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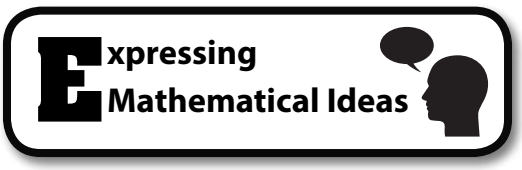

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What Are Math Workstations?

Workstations are collections of tasks stored together and worked on independently of the teacher by students in specified workspaces. Students often work in pairs or small groups but may work alone. Each station contains a variety of carefully selected math tasks to support mathematical learning. Some of the tasks may be mandatory, while others may be optional. Essential for an effective Math Workshop is the inclusion of high-quality, appropriate tasks in the workstations. By grappling with these tasks independently, students gain greater mathematical proficiency and confidence in their mathematical abilities. Here, students "practice problem solving while reasoning, representing, communicating, and making connections among mathematical topics as the teacher observes and interacts with individuals at work or meets with a small group for differentiated math instruction" (Diller 2011, 7).

Math Centers versus Math Workstations

For many years, classrooms contained Math Centers where learners worked independently. Math Centers were considerably different from today's Math Workstations. Even the label *Math Workstation* clearly sends the message that students are expected to work as mathematicians. Workstation tasks are not included for fun alone but to further students' understanding of math, improve their computational fluency, and increase their mathematical competency. The chart below highlights the differences between Math Centers and Math Workstations.

Figure I.3 Math Centers versus Math Workstations

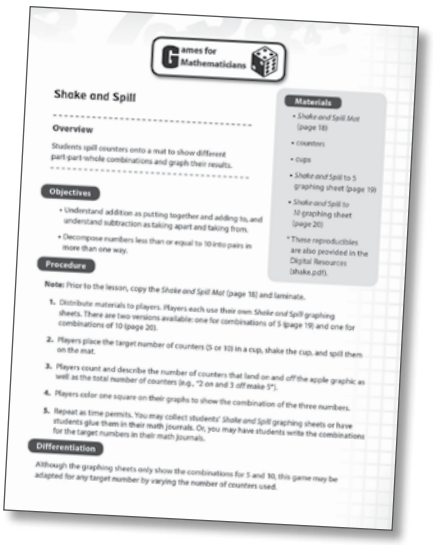
Math Centers	Math Workstations
• Games and activities are introduced to students when distributed at centers and are rarely used for instructional purposes. • Centers are often thematic and change weekly. • Centers are often made available to students after they complete their regular work. • All students work on the same centers, and activities are seldom differentiated.	• Tasks are derived from materials previously used during instruction, so students are already familiar with them. • Tasks are changed for instructional purposes, not because it is the end of the week. • Tasks provide ongoing practice to help students retain and deepen their understanding and are an important part of students' mathematical instruction. • Tasks are differentiated to meet the identified learning needs of students.

How to Use This Book

The tasks in this book have been designed for use with the GUIDE Workshop Model, but they may be incorporated into any workshop model you choose. It is important to model and practice these workstation tasks and the sentence stems on the *Talking Points* cards with students before expecting students to complete them independently.

Workstation Organization

An **overview** of the lesson, materials, objective, procedure, and differentiation is provided for the teacher on the first page of each GUIDE workstation task.



Games for Mathematicians

Shake and Spill

Overview

Students spill counters onto a mat to show different part-part-whole combinations and graph their results.

Objectives

- Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
- Decompose numbers less than or equal to 10 into pairs in more than one way.

Materials

- *Shake and Spill Mat* (page 18)
- counters
- cups
- *Shake and Spill to 5* graphing sheet (page 19)
- *Shake and Spill to 10* graphing sheet (page 20)

* These reproducibles are also provided in the Digital Resources (shake.pdf).

Procedure

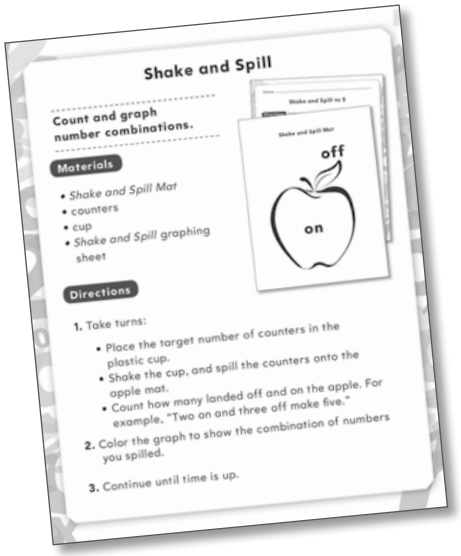
Note: Prior to the lesson, copy the *Shake and Spill Mat* (page 18) and laminate.

1. Distribute materials to players. Players each use their own *Shake and Spill* graphing sheets. There are two versions available: one for combinations of 5 (page 19) and one for combinations of 10 (page 20).
2. Players place the target number of counters (5 or 10) in a cup, shake the cup, and spill them on the mat.
3. Players count and describe the number of counters that land on and off the apple graphic as well as the total number of counters (e.g., "2 on and 3 off make 5").
4. Players color one square on their graphs to show the combination of the three numbers.
5. Repeat as time permits. You may collect students' *Shake and Spill* graphing sheets or have students glue them in their math journals. Or, you may have students write the combinations for the target numbers in their math journals.

Differentiation

Although the graphing sheets only show the combinations for 5 and 10, this game may be adapted for any target number by varying the number of counters used.

A **Student Task card** with directions and a materials list is provided for easy implementation and organization. Students may use the materials list as they put away their math workstation task so that all materials are included.



Shake and Spill

Count and graph number combinations.

Materials

- *Shake and Spill Mat*
- counters
- cup
- *Shake and Spill* graphing sheet

Directions

1. Take turns:
   - Place the target number of counters in the plastic cup.
   - Shake the cup, and spill the counters onto the apple mat.
   - Count how many landed off and on the apple. For example, "Two on and three off make five."
2. Color the graph to show the combination of numbers you spilled.
3. Continue until time is up.

Games for Mathematicians

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Overview

Students spill counters onto a mat to show different part-part-whole combinations and graph their results.

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- *Shake and Spill Mat* (page 18)
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* The *Talking Points* card and these reproducibles are also provided in the Digital Resources (shake.pdf).

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- Understand addition as putting together and adding to and subtraction as taking apart and taking from.
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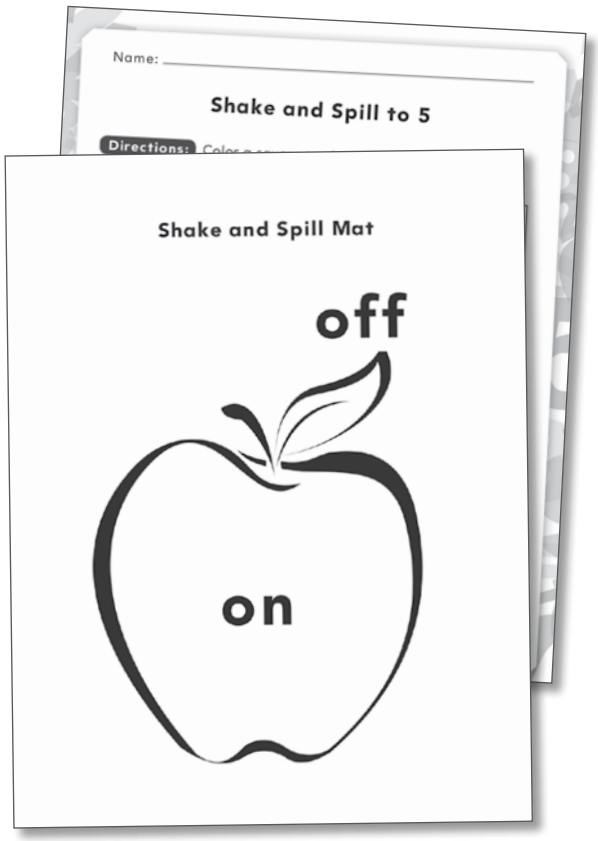

Materials

- *Shake and Spill Mat*
- counters
- cup
- *Shake and Spill* graphing sheet

Directions

1. Take turns:

- Place the target number of counters in the plastic cup.
- Shake the cup, and spill the counters onto the apple mat.
- Count and tell how many landed off and on the apple. For example, "Two on and three off make five."

2. Color the graph to show the combination of numbers you spilled.

3. Continue until time is up.

Talking Points

Vocabulary

- addition
- combination

3 + 5 = 8

addends sum

Talk like a mathematician:

_____ *on* the apple and _____ *off* the apple make _____.

_____ and _____ make _____.

My addends are _____ and _____.

My sum is _____.

When I look at the graph, I notice _____.

Talking Points

Vocabulary

- addition
- combination

3 + 5 = 8

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_____ *on* the apple and _____ *off* the apple make _____.

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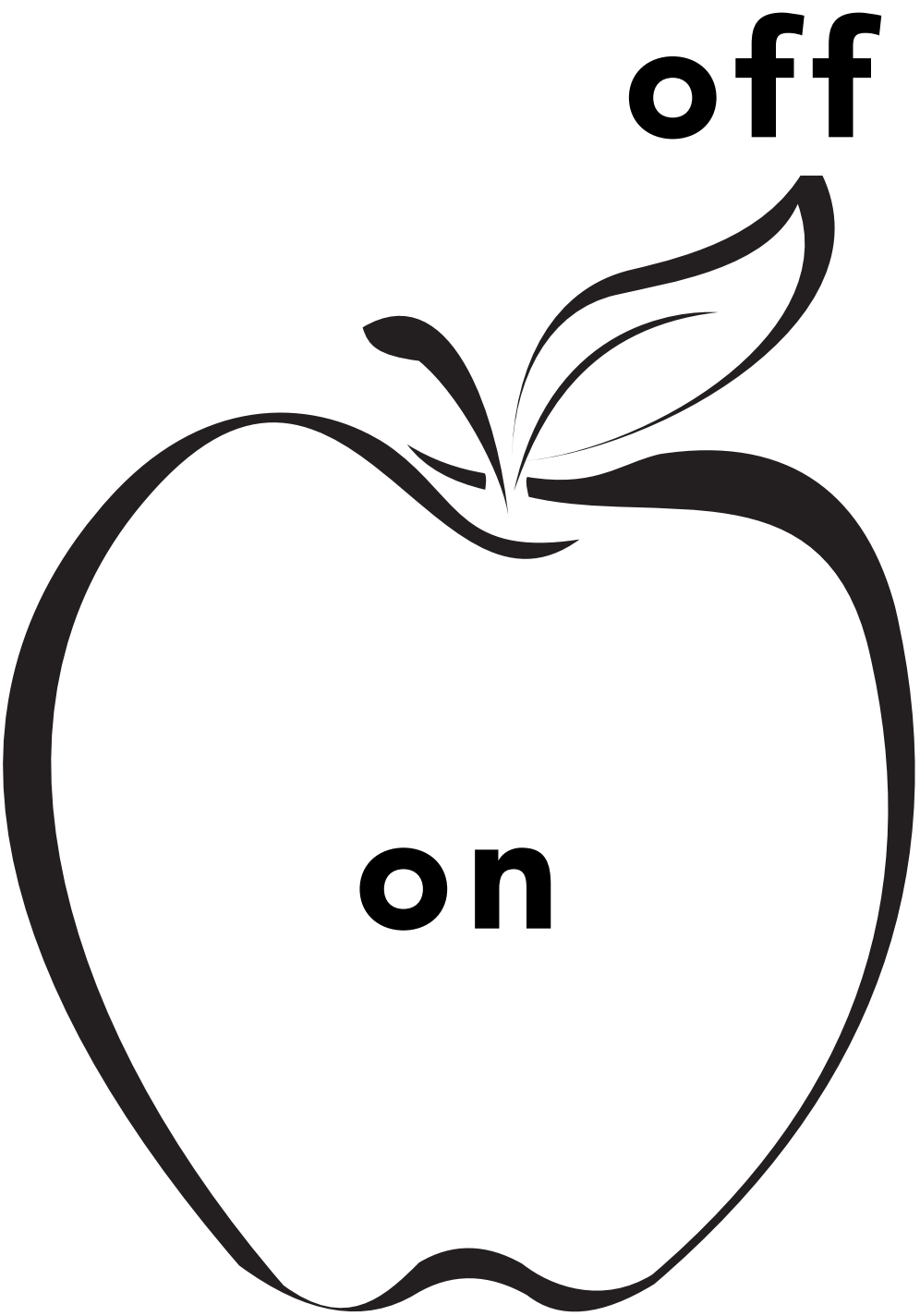
When I look at the graph, I notice _____.

Shake and Spill Mat



Name: _____

Shake and Spill to 5

Directions: Color a square to show each combination of 5 that you shake and spill.

10						
9						
8						
7						
6						
5						
4						
3						
2						
1						
	0 on 5 off	1 on 4 off	2 on 3 off	3 on 2 off	4 on 1 off	5 on 0 off
	0 + 5	**1 + 4**	**2 + 3**	**3 + 2**	**4 + 1**	**5 + 0**

Name: _____

Shake and Spill to 10

Directions: Color a square to show each combination of 10 that you *shake* and *spill*.

10											
9											
8											
7											
6											
5											
4											
3											
2											
1											
	0 on 10 off	1 on 9 off	2 on 8 off	3 on 7 off	4 on 6 off	5 on 5 off	6 on 4 off	7 on 3 off	8 on 2 off	9 on 1 off	10 on 0 off
	0 + 10	**1 + 9**	**2 + 8**	**3 + 7**	**4 + 6**	**5 + 5**	**6 + 4**	**7 + 3**	**8 + 2**	**9 + 1**	**10 + 0**