

Sample Pages from



a division of **Teacher Created Materials**

Thanks for checking us out. Please call us at 877-777-3450 with questions or feedback, or to order this product. You can also order this product online at www.tcmpub.com/shell-education.

For correlations to State Standards, please visit:

www.tcmpub.com/teachers/correlations

Shell Professional and Strategy Resources:

www.tcmpub.com/teachers/professional-resources/correlations

To **Create** a **World** ⁱⁿ _{which}
Children **Love** to **Learn!**

877-777-3450 • www.tcmpub.com/shell-education



SHELL
EDUCATION

Guided MATH

Grades
3-5

Workstations



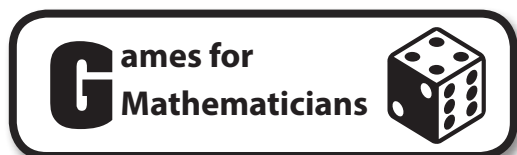
Donna Boucher
Laney Sammons

Table of Contents

Introduction

The Guided Math Framework	5
What Is Math Workshop?.....	6
What Are Math Workstations?.....	7
Differentiating Math Workstation Tasks	9
How to Use This Book	10
Introduction to Standards Correlations	12
Standards Correlations	13

GUIDE Workstation Tasks



Area and Perimeter War.....	15
Difference from 5,000.....	23
On a Roll	29
Equivalent Fractions	33



Exploring Manipulatives	39
\$1,000 House.....	42
Choose Sides.....	46
I Wonder.....	55

Table of Contents *(cont.)*

Independent Math Work



You Write the Story	62
Follow the Rule.....	68
Lining Up Equivalent Fractions.....	77
Measurement Conversion.....	85

Developing Fluency



Numberless Word Problems.....	90
Multiples Tic-Tac-Toe.....	97
Multiplication Move One	103
Twenty-One.....	108
Par for the Course	113

Expressing Mathematical Ideas



This Reminds Me Of.....	119
Wanted Vocabulary Poster	125
All About... ..	130

Appendices

References Cited	133
Answer Key	133
Digital Resources	134

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

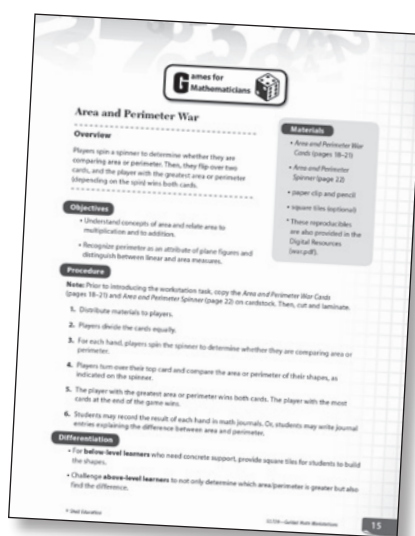
Math Centers	Math Workstations
<ul style="list-style-type: none"> • Games and activities are introduced to students when distributed at centers and are rarely used for instructional purposes. • Centers are often thematic and change weekly. • Centers are often made available to students after they complete their regular work. • All students work on the same centers, and activities are seldom differentiated. 	<ul style="list-style-type: none"> • 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

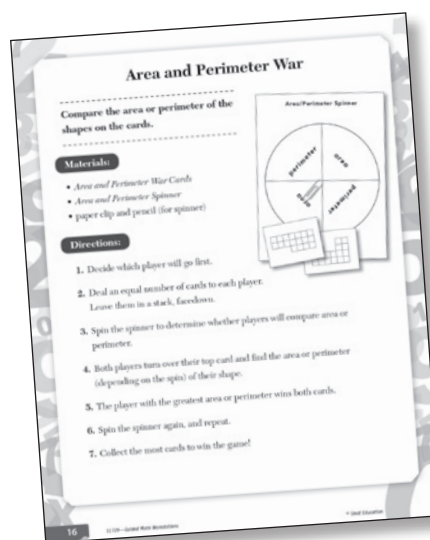
The tasks in this book have been designed for use with the GUIDE Workshop Model, but they may be incorporated into any workshop model you choose. It is important to model and practice these workstation tasks and the sentence stems on the *Talking Points* cards with students before expecting students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



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.





On a Roll

Overview

Students roll number cubes to create six fractions with like denominators, add the fractions, and convert the improper fractions to mixed numbers.

Objectives

- Build fractions from unit fractions by applying and extending previous understandings of operations of whole numbers.
- Add and subtract fractions referring to the same whole and having like denominators.

Procedure

1. Distribute copies of the *On a Roll* recording sheet (page 32) and other materials to students.
2. Player 1 rolls the number cube. All players use that number as the denominator for their fractions.
3. Players take turns rolling the number cube six more times to determine the numerators.
4. Players add their six fractions to create improper fractions. Then, they convert the improper fractions to mixed numbers.
5. Players check each other's work. The player with the largest sum earns a point.
6. Repeat four times.
7. Students may record their thinking on their recording sheets or create posters to show and explain the equivalency between one pair of their improper fractions and mixed numbers.

Differentiation

- You may choose to provide **below-level learners** with fraction tiles to use as a concrete model, or print and cut *Fraction Tiles* (fractiontiles.pdf) from the Digital Resources.
- Have **above-level learners** use a different denominator for their fractions than their opponents, making it more of a challenge to compare the sums.

Materials

- *On a Roll* recording sheet (page 32)
- 1 number cube for each player
- fraction tiles (optional)
- * The *Talking Points* card and these reproducibles are also provided in the Digital Resources (roll.pdf).

On a Roll

Earn points by creating the largest improper fraction or mixed number.

Materials

- *On a Roll* recording sheet
- 1 number cube for each player

Directions

1. Player 1:

- Roll the number cube.
- All players use the number rolled as the denominator.

2. Take turns:

- Roll 6 more times to complete the numerators.
- Add the fractions to create an improper fraction.
- Convert the improper fraction to a mixed number.

3. The player with the greatest sum gets 1 point.

4. Continue for 4 more rounds.

5. The player with the most points wins.



Talking Points



Vocabulary

- addend
- sum
- greater than
- less than

$\frac{3}{4}$ ← numerator
 ← denominator

$\frac{5}{2}$ ← improper
 fraction

$1\frac{2}{3}$ ← mixed
 number

Talk like a mathematician:

A denominator of _____ means
_____ equal parts.

This is an improper fraction because _____.

A mixed number can be expressed as an
equivalent improper fraction by _____.

One strategy I can use to convert an improper
fraction to a mixed number is _____.



Talking Points



Vocabulary

- addend
- sum
- greater than
- less than

$\frac{3}{4}$ ← numerator
 ← denominator

$\frac{5}{2}$ ← improper
 fraction

$1\frac{2}{3}$ ← mixed
 number

Talk like a mathematician:

A denominator of _____ means
_____ equal parts.

This is an improper fraction because _____.

A mixed number can be expressed as an
equivalent improper fraction by _____.

One strategy I can use to convert an improper
fraction to a mixed number is _____.

Name: _____ Date: _____

On a Roll

$$\underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} = \begin{array}{l} \text{Improper} \\ \text{fraction} \end{array} \underline{\quad} \begin{array}{l} \text{Mixed} \\ \text{number} \end{array} \underline{\quad}$$

$$\underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} = \begin{array}{l} \text{Improper} \\ \text{fraction} \end{array} \underline{\quad} \begin{array}{l} \text{Mixed} \\ \text{number} \end{array} \underline{\quad}$$

$$\underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} = \begin{array}{l} \text{Improper} \\ \text{fraction} \end{array} \underline{\quad} \begin{array}{l} \text{Mixed} \\ \text{number} \end{array} \underline{\quad}$$

$$\underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} = \begin{array}{l} \text{Improper} \\ \text{fraction} \end{array} \underline{\quad} \begin{array}{l} \text{Mixed} \\ \text{number} \end{array} \underline{\quad}$$

$$\underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} = \begin{array}{l} \text{Improper} \\ \text{fraction} \end{array} \underline{\quad} \begin{array}{l} \text{Mixed} \\ \text{number} \end{array} \underline{\quad}$$