–47 of the book *Math Work Stations*. Often teachers have trouble determining how to find time for math stations during the day. You might examine together Figure 3.1 on page 46 and talk about how to fit in these critical pieces to make math stations work.

Then read together “Mini-Lessons for Math Stations” on pages 47–51. This section can help teachers identify the need for stations mini-lessons that will help students learn to manage their own behavior. It may take a few minutes initially to teach with these mini-lessons for stations, but ultimately teachers will find this time returned to them for observation and teaching. After reading, have teachers plan and then teach with mini-lessons that enhance management at math stations. Ask them to report back about what they tried and how it helped their students to work and learn independently.

Math Stations Seen in the Video

Following is a list of math stations seen in the video by grade level. You'll find the focus, materials used, related math talk, and connections to the book *Math Work Stations* for each.

First-Grade Math Stations

Focus: *Shapes*

Materials: Shape Hunt recording sheet (found in Appendix J)
two pencils
two clipboards
pattern blocks
children's book *What's a Pair? What's a Dozen?* by Stephen R. Swinburne (Boyd's Mills, 2000)

What Students Do Here: Look for shapes around the room and in the book. Identify and record shapes using the recording sheet. Match pattern blocks to shapes found in the book and around the room.

For Related Ideas: See pages 164–165 and 265 in the *Math Work Stations* book.

Focus: *Addition*

Materials: Chutes and Ladders game
spinner adapted to read -0, -1, and -2
dice
counters
ten-frame

What Students Do Here: Roll dice to generate a number, then use spinner to determine how many to subtract from that number. Move that many spaces using game piece. Other materials scaffold counting and subtraction.

For Related Ideas: See page 109 in the *Math Work Stations* book.

Focus: *Place Value and Counting*

Materials: number cards representing numerals used in Number of the Day routine
community journal and two pencils
ten-frame and two-sided counters
ten-trains of Unifix cubes
laminated place value mat for tens and ones

What Students Do Here: Work with previously used Number of the Day materials. Together children choose a number (within a number range that is just right for them), build it with cubes and a place value mat, and then represent it in the community journal.

Math Talk Cards: There are ___ groups of ten and ___ leftover ones.
The written form is ____.

For Related Ideas: See pages 86, 87, and 133–136 in the *Math Work Stations* book.

Focus: Counting and Comparing Numbers

Materials: math mat
some Unifix cubes (all same color) and dollar store firefighters in each paper bag labeled “Grab and Graph” (NOTE: Keep number of objects within students’ range of counting.)

What Students Do Here: Reach in a Grab and Graph bag and grab a handful of items. Then line up items and match them one-to-one. Count and compare.

Math Talk Cards: There are more _____ than _____.
There are the same _____ as _____.
There are fewer _____ than _____.
There are _____ more _____ than _____.

For Related Ideas: See pages 77–78 in the *Math Work Stations* book.

Focus: Addition

Materials: Sums of Ten board (found in Appendix K) for lining up cards in rows of three playing cards with face cards removed

What Students Do Here: Put a card face up in each space of the Sums of Ten board. Take turns choosing two cards that equal ten. Use the math talk card to create related addition sentences.

Math Talk Card: $\underline{\quad} + \underline{\quad} = \underline{\quad}$ and the turnaround fact is $\underline{\quad} + \underline{\quad} = \underline{\quad}$.

For Related Ideas: See page 111 in the *Math Work Stations* book.

Focus: Subtraction

Materials: math mats
Elevator Magic book by Stuart J. Murphy (HarperCollins, 1997)
ten-train with a numeral from 1–10 written on each
extra Unifix cubes and bowl for How Many Are Hiding? game

What Students Do Here: Retell subtraction stories using the *Elevator Magic* book and numbered ten-train as a prop. Or play How Many Are Hiding? where students place a certain number of cubes (such as ten) under a bowl and then roll a dice to determine how many to remove. They must tell how many cubes are hiding and say the corresponding subtraction sentence.

For Related Ideas: See pages 112 and 248 in the *Math Work Stations* book.

Focus: Shapes

Materials: Shape Hunt recording sheet (found in Appendix J)
pattern blocks
math mats

What Students Do Here: Sort pattern blocks by shape using the recording sheet, thinking about ways to combine shapes to make new shapes.

For Related Ideas: See pages 164 and 264 in the *Math Work Stations* book.

Second-Grade Math Stations

Focus: Counting

Materials: laminated Caterpillar Counting Mats and Cards (found in Appendix L)
dry erase markers with erasers
hundreds chart

What Students Do Here: Pick a numeral card and counting card. Write that number in the far left circle of the Caterpillar Counting Mat with a dry erase marker, and count using the pattern stated on the counting card (count by 2s, count by 5s, etc.), recording each numeral in a circle on the mat in the order determined by the counting card. For example, numeral card 27 and “count by 2s” on the counting card would have 27, 29, 31, 33, 35, 37, 39, 41, 43, and 45 recorded on the mat.

For Related Ideas: See pages 81–82 and 234–235 in the *Math Work Stations* book.

Focus: Place Value

Materials: index cards with a numeral between 30 and 100 on each
ziplock bag of ten-trains made of Unifix cubes in two colors
two dry erase boards and dry erase markers with erasers
laminated place value mats showing tens and ones places
sample showing ways to build a number

What Students Do Here: Pick a numeral card and build that number using Unifix cubes and a place value mat. Write that number in standard, expanded, and written form. Compare the numbers.

For Related Ideas: See pages 139–140 in the *Math Work Stations* book.

Focus: Subtraction

Materials: playing cards with face cards removed, for playing Subtraction Battle

What Students Do Here: Place cards face down in a pile and have each player choose two cards. Each player lays his two cards beside each other, with the larger number on the left, to make a subtraction sentence. Each says a subtraction sentence. The person with the largest answer uses the math talk card and takes all four cards. Repeat until no cards are left on the pile. The player with the most cards wins.

Math Talk Card: $\underline{\quad} - \underline{\quad} = \underline{\quad}$. $\underline{\quad}$ is more than $\underline{\quad}$, so I get the cards.

For Related Ideas: See pages 114–115 in the *Math Work Stations* book.

Focus: Measurement

Materials: several toy cars
Unifix cubes used for nonstandard measurement
incline made of a cardboard strip taped to a short stack of books
precut colored tape placed on a laminated index card for marking where cars start and stop
community journal and pencils for recording

What Students Do Here: Roll toy cars, one at a time, down an incline to see how far they travel across the floor. Use a piece of cardboard and a short stack of books to build the incline. Then use small pieces of tape to mark the end of the incline and how far each car rolls. Finally, estimate and then measure how many cube lengths fit between the two pieces of tape to determine distance rolled on the floor. Record data in community journal.

For Related Ideas: See pages 190–191 in the *Math Work Stations* book.

Focus: Addition Facts

Materials: addition fact cards with fact on one side and answer on the other
sorting category cards, such as Make a 10, Doubles, Near Doubles, Make a 5, Turnaround Facts, etc.

What Students Do Here: Work together reading and solving an addition fact card, and sorting the fact cards using the category cards. Remind students to tell the doubles facts the near doubles are close to, such as $7 + 6 = 13$ is near the doubles facts $7 + 7 = 14$ and $6 + 6 = 12$.

For Related Ideas: See page 110 in the *Math Work Stations* book.

Focus: Adding Money

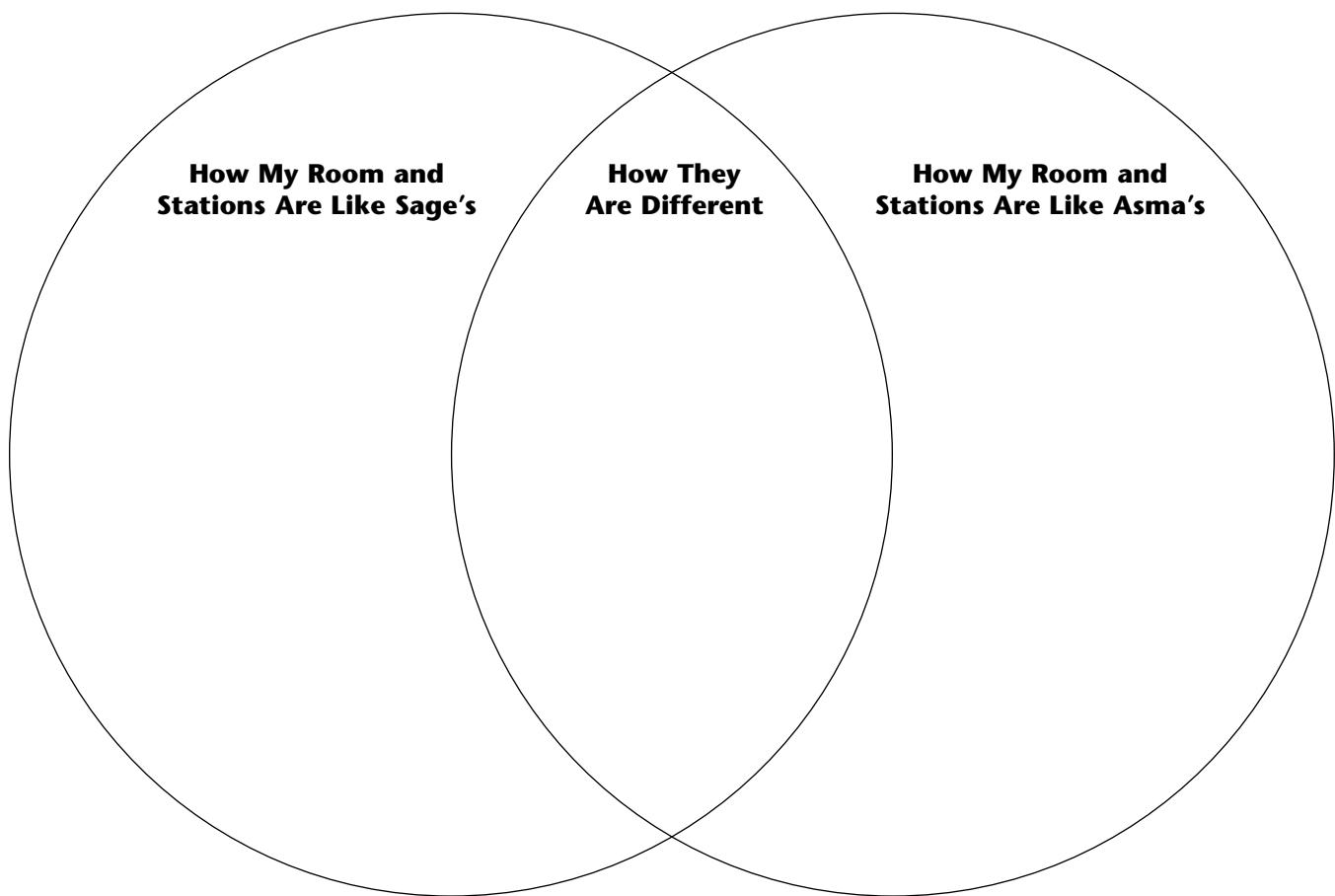
Materials: coins in small ziplock bags
coin chart listing each coin and its value
community journals and two pencils

What Students Do Here: Each partner chooses three coins and puts them in order from greatest to least value (e.g., quarter, dime, nickel). Then each counts his coins, and the two students compare amounts. Whoever has the largest amount of money keeps the coins. Then they reach in the bag and each pull out three more coins, repeating the activity. They record their findings using pictures, numbers, and words in the community journal.

Math Talk Card: I have ___ cents. ___ cents is more than ___ cents, so I keep the coins.

For Related Ideas: See pages 83–85 in the *Math Work Stations* book.

Appendix A: Math Room and Stations Venn Diagram



Appendix B: Storing Manipulatives in Sage's and Asma's Classrooms

Things I Liked	How I Can Adapt This to My Classroom

Appendix C: Materials Used for Organizing Math Manipulatives

- Containers that are the right size for the materials stored in each
- Removable labels and Sharpie pen for creating labels
- Labels for shelves where manipulatives are stored (number and operations, geometry, measurement, fractions, probability, etc.)
- Shelf or cabinet for storing manipulatives not in current use

NOTE: Check out Debbie Diller Designs at www.reallygoodstuff.com for *Math Work Stations* materials, including a management board and all kinds of labels.

Appendix D: How to Organize Your Math Manipulatives

NOTE: Please work with a partner!

1. Get several 3-x-5-inch index cards, and use a thick black marker to label each with a big idea from math that is taught at your grade level. (For example: counting, addition, subtraction, geometry, measurement, problem solving, place value, etc.)
2. Place these cards in spaces on the floor, tables, etc., for sorting math manipulatives.
3. Remove all math materials from cabinets, drawers, shelves, etc., in the classroom and sort them into categories in the appropriate labeled spaces. You might make a card labeled "things that go to another classroom" or "miscellaneous."
4. As you sort, purge things that are broken, missing parts, or outdated. Don't leave the room (you might lose your focus), but put materials that belong in another classroom in that pile.
5. After sorting, put things in containers in which they actually fit. This will save space. Many times I find things stored in tubs that are only half full.
6. Label each container with the name(s) of its contents, such as pattern blocks, geoboards, or 3-D shapes.
7. Place labeled containers on a shelf, and label the shelf with the big math idea (geometry, for example). You might even post your state standards for that objective on the cabinet door or the outside of the shelf for easy reference.

Appendix E: Materials Used for Setting Up Math Stations

- Shelf for storing stations, such as plastic ones found at home improvement and building supply stores
- Stackable clear, plastic-lidded boxes (found at discount and office supply stores)
- Number card on the front of each math station container
- Math concept label for each station (noting the concept being studied, such as counting, measurement, money, geometry, etc.)
- Numbers on the stations shelf indicating where to store each math station
- Vertical stacking sorter for storing math graphic organizers, such as place value mats, hundreds charts, ten-frames, etc.
- Numbered cards placed around the classroom to show where to take stations to work with them (taped onto floor, desks, carpet, tables, etc.)
- Math stations management board, such as a pocket chart with photo cards and numeral cards

Appendix F: Math Schedules for Sage's and Asma's Rooms

Sage's Math Schedule (60 minutes)	
5 minutes	Opening Math Routine
20-30 minutes	Whole-group Activity
15-30 minutes	Math stations/ Small group/ Observation
5-10 minutes	Sharing Time

Asma's Math Schedule (90 minutes)	
10 minutes	Opening Math Routine
40 minutes	Whole-group Activity
30 minutes	Math stations/ Small group/ Observation
10 minutes	Sharing Time

Appendix G: Planning Sheet for Math Work Stations

What We're Teaching	Materials We'll Use	Math Work Stations

What did I do at
math stations today?
And what did I
learn?

What didn't I like
doing at math
stations today?
Why?

How did I help
someone else solve
a problem today?

What else would I
like to do at math
work stations?

How did I collect
and use data today?

What math talk did
I hear or use today?

What did I enjoy
doing at math
stations today?
Why?

How did I solve a
problem today?

How did I represent or record what I learned?

What do I think we should change at math work stations?

What math
connections did I
make today?

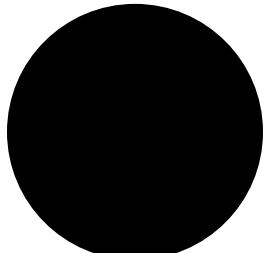
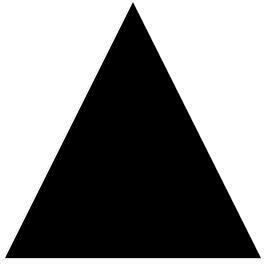
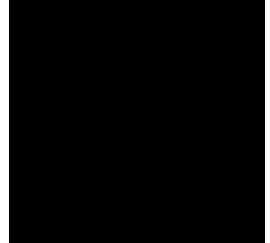
What did I do to
become a better
thinker/problem
solver today?

Appendix I: How to Make an “I Can” List with Your Class

1. Show and name materials you’ve already used for teaching a math concept to your children. It’s helpful if you have these materials in a numbered math station container. Remind the class of the activity you’ve done together with these objects.
2. Ask students for ideas about what they can do at this math station.
3. Record children’s suggestions, and add visuals as you write. Use their language. Ask questions to expand and clarify thinking.
4. Keep the list simple so students can easily follow the ideas and directions.
5. Point to the list and have students read it with you chorally to be sure they understand exactly what to do.
6. Tape the list to the inside of the math stations container lid.

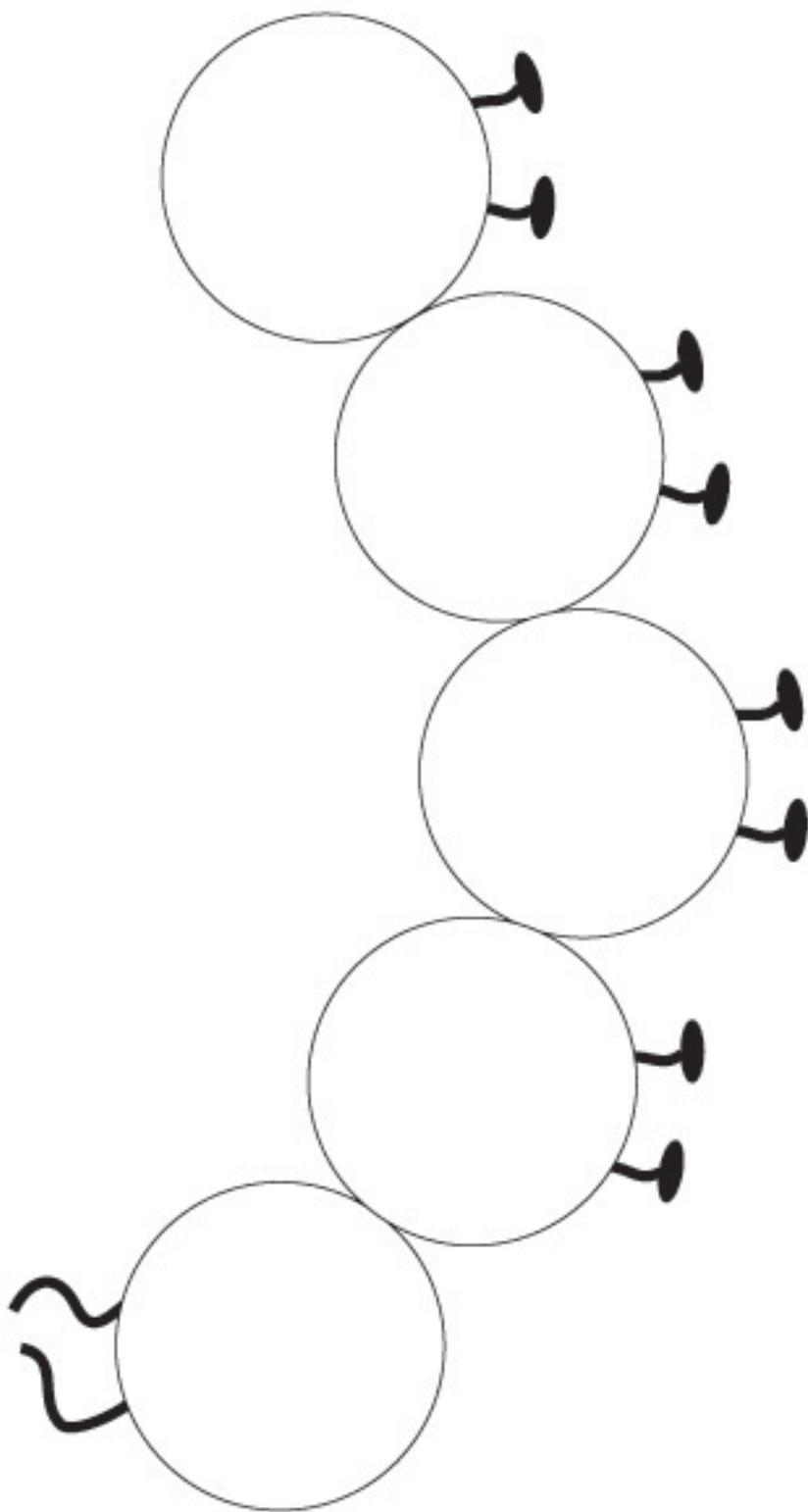
Appendix J: Shape Hunt Recording Sheet

Names: _____

Shape	Things We Found
 circle	
 triangle	
 square	

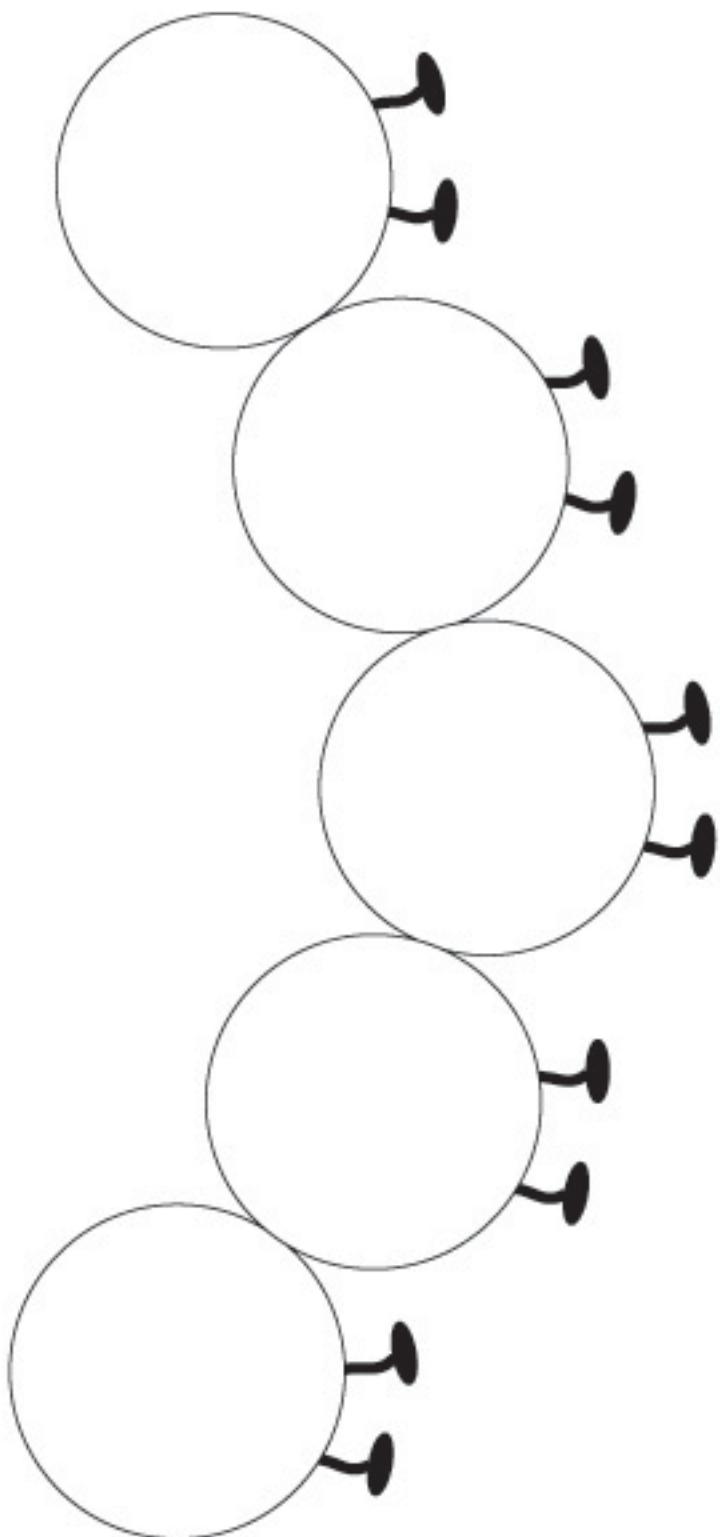
Appendix K: Sums of Ten Board

Appendix L: Caterpillar Counting Mats and Cards



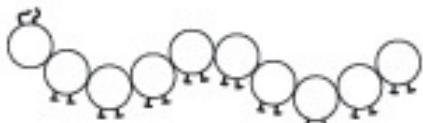
Directions to teacher: Cut and glue this and the next page onto 9-by-24-inch black construction paper to make a long caterpillar counting mat. Laminate and provide dry erase markers to children so they can write a numeral in each circle as they count.

Appendix L: Caterpillar Counting Mats and Cards (*continued*)



Appendix L: Caterpillar Counting Mats and Cards (*continued*)

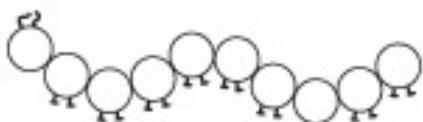
count forward



count by 5s

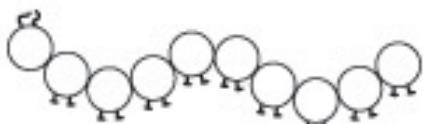


count backward



count by 10s

count by 2s



count by 100s



count by even numbers



count by odd numbers

