Table of Contents

What Is Math Workshop?

Math Workshop is a key ingredient of success in a Guided Math classroom (Sammons 2010, 2013). As one of the most versatile components of the framework, it accommodates a vast array of learning tasks. Not only does it provide opportunities for students to learn how to work independently on worthwhile mathematical endeavors, but it also allows teachers to work with small groups or to confer with individual students.

During Math Workshop, students work independently—individually, in pairs, or in groups—and participate in Math Workstation tasks that have been designed to provide ongoing practice of previously mastered concepts and skills, to promote computational fluency, and to encourage mathematical curiosity and inquiry. In the first weeks of school, students learn and repeatedly practice the routines and procedures that make Math Workshop function smoothly. As students assume greater independence for their learning during Math Workshop, teachers may then expand their teaching roles as seen in Figure I.2.

Figure I.2 The Roles of Teachers and Students during Math Workshop

Teachers	Students
• Teach small-group lessons • Conduct math conferences • Informally assess learning through observations • Facilitate mathematical learning and curiosity through questioning	• Assume responsibility for their learning and behavior • Function as fledgling mathematicians • Communicate mathematically with peers • Review and practice previously mastered concepts and skills • Improve computational fluency • Increase ability to work cooperatively with peers

Because of its instructional value to both students and teachers, Math Workshop is an essential component of a Guided Math classroom. This book offers specific guidance for establishing an effective Math Workshop. It includes the following:

- practical strategies for implementation
- a selection of workshop models
- tips for classroom organization
- suggestions for management
- sample Math Workstation tasks
- a guide for the first 15 days

Race to the Bottom: Grades K–2

Overview

Players attempt to reach the bottom row of the 120 Chart by finding patterns in the chart (e.g., 10 more, 10 less, 1 more, 1 less).

Materials

- *120 Chart* (page 179; 120chart.pdf)
- paper clip and pencil
- game markers
- *Race to the Bottom Spinner* (page 180; spinner.pdf)
- base-ten blocks (optional)

Objective

Use place value understanding and properties of operations to add and subtract (mentally find 10 more or 10 less).

Procedure

1. Distribute copies of the *120 Chart* activity sheet (page 179; 120chart.pdf) and other materials to students.
2. Players place game markers on any space in the top row.
3. Taking turns, each player spins the spinner and moves his or her playing piece on the chart. For example, if a player is on 24 and spins *10 more*, the player may move 10 spaces on the chart by moving his or her playing piece down one row.
4. The first player to reach the bottom row wins.
5. Players may record their moves in a math journal or on a recording sheet using the sentence stems from the Talking Points card (e.g., *Ten more than 29 is 39*.).

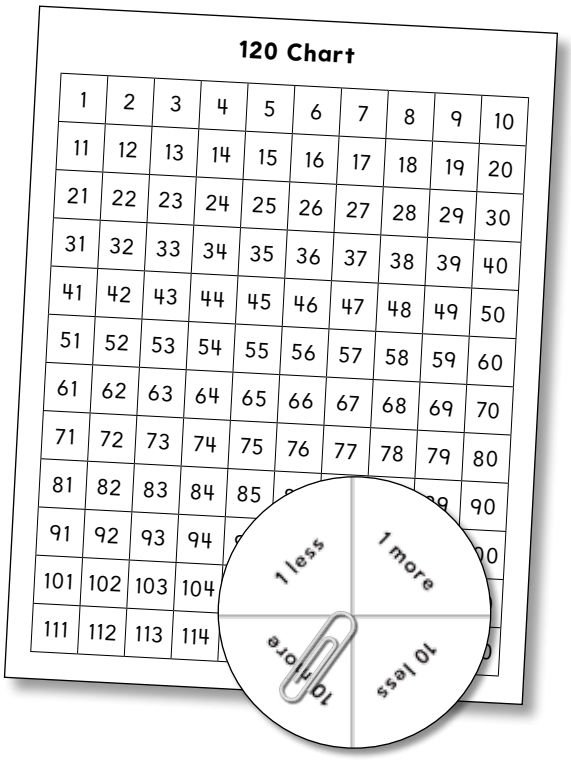
Differentiation

Provide base-ten blocks for **below-level learners** who need concrete support. This also allows students to practice regrouping. For example, if a student is on 20 and spins 1 less, he or she would need to trade a ten for 10 ones to subtract one.

Use charts with larger numbers (e.g., 200–320 or 300–420) for **above-level learners** who are ready to work with a wider range of numbers.

Race to the Bottom

Be the first to reach the bottom row of the *120 Chart!*



Materials

- *120 Chart*
- paper clip and pencil
- game markers
- *Race to the Bottom Spinner*
- base-ten blocks (optional)

Directions

1. Place your game marker on any space in the first row.

2. Take turns:
- Spin the spinner.
- If you spin *10 less* when you are on the first row, spin again.
- Move your playing piece.
- Explain your move. For example, "Ten more than 24 is 34."

3. Reach the bottom row first to win!

Talking Points

Vocabulary

- column
- row
- pattern
- one more →
- one less ←
- ten more ↓
- ten less ↑

Talk like a mathematician:

Ten more than _____ is _____.

Ten less than _____ is _____.

One more than _____ is _____.

One less than _____ is _____.

A pattern I see is _____.

Talking Points

Vocabulary

- column
- row
- pattern
- one more →
- one less ←
- ten more ↓
- ten less ↑

Talk like a mathematician:

Ten more than _____ is _____.

Ten less than _____ is _____.

One more than _____ is _____.

One less than _____ is _____.

A pattern I see is _____.

Using What We Know

$1,000 House: Grades 3–5

Overview

Students use base-ten blocks to construct a house "worth" $1,000.

Materials

- base-ten blocks
- digital device (optional)
- *Recording Sheet (Grades 3–5)* (optional) (recording35.pdf)

Objectives

Generalize place value understanding for multi-digit whole numbers.

Procedure

Note: For this activity, the base-ten blocks have the following values:

- flat = 100
- rod = 10
- unit = 1

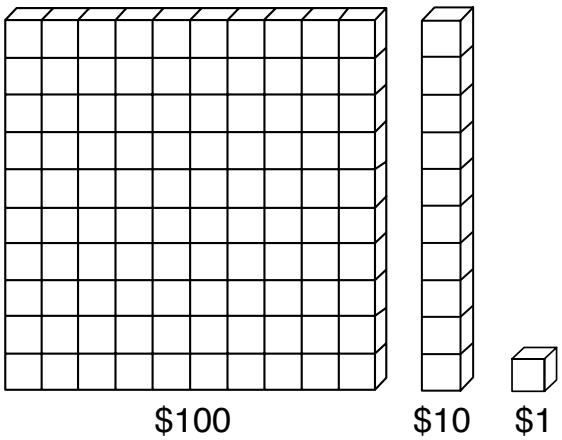
1. Distribute materials to students.
2. Using base-ten blocks, students construct a house with a value of $1,000.
3. Students draw pictorial representations of the materials they used for their houses and the values.
4. Students may use digital devices to photograph their creations.
5. Students may show their thinking in a math journal or on a recording sheet.

Differentiation

Change the targeted value of the house to differentiate this activity for **above-level learners** and **below-level learners**.

$1,000 House

Build a house worth exactly $1,000.



Materials

- base-ten blocks
- digital device (optional)
- *Recording Sheet* (optional)

Directions

1. Each base-ten piece has the value shown in the picture.

2. Build a house with a value of exactly $1,000.

3. Take a photo of your house (optional).

4. Explain the value of $1,000 in at least two ways.

Talking Points

Vocabulary

- place value
- ones
- tens
- hundreds
- sum
- multiply
- product

Talk like a mathematician:

I can group _____ ones to make a 10.

A ten has the same value as _____ ones.

I can group _____ tens or _____ ones to make a hundred.

The value of a ten is _____ times the value of a one.

The value of a hundred is _____ times the value of a ten.

Talking Points

Vocabulary

- place value
- ones
- tens
- hundreds
- sum
- multiply
- product

Talk like a mathematician:

I can group _____ ones to make a 10.

A ten has the same value as _____ ones.

I can group _____ tens or _____ ones to make a hundred.

The value of a ten is _____ times the value of a one.

The value of a hundred is _____ times the value of a ten.

Making Connections: Grades 6–8

Overview

Students roll two number cubes to choose a vocabulary word and describe personal connections, math connections, and real-world connections to the word.

Materials

- 2 number cubes
- *Making Connections Vocabulary Board* (page 225; connectboard.pdf)
- *Making Connections Graphic Organizer* (page 226; connectorg.pdf)
- *Compare-and-Contrast Graphic Organizer* (optional) (page 227; compareorg.pdf)

Objectives

Make sense of math by formulating personal, mathematical, and real-world connections to mathematical concepts.

Procedure

1. Distribute copies of the *Making Connections Graphic Organizer* (page 226; connectorg.pdf) and other materials to students.
2. Students roll two number cubes and find the space where the two numbers intersect on the *Making Connections Vocabulary Board* (page 225; connectboard.pdf). This gives the student a choice of two words. For example, a roll of 1 and 3 could be used as column 1 and row 3 or column 3 and row 1.
3. Students complete the *Making Connections Graphic Organizer* to describe connections to that vocabulary word.
   - **My connections**—Students describe personal connections to the vocabulary term. A student's connections to *percent*, for example, might be the grade they earned on a quiz.
   - **Math connections**—Students describe connections to other math concepts. A math connection for *percent* might be a connection to fractions or decimals.
   - **Real-world connections**—Students describe ways in which they might see this math concept in everyday life. An example would be the connection between *percent* and the savings during a sale at a clothing store.
4. Students may turn in their *Making Connections Graphic Organizers*.

Differentiation

Support **below-level learners** by creating graphic organizers with some of the connections filled in. Provide them with a word bank (or use the *Making Connections Vocabulary Board*), and have them complete the *Making Connections Graphic Organizer*.

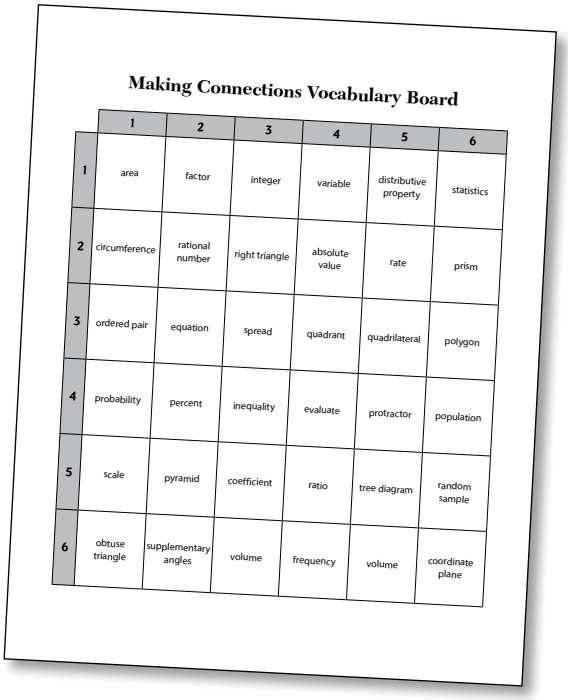
Have **above-level learners** use both words from the roll, complete the *Making Connections Graphic Organizer* for both, and compare and contrast the two words using the *Compare-and-Contrast Graphic Organizer* (page 227; compareorg.pdf).

Making Connections

Describe connections to a math vocabulary word.

Materials

- *Making Connections Vocabulary Board*
- *Making Connections Graphic Organizer*



Making Connections Vocabulary Board

	1	2	3	4	5	6
1	area	factor	integer	variable	distributive property	statistics
2	circumference	rational number	right triangle	absolute value	rate	prism
3	ordered pair	equation	spread	quadrant	quadrilateral	polygon
4	probability	percent	inequality	evaluate	protractor	population
5	scale	pyramid	coefficient	ratio	tree diagram	random sample
6	obtuse triangle	supplementary angles	volume	frequency	volume	coordinate plane

Directions

1. Roll 2 number cubes and find the space where the row and column intersects. For example, a roll of 1 and 3 could be used as column 1 and row 3 (*ordered pair*) or column 3 and row 1 (*integer*).

2. Write your word or phrase in the space marked *Word* on the *Making Connections Graphic Organizer*.

3. Think carefully about connections you have to the vocabulary word. Connections may be one of three types:
   - **My connections**—*What personal connections do you have with the word?*
   - **Math connections**—*What other math concepts have a connection to this vocabulary word?*
   - **Real-world connections**—*What does this math concept look like in everyday life?*

4. Complete the rest of the graphic organizer. Remember to use precise mathematical language.

Talking Points

Vocabulary

- connection
- reflect
- research
- discuss
- notice
- reason

Talk like a mathematician:

The word _____ reminds me of _____ because _____.

I made a connection between _____ and _____ because _____.

This connection is important because _____.

I can relate the word _____ to _____ because _____.

Talking Points

Vocabulary

- connection
- reflect
- research
- discuss
- notice
- reason

Talk like a mathematician:

The word _____ reminds me of _____ because _____.

I made a connection between _____ and _____ because _____.

This connection is important because _____.

I can relate the word _____ to _____ because _____.