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Mastering 2nd Grade Math Curriculum Map

These no prep math worksheets, cover the five math curriculum. Each topic contains individual skills and concepts that match the learning expectations of the curriculum. Mastering Math is an excellent framework for reviewing the math curriculum at home for students who need extra practise.

Organized according to these five general curriculum threads:

1. Number Sense and Numeration (about numbers, counting and basic arithmetic operations)
2. Measurement (of distances, time, temperature, area and volume, using standard SI units)
3. Geometry and Spatial Sense (understanding and using shapes, figures, symmetry and translations)
4. Patterning and Algebra (patterns, problem solving and translating between words and equations)
5. Data Management and Probability (collecting, organizing and displaying information and drawing conclusions from it)

There are two versions of worksheets for each topic. We have included a Canadian version for each topic. There are also some google slides to go along with the Canadian worksheets.

Teacher Notes Include:

- At A Glance – List of Skills
- Table of Contents
- Teacher Assessment Rubric
- Meeting Common Core Standards List – US Version

PATTERNING WORKSHEETS

- **Patterning Google Slides**

Patterning Worksheet Topics:

1. Skip-Counting Patterns
2. Growing and Shrinking Patterns
3. Patterns in Real Life
4. Represent Patterns
5. Patterns in Different Media
6. Create Growing and Shrinking Patterns
7. Create Repeating Patterns
8. What Makes a Pattern?
9. Equality With Numbers
10. Equal Number Expressions
11. Missing Numbers: Addition
12. Missing Numbers: Subtraction
13. The Commutative Property of Addition
14. Zero in Adding and Subtracting

Patterning Common Core Standards Met:

- 2.OA.A.1 Use addition and subtraction (sums to 100) to solve word problems (use drawings and equations).
- 2.OA.B.2 Add and subtract fluently within 20 (mental math)
- 2.NBT.A.2 Count within 1000; skip-count by 5's 10's and 100's.
- 2.MD.D.9 Generate measurement data and show data: e.g. on a line plot
- 2.MD.D.10 Draw a picture graph and a bar graph to represent measurement data.

NUMERATION WORKSHEETS

Numeration Worksheet Topics:

1. Represent Numbers
2. Compare Numbers
3. Number Words
4. Locate Numbers
5. The Nearest 10
6. Estimate and Count Coins
7. Compose Numbers
8. 1-digit Addition
9. 2-digit Addition
10. Addition with Regrouping
11. Decompose Numbers
12. Subtraction
13. Subtraction with Regrouping
14. Relations Between Quantities
15. Add and Subtract Money
16. Count Forward by 1's and 2's
17. Skip-Count Forward by 5's, 10's, 25's
18. Count Backwards
19. Multiplication
20. Division
21. Compare Parts
22. The Number and Size of Parts
23. Regroup Parts Into Wholes

Numeration Common Core Standards Met:

- 2.OA.B.2 Add and subtract fluently within 20 (mental match)
- 2.OA.C.3 Determine if groups have an odd or even number of objects. Write an equation to show an even number as a sum of two addends.
- 2. NBT.A.1 Understand that a three-digit number represents ones, tens, hundreds.
- 2. NBT.A.2 Count within 1000; skip-count by 5's 10's and 100's.
- 2. NBT.B.5 Fluently add and subtract within 100.
- 2. MD. C.8 Solve word problems involving dollars, quarters, dimes, nickels and pennies. Use \$ and cents symbols.
- 2. G.A.2 Divide a rectangle into rows and columns of same-size squares and count to find the total.
- 2. G.A.3 Divide circles and rectangles into two, three or four equal parts. Describe the parts as halves, thirds, fourths.

MEASUREMENT WORKSHEETS

- **Metric Measurement Google Slides**
- **Metric Measurement Version Included**

Measurement Worksheet Topics:

1. Represent Measurements
2. Estimate and Measure Length
3. Personal Benchmarks
4. Standard Units of Length
5. Select Units
6. Measuring Around Things
7. Measuring Areas
8. Size and Number of Units – Area
9. Measure Capacity
10. Measure Mass
11. Compare by Capacity and Mass
12. Tell Time
13. Write Time
14. Measuring Tools for Time
15. Effects of Temperature
16. Changing Temperatures
17. Days and Weeks
18. Months and Years

Measurement Common Core Standards Met:

- 2.OA.B.2 Add and subtract fluently within 20 (mental match)
- 2. MB.A.1 Measure length of an object using appropriate tools (rulers, yardsticks, measuring tapes.)
- 2. MD.A.2 Measure the length of an object twice using different units of length; describe relation of size to unit.
- 2. MD.A.3 Estimate lengths using units of inches, feet, centimeters and meters.
- 2. MD.A.4 Measure to determine difference in the lengths of objects; record the results
- 2. MD.C.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
- 2. MD.D.9 Generate measurement data and show data: e.g. on a line plot

GEOMETRY WORKSHEETS

Geometry Worksheet Topics:

1. Geometric Attributes
2. Identifying Polygons
3. Sort Polygons by Geometric Properties
4. Identify Figures
5. Sort 3D Figures by Geometric Properties
6. Create Models and Skeletons
7. Compose Designs
8. Decompose Shapes
9. Compose Shapes
10. Outline Puzzles
11. Build A Structure
12. Relative Locations and Movement
13. Simple Maps
14. Lines of Symmetry
15. Create Symmetrical Designs
16. Complete Symmetrical Designs

Geometry Common Core Standards Met

- 2. G.A.1 Recognize and draw shapes with specified attributes. Identify triangles, quadrilaterals, pentagons, hexagons and cubes.
- 2. G.A.2 Divide a rectangle into rows and columns of same-size squares and count to find the total.
- 2. G.A.3 Divide circles and rectangles into two, three or four equal parts. Describe the parts as halves, thirds, fourths.

DATA MANAGEMENT WORKSHEETS

- **Data Management Google Slides**

Data Management Worksheet Topics:

1. Sort Objects
2. Gather Data – Survey
3. Concrete Graphs
4. Pictographs
5. Line Plot Graphs
6. Bar Graphs
7. Read Data
8. Pose and Answer Questions
9. Understanding Data
10. Data Values and Frequency of Events
11. Probability Experiments
12. Probability of an Event
13. Probability as a Measure of Likelihood

Data Management Common Core Standards Met

- 2. MD.D.9 Generate measurement data and show data: e.g. on a line plot
- 2. MD.D.10 Draw a picture graph and a bar graph to represent measurement data.

Skip-Counting Patterns

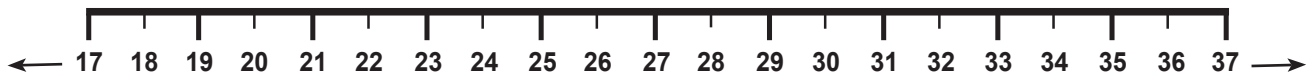


Use the number lines below to draw the “skips” as you skip count.

1. Skip count forward by 2's, starting at 12 (the first skip is done for you).



2. Skip count forward by 5's, starting at 20.



Use the hundreds chart to answer the questions below.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

3. What pattern do you notice if you count backwards by 10's from 100?

4. What pattern do you get if you skip count forward by 2's?

5. What pattern does skip counting by 5's make?

6. What other skip counting patterns can you find by counting on the chart?



Growing and Shrinking Patterns



1. Here's a set of facts we've already looked at but we're going to look for the pattern this time. Write in the answers to the following:

$$3 + 1 = \underline{\hspace{2cm}}$$

$$3 + 2 = \underline{\hspace{2cm}}$$

$$3 + 3 = \underline{\hspace{2cm}}$$

$$3 + 4 = \underline{\hspace{2cm}}$$

$$3 + 5 = \underline{\hspace{2cm}}$$

- a) What patterns do you see in the numbers that are being added together?

- b) What pattern do you see in the answer numbers?

- c) Are the answers in the pattern shrinking or growing?

2. Let's try another:

$$1 + 4 = \underline{\hspace{1cm}} \quad 2 + 4 = \underline{\hspace{1cm}} \quad 3 + 4 = \underline{\hspace{1cm}} \quad 4 + 4 = \underline{\hspace{1cm}} \quad 5 + 4 = \underline{\hspace{1cm}}$$

- a) What is happening in this pattern? (list three things)

- b) Is this pattern shrinking or growing? _____

3. Try this one:

$$7 + 2 = \underline{\hspace{1cm}} \quad 6 + 2 = \underline{\hspace{1cm}} \quad 5 + 2 = \underline{\hspace{1cm}} \quad 4 + 2 = \underline{\hspace{1cm}} \quad 3 + 2 = \underline{\hspace{1cm}}$$

- a) What's happening in this pattern? (list three things)

- b) Is the pattern shrinking or growing? _____



Patterns in Real Life



Patterns aren't just in the classroom. We see them all the time in real life, too. We just need to look for them.

1. For instance, what happens to your age every time you have a birthday? Describe the pattern. Is your age shrinking or growing?

2. What about the number of days until your next birthday? Describe the pattern you get if you write down the number of days left each day. Is this a shrinking or growing pattern?

3. Do all patterns either shrink or grow? How about the designs on a piece of fabric or wallpaper? Or the beats in a piece of music?

4. Find some other examples of patterns in real life. You should look for at least one shrinking pattern, one growing pattern, and one repeating pattern. Describe or sketch them here:



Represent Patterns



Here's an example of a growing pattern: 1, 2, 3, 4, 5, 6, ...

It's easy to see what it is when it's presented in numbers, but could you show the same pattern by clapping your hands?

Try this. For every number, clap that many times. Leave a pause in between numbers, like so:



Can you think of a way to represent this pattern with colors? How about beads? Sketch your answers here:



Patterns in Different Media



Here's another pattern: 7, 6, 5, 4, 3, ...

Can you think of a way to represent this pattern with sounds? Could you use tapping to represent the numbers? Show how you would do that:

Could you use volume (loudness or softness) to represent this pattern? Show how. Use words to describe the volumes. _____

Represent the pattern by using stars.

What other things can you think of that you could use to represent this pattern?



Create Growing and Shrinking Patterns



We've been looking at patterns that are already made but now it's time for you to make up your own!

Create a growing pattern using a simple shape and draw it here.

Describe your pattern in words. _____

What would the next shape in your pattern be? _____

Create a shrinking pattern using groups of circles, and draw it here.

Describe your pattern in words. _____

Create a growing pattern using pennies and draw it here.

Describe your pattern in words: _____

Home Practice: Create more growing and shrinking patterns using various counters, numbers or other representations!



Create Repeating Patterns



Create a repeating pattern using two or three different shapes and at least two different sizes. Draw at least three repeats of it here.

Describe your pattern in words. _____

What would the next shape in your pattern be? _____

Create a repeating pattern using large and small triangles and two or three different colors. Draw at least three repeats of it here.

Describe your pattern in words. _____

Create a repeating pattern using two or three different colors of triangles that point in at least two directions. Draw at least three repeats of it here.

Describe your pattern in words. _____

Home Practice: Create more patterns by changing any two attributes. You could use size, shape, color, texture, sound, speed... There are many possibilities!



What Makes a Pattern?



We've looked at three types of patterns so far: repeating patterns, growing patterns and shrinking patterns. We call the individual parts of a pattern the "terms" of the pattern. For instance, in this pattern:

1, 2, 3, 1, 2, 3, 1, 2, 3,

1. The first term is 1, the second term is 2, the third term is 3, the fourth term is 1, and so on. What kind of pattern is this? _____

What thing repeats in any repeating pattern? _____

Use your own words to describe what happens in a repeating pattern.

Growing and shrinking patterns are similar to each other but a bit different from a repeating pattern. Instead of the terms always being the same they change.

2. In a growing pattern, the terms change by getting _____ .

In a shrinking pattern, the terms change by getting _____ .

In both growing and shrinking patterns, the terms change by the

_____ amount each time.

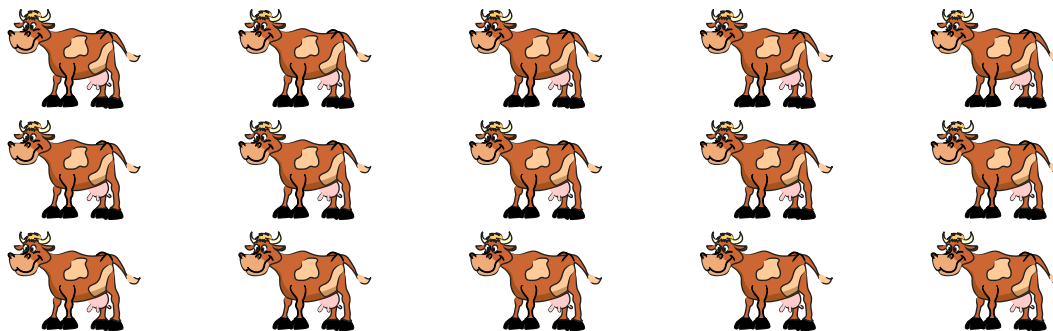
Use your own words to describe what the thing that repeats in a growing or shrinking pattern is.



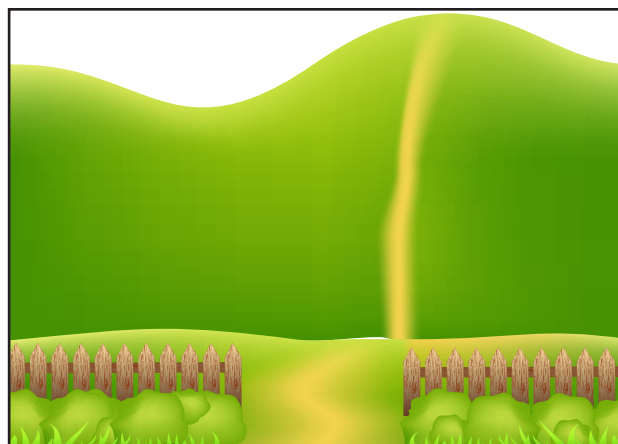
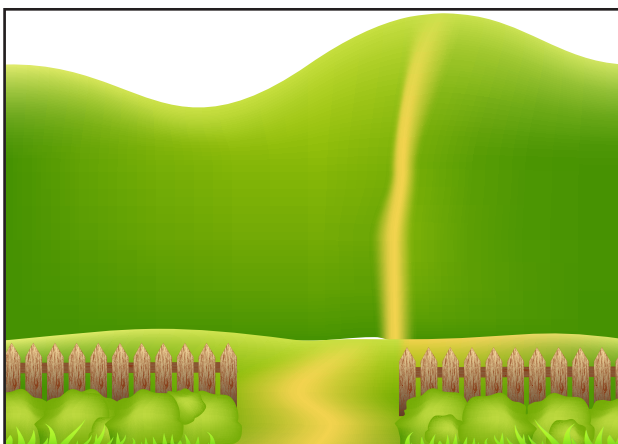
Equality With Numbers



Suppose a farmer has 15 cows and wants to put them into two fields:



Draw the cows so that some are in one field and the rest are in the other.



Is that the only way to divide the cows? _____

If you divided them differently, would it change how many cows there are altogether? _____

Show three ways to have two groups of stars that add up to six stars altogether:



Equal Number Expressions



We've already practiced dividing numbers up in different ways. Suppose you have two different number sentences that have the same answer:

$$3 + 6 = 9$$

$$5 + 4 = 9$$

Because both the $3 + 6$ and the $5 + 4$ add up to the same thing, we could say that they are also equal. We call them equal expressions. For each of the following examples, write the answers underneath and circle the expressions if they are equal. Watch the signs!

a) $9 + 6$

$6 + 2$

b) $4 + 8$

$6 + 6$

c) $7 + 5$

$9 + 3$

d) $7 - 4$

$2 + 1$

e) $7 + 6$

$4 + 4$

f) $8 - 6$

$5 - 3$

g) $8 + 7$

$6 + 9$

h) $6 + 3$

$12 - 3$

i) $6 + 6$

$1 + 9$

j) $3 + 8$

$12 - 1$



Missing Numbers: Addition



1. Find the missing number in each of the following equations and fill it in.

a) $2 + \underline{\quad} = 9$

b) $\underline{\quad} + 4 = 13$

c) $3 + \underline{\quad} = 8$

d) $\underline{\quad} + 4 = 11$

e) $6 + \underline{\quad} = 14$

f) $\underline{\quad} + 7 = 16$

2. For these questions, you will have to do one of the additions first so you can see what's missing!

a) $1 + \underline{\quad} = 3 + 4$

b) $\underline{\quad} + 5 = 7 + 7$

c) $6 + \underline{\quad} = 9 + 2$

d) $\underline{\quad} + 4 = 9 + 2$

e) $1 + \underline{\quad} = 6 + 3$

f) $\underline{\quad} + 7 = 8 + 4$

g) $8 + \underline{\quad} = 5 + 9$

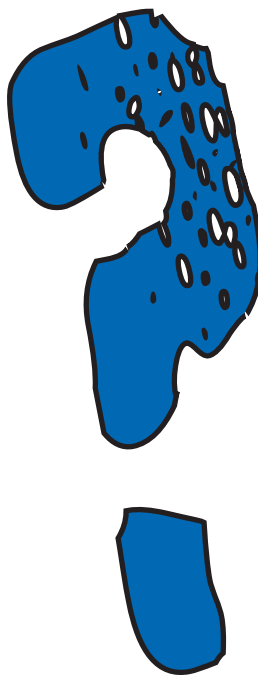
h) $\underline{\quad} + 1 = 4 + 7$

i) $4 + \underline{\quad} = 1 + 9$

j) $\underline{\quad} + 2 = 7 + 3$

k) $3 + \underline{\quad} = 7 + 5$

l) $\underline{\quad} + 4 = 9 + 2$



Missing Numbers: Subtraction



1. Find the missing number in each of the following equations and fill it in.

a) $18 - \underline{\quad} = 9$

b) $\underline{\quad} - 5 = 7$

c) $16 - \underline{\quad} = 7$

d) $\underline{\quad} - 8 = 2$

e) $5 - \underline{\quad} = 4$

f) $\underline{\quad} - 3 = 4$

2. For these questions, you will have to do one of the subtractions first so you can see what's missing!

a) $11 - \underline{\quad} = 6 - 1$

b) $\underline{\quad} - 4 = 13 - 8$

c) $17 - \underline{\quad} = 13 - 4$

d) $\underline{\quad} - 5 = 9 - 8$

e) $17 - \underline{\quad} = 10 - 3$

f) $\underline{\quad} - 8 = 13 - 6$

g) $16 - \underline{\quad} = 9 - 2$

h) $\underline{\quad} - 5 = 12 - 8$

i) $10 - \underline{\quad} = 12 - 4$

j) $\underline{\quad} - 2 = 14 - 9$

k) $15 - \underline{\quad} = 8 - 1$

l) $\underline{\quad} - 7 = 18 - 9$



The Commutative Property of Addition



“Commutative” is a word that mathematicians use when they mean that it doesn’t matter what order the numbers come in. That is, if we add $6+4$ we get 10, and if we add $4+6$, we still get 10. The 4 and 6 can go in either order.

Here are some pairs of number sentences. Fill in the missing spots to show the commutative rule:

a) $6 + \underline{\quad} = 10$

$\underline{\quad} + 6 = 10$

b) $1 + \underline{\quad} = 5$

$\underline{\quad} + 1 = 5$

c) $2 + \underline{\quad} = 4$

$\underline{\quad} + 2 = 4$

d) $6 + \underline{\quad} = 7$

$\underline{\quad} + 6 = 7$

e) $4 + \underline{\quad} = 11$

$\underline{\quad} + 4 = 11$

f) $7 + \underline{\quad} = 12$

$\underline{\quad} + 7 = 12$

g) $5 + \underline{\quad} = 8$

$\underline{\quad} + 5 = 8$

h) $7 + \underline{\quad} = 16$

$\underline{\quad} + 7 = 16$

i) $8 + \underline{\quad} = 15$

$\underline{\quad} + 8 = 15$

j) $6 + \underline{\quad} = 14$

$\underline{\quad} + 6 = 14$

k) $10 + \underline{\quad} = 18$

$18 = \underline{\quad} + 8$

l) $4 + \underline{\quad} = 14$

$14 = \underline{\quad} + 4$



Home Practice: Pick any two numbers. Add them one way and then add them the other way. Make sure they come out the same both ways!



Zero in Adding and Subtracting



Zero is a very special number. It stands for “nothing” but sometimes it’s just as important to know that there isn’t something there. For instance, we use a zero to write the numeral for 10 – the numeral stands for one group of ten and zero ones. That makes it different from 1 (which is one group of one), and 11 (which is a ten and a one).

1. It’s important to be able to add with zero.

Start With:	Add:	Altogether:
a) 12	0	_____
b) 0	8	_____
c) 5	0	_____
d) 0	17	_____
e) If you add zero to a number, what do you get?		_____

2. Now let’s try it with subtraction.

Start With:	Subtract:	Left Over:
a) 15	0	_____
b) 3	0	_____
c) 10	0	_____
d) If you subtract zero from a number, what do you get?		_____

