1ST 9-WEEKS MATH WARM-UPS

1-1	Subitizing (4-8)-Dot Images		6-1	Unitizing-Quick Images
1-2	Count the Room-fives		6-2	Number String –Making Ten
1-3	Subitizing (4-8)-Dot Images		6-3	Unitizing-Quick Images
1-4	Count the Room-twos		6-4	Numberless Word Problem
1-5	Subitizing (4-8)-Dot Images		6-5	Unitizing-Quick Images
2-1	Subitizing (6-10)-Dot Images		7-1	Unitizing-Quick Images
2-2	Count the Room-tens		7-2	Number String-Making Ten
2-3	Subitizing (6-10)-Dot Images		7-3	Unitizing-Quick Images
2-4	Count the Room-threes		7-4	Numberless Word Problem
2-5	Subitizing (6-10)-Dot Images		7-5	Count the Room-tens
3-1	Subitizing (5-9)-Ten Frames		8-1	Unitizing-Quick Images
3-2	Count the Room-tens		8-2	Number String-Friendly Numbers
3-3	Subitizing (5-9)-Ten Frames		8-3	Unitizing-Quick Images
3-4	Numberless Word Problem		8-4	Numberless Word Problem
3-5	Subitizing (5-9)-Ten Frames		8-5	Count the Room-tens
4-1	Subitizing (Counting on) Dot Images		9-1	Unitizing-Quick Images
4-2	Number String-Making Tens		9-2	Number String-Friendly Numbers
4-3	Subitizing (Counting on) Dot Images		9-3	Unitizing-Quick Images
4-4	Numberless Word Problem		9-4	Numberless Word Problem
4-5	Subitizing (Counting on) Dot Images		9-5	Count the Room-hundreds
5-1	Subitizing (Counting on) Ten Frames			
5-2	Number String-Making Tens			
5-3	Subitizing (Counting on) Ten Frames			
5-4	Numberless Word Problem			
5-5	Subitizing (Counting on) Ten Frames			

2ND 9-WEEKS MATH WARM-UPS

10-1	Number String-Friendly Numbers		15-1	Number String-Counting Up
10-2	Unitizing		15-2	Numberless Word Problem
10-3	Parts and Wholes		15-3	Subitizing Fractions
10-4	Number String-Friendly Numbers		15-4	Number String-Counting Up
10-5	Numberless Word Problem		15-5	Numberless Word Problem
11-1	Number String-Friendly Numbers		16-1	Number String-Counting Up
11-2	Numberless Word Problem		16-2	Numberless Word Problem
11-3	Unitizing		16-3	Subitizing Fractions
11-4	Number String-Friendly Numbers		16-4	Number String-Counting Up
11-5	Numberless Word Problem		16-5	Numberless Word Problem
12-1	Number String-Place Value		17-1	Number String-Removal
12-2	Unitizing -fractions		17-2	Numberless Word Problem
12-3	Count the Room		17-3	Parts and Wholes
12-4	Number String-Place Value		17-4	Number String-Removal
12-5	Numberless Word Problem		17-5	Numberless Word Problem
13-1	Number String-Place Value		18-1	Number String-Removal
13-2	Unitizing		18-2	Numberless Word Problem
13-3	Parts and Wholes		18-3	Count the Room-one-fourths
13-4	Number String-Place Value		18-4	Number String-Removal
13-5	Numberless Word Problem		18-5	Numberless Word Problem
14-1	Number String-Adding Up			
14-2	Numberless Word Problem			
14-3	Quick Image-Fractions			
14-4	Number String-Adding Up			
14-5	Numberless Word Problem			

3ʳᴰ 9-WEEKS MATH WARM-UPS

19-1	Geometric Unitizing		24-1	Geometric Unitizing
19-2	Number String-Adjusting One Number		24-2	Number String-Partial Products
19-3	Count the Room-Prime Numbers		24-3	Count the Room-Fractions
19-4	Numberless Word Problem		24-4	Numberless Word Problem
19-5	Number String-Adjusting One Number		24-5	Number String-Partial Products
20-1	Geometric Unitizing		25-1	Geometric Unitizing
20-2	Number String-Adjusting One Number		25-2	Number String-Partial Product
20-3	More or Less Than One Whole		25-3	Parts and Wholes-Decompose Fractions
20-4	Numberless Word Problem		25-4	Numberless Word Problem
20-5	Number String-Adjusting One Number		25-5	Number String-Partial Product
21-1	Geometric Unitizing		26-1	Geometric Unitizing
21-2	Number String-Friendly Numbers		26-2	Number String-Doubling and Halving
21-3	Count the Room Composite Numbers		26-3	Count the Room-Fractions
21-4	Numberless Word Problem		26-4	Numberless Word Problem
21-5	Number String-Friendly Numbers		26-5	Number String-Doubling and Halving
22-1	Geometric Unitizing		27-1	Geometric Unitizing
22-2	Number String-Friendly Numbers		27-2	Number String-Doubling and Halving
22-3	Which is Greater		27-3	Parts and Wholes-Decompose Fractions
22-4	Numberless Word Problem		27-4	Numberless Word Problem
22-5	Number String-Friendly Numbers		27-5	Number String-Doubling and Halving
23-1	Geometric Unitizing			
23-2	Number String-Partial Products			
23-3	Parts and Wholes-Decompose Fractions			
23-4	Numberless Word Problem			
23-5	Number String-Partial Products			

4ᵀᴴ 9-WEEKS MATH WARM-UPS

28-1	Numberless Word Problem		33-1	Numberless Word Problem
28-2	Number Strings-Breaking Down Factors		33-2	Number Strings-Multiplying Up
28-3	Parts and Wholes		33-3	Patterns
28-4	Numberless Word Problem		33-4	Numberless Word Problem
28-5	Number Strings-Breaking Down Factors		33-5	Number Strings-Multiplying Up
29-1	Numberless Word Problem		34-1	Numberless Word Problem
29-2	Number Strings-Breaking Down Factors		34-2	Number Strings-Multiplying Up
29-3	Parts and Wholes		34-3	Patterns
29-4	Numberless Word Problem		34-4	Numberless Word Problem
29-5	Number Strings-Breaking Down Factors		34-5	Number Strings-Multiplying Up
30-1	Numberless Word Problem		35-1	Numberless Word Problem
30-2	Number Strings-Partial Quotient		35-2	Number Strings-Multiplying Up
30-3	Patterns		35-3	Patterns
30-4	Numberless Word Problem		35-4	Numberless Word Problem
30-5	Number Strings-Partial Quotient		35-5	Number Strings-Multiplying Up
31-1	Numberless Word Problem		36-1	Numberless Word Problem
31-2	Number Strings-Partial Quotient		36-2	Number Strings-Proportional Reasoning
31-3	Patterns		36-3	Patterns
31-4	Numberless Word Problem		36-4	Numberless Word Problem
31-5	Number Strings-Partial Quotient		36-5	Number Strings-Proportional Reasoning
32-1	Numberless Word Problem			
32-2	Number Strings-Partial Quotient			
32-3	Patterns			
32-4	Numberless Word Problem			
32-5	Number Strings-Partial Quotient			

IMPLEMENTATION

Number sense is critical for math understanding. Without number sense, it is difficult for students to compute and to find relationships within numbers or equations. Some students may use procedures and algorithms correctly but with little understanding of the math involved. These students solve problems without finding meaning or making sense of the problem. Students need visual, perceptual, and conceptual understandings of quantities to understand numbers relationships, to work flexibly with numbers, and to reason with numbers. Number sense is what allows students to master more challenging math standards such as multiplication, division, fractions, and decimals.

As an upper elementary teacher, I once thought these activities, especially subitizing, unitizing, and counting, were primarily geared toward the lower elementary grades. However, with experience and research, I soon learned that they can also play an important role in developing number sense in the upper elementary classroom.

This resource is meant to be used as a math warm-up. Students should gather together as a whole group. The teacher will display the problem of the day. It is important that the problem is displayed in <u>slideshow mode</u>, because this will allow the transitions to display appropriately. To move each slide forward, simply press the right arrow key. To go back, press the left arrow key.

Each day students will complete a different type of activity. These activities consistently spiral and increase in difficulty as the year progresses. Of course, it's best to specifically tailor your instruction to your students' needs, so this resource is 100% editable. You are welcome to add, take away, or move problems. I do encourage you to follow the order as the lessons are very strategic. The power in these lessons come from the class conversations, so this is not something that can be completed independently, as students will need teacher guidance in the conversations.

If you have any questions, feel free to contact me at ashleigh_60@hotmail.com.

QUICK IMAGES

Quick images are pictures of quantities that are organized to encourage students to their subitizing abilities and spatial sense of quantities. When completing a Quick Image activity, show students an image for a few seconds and then quickly cover the image. After showing the image, have students raise their hand to share the quantity that was shown and record their responses on your dry erase board. Once students share their quantities, the class meets together to discuss the strategies for identifying the quantity. You will be able to show the images by pressing the right arrow button on your computer. The image will show. When you click the arrow again, the image will disappear.

The quickness of that viewing decreases students' tendency to count by ones. The requires students to either subitize or unitize which is a foundation of number sense development.

COUNT THE ROOM

Counting experiences help students recognize the relationship among numbers and allow students to become more confident and proficient with multiple math concepts. Students need repeated practice with counting to become fluent with counting sequences and to develop their number sense. One way to teach this is through a counting around the room activity. Counting around the room is a routine that requires whole-group participation, where each student says a number as students count one-by-one around the room. Students will count by multiples, tens, hundreds, thousands, and fractions. The table of contents indicates what unit students should count for each of the Count the Room activities. This activity does work best with students sitting in a circle, but as long as students know the order in which they are counting, any seating arrangement will work. As students count, you may record the number sequence on your dry erase board. In this activity, you will be able to press the right arrow key to show the correct number that should be stated.

PARTS & WHOLES

Flexibility with numbers is essential for students to invent effective strategies and methods for problem solving, and the concept of parts and wholes is the basis for students' abilities to compose and decompose numbers. One great way to teach parts and wholes is through a target number activity. The purpose of the activity is to help students think about numbers in flexible ways by having them think about how the number can be represented, composed, and decomposed. In this activity, you will give students a number and have students think of all the ways they can compose that number. As students develop an understanding of the routine, there will be constraints such as using three addends or only with multiplication and division. As students become more proficient, they may decompose fractions. These activities allow you to see incorrect generalizations that can be addressed and retaught correctly.

NUMBERLESS WORD PROBLEMS

In numberless word problems, all numbers are removed temporarily while students process what the situation is and determine what information is needed to solve the problem. Numbers are gradually revealed until a solution is reached. You can reveal the extra information to students by pressing the right arrow key. Numberless word problems are a great way to help students notice the relationships in problem situations before being presented with a number. When using numberless word problems, I create multiple parts, one for each phase of revealing information, and I share the question after all the information has been presented. The power of a numberless word problem is in the conversation students have as you reveal each new piece of information, so this activity is best done in a whole group or small group setting. To initiate meaningful thinking ask questions as you present each part of the problem. For example: What do you know? What information have you been given? What does the new information tell you? What operation(s) does this situation make you think about? What kinds of questions could be asked about this situation?

NUMBER STRINGS

A Number String is a set of related math problems designed to teach strategies based on number relationships. This should be completed orally, and students should solve all computation mentally, without using any paper. Students should be encouraged to use the strategy focus to solve each problem.

Addition:

- Making Tens-One of the core foundations of our number system is the ability to make and use groups of ten. Looking for tens in computation is one of the first things you want to establish. The sequence of these problems allow students to apply strategies from previous problems to subsequent problems.

- Friendly Numbers-When students understand that you can compensate in addition without altering the sum, they can begin to construct mental computation strategies from this concept. The sequence of problems allow students to apply strategies from previous problems to subsequent problems.

- Place Value-The key to place value number talks is to encourage students to break each number into its place value. The numbers chosen have an obvious relationship to each other and allow students to work mentally from left to right.

Subtraction:

- Adding Up-When teaching students to add up, it is important to keep the minuend and subtrahend far apart and model solving the problem with a number line. These problems begin with smaller numbers and build up to larger problems.

- Removal-To help students think about the removal strategy you may create a context that implies taking or removing an amount out of the whole. The problems consist of three or four sequential problems that allow students to apply strategies from previous problems.

- Adjusting One Number-If students do not have a strong understanding of the part-whole relationship in subtraction, they will be limited in the strategies they can use. When either a minuend or subtrahend is adjusted to make a friendlier number, the strategy will warrant that the remainder or answer also be adjusted.

CONTINUED

Multiplication:

- Friendly Numbers-A common error students make when changing one of the factors to a landmark number is to forget to adjust the number of groups. These number talks consist of three or more sequential problems. The sequence of problems within a given number talk allows students to apply strategies from previous problems.
- Partial Products-This strategy can be used with any multiplication problem. This strategy is based on breaking one or both factors into addends through using expanded notation and the distributive property. While both facts can be represented with expanded notation, keeping one number whole is often more efficient.
- Doubling and Halving-Halving and doubling is an excellent strategy to restructure a problem with multiple digits and make it easier to solve. Helping students notice the relationship between the two factors is important to understanding this strategy. Students should also remember that the factors can adjust while the area of the array stays the same.
- Smaller Factors-Students need experiences breaking factors into smaller factors and applying the associative property.

Division:

- Partial Quotient-The partial quotient strategy maintains the integrity of place value and allows the students to approach the problem by building on multiplication problems with friendly multipliers. This strategy allows the student to navigate through the problem by building on what they know.
- Multiplying Up-This is an accessible division strategy that capitalizes on the relationship between multiplication and division. This allows students to build on multiplication problems they know.
- Proportional Reasoning-This allows students to explore the relationship of the part to the whole by using equivalent fractions.

NUMBER SENSE DOCUMENTATION WEEK 1, 2, & 3

Student	Subitizing 4 & 5	Subitizing 6-8	Counting

NUMBER SENSE DOCUMENTATION WEEK 4 & 5

Student	Subitizing	Number Strings	Counting	Word Problems

NUMBER SENSE DOCUMENTATION WEEK 6, 7, 8, & 9

Student	Unitizing	Number Strings	Counting	Word Problems