

Common Core Mathematics Curriculum - Grade 1

- The following is an annotated curriculum for teaching the Grade 1 Common Core State Standards (CCSS) for Math. Both instruction and content are provided on the Internet, accessed using the links provided. Specific links are provided for each topic. Additionally, there are several general links that teachers may wish to access for additional: background material, audio-visual aids and materials for students.

Content Standards: Kindergarten Through Grade Eight

<http://illustrativemathematics.org/standards/k8>

Common Core Standards Illustrations

<http://www.mathscore.com/math/standards/Common%20Core/3rd%20Grade/>

Common Core Standards Illustrations

<http://www.mathscore.com/math/standards/Common%20Core/3rd%20Grade/>

Standards Progression for Grades K-5 Operations and Algebraic Thinking; See pages 1-7;12-17

http://commoncoretools.files.wordpress.com/2011/05/ccss_progression_cc_0a_k5_2011_05_302.pdf

Standards Progression for Grades K-5 Number and Operations in Base Ten; See pages 1-7

http://commoncoretools.files.wordpress.com/2011/04/ccss_progression_nbt_2011_04_073.pdf

- Curriculum tasks are presented in a logical sequence, rather than in the order in which the Common Core Standards are listed. The intent is that each task builds on the previous.
- The list of tasks presented is in no way implies that each math concept is a separate isolated topic or that each topic should only be taught only once.
- It is extremely important that students verbalize the reasoning they use while thinking about math problems. Verbalization is not only valuable to the student solving the problem but to the rest of the class as well. This is clearly demonstrated in the following video recommended to all teachers:

An example of verbalization in the classroom. (3:09)

http://mathsolutions.com/MathTalk/videos/CRD_Gr1.html

Problems for which verbalization is especially valuable are marked by with the notation **< Verbalize >**.

- Math concepts 1 through 15 address the Operations and Algebraic Thinking Domain of the first grade math curriculum. Generally, students are expected to add and subtract within 0 to 20 fluently using the "mental math" strategies of using doubles, composing tens and counting on. Students should learn that the order of addends does not matter, the concept of adding and subtracting on a number line and the relationship of the operations of addition and subtraction. Students should be able to represent addition and subtraction word problems graphically. Students should be able to solve all combinations of addition or subtraction number sentences that relate three whole numbers where one number is missing.
- Math concepts 16 through 27 address the Number and Operations in Base Ten Domain of the first grade math curriculum. Generally, students are expected to understand place value and use place value knowledge, operation properties, and "mental math" strategies to add and subtract.
- Math concepts 28 through 34 address the Measurement and Data domain of the first grade math curriculum. Students should be able to measure lengths indirectly and by iterating length units. Students should be able to tell and write time in hours and half hours, and students should be able to represent and interpret data.
- Math concepts 35 through 41 address the Geometry domain of the first grade math curriculum. Students should be able to distinguish between shape attributes that are defining and those that are not. Students should be able to compare 2 and 3 dimensional shapes, compose shapes and partition circles and rectangles into equal shares.

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Number	Math Concept	Standards and References
OPERATIONS AND ALGEBRAIC THINKING: Students are expected to add and subtract within 0 to 20 fluently using the "mental math" strategies of using doubles, composing tens and counting on. Students should learn that the order of addends does not matter, the concept of adding and subtracting on a number line and the relationship of the operations of addition and subtraction. Students should be able to represent addition and subtraction word problems graphically. Students should be able to solve all combinations of addition or subtraction number sentences that relate three whole numbers where one number is missing.		
1	Learn to automaticity the "partner" addends that equal 5; realize that the order of the addends doesn't matter $2+3=3+2$	1.OA.3. Apply properties of operations as strategies to add and subtract. Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.) (Students need not use formal terms for these properties.) <u>1.OA.5.</u> Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
	PARTNER ADDENDS TO 10: Uses " <i>The Little Caterpillars</i> " poem	http://www.learnnc.org/lp/pages/3504?ref=search
	COVER THE COUNTER EXERCISE: Cover some of a set of counters and ask student how many were covered	http://illustrativemathematics.org/illustrations/70
2	Learn to automaticity addends that "partner" to equal 10	1.OA.3. (see above) <u>1.OA.5.</u> (see above)
	ADDEND NEEDED FOR THE SUM: What addend is required to add to the sum (up to 10)	https://www.juab.k12.ut.us/index.php?option=com_content&view=article&id=1061:1st-grade-number-sense
	ADDEND PAIR SONG: Teach addend pairs to 10 (2:12)	http://www.youtube.com/watch?v=XpoFwxKBwE8&feature=related
	ADDENT GAME: Teaching addend pairs for 10	http://www.ictgames.com/spacejumps.html
	GAME - WHAT NUMBERS ADD UP TO 10 - Math game for practicing addends	http://www.helpingwithmath.com/resources/games/drag_add_to10/AddingToTen.html
	WORKSHEET: Missing addends that add to 10	http://worksheetplace.com/index.php?function=DisplayCategory&showCategory=Y&links=3&id=353&link1=40&link2=14&link3=353
	VIDEO - Making addent pairs in a 10 Frame (1:27)	http://www.youtube.com/watch?feature=endscreen&v=FXMMfgiQ9RA&NR=1

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3	Relate partner addends for 5, 10 to number line < verbalize >	1.OA.5. (see above)
	INTERACTIVE NUMBER LINE: Use to show addends for 5, 10	http://www.eduplace.com/cgi-bin/schtemplate.cgi?template=/kids/mw/manip/mn_popup.html&filename=nmb1_int&ti
	INTERACTIVE NUMBER LINE: Use to show addends for 5, 10	http://www.mathisfun.com/numbers/number-line-scroll.html
	USING A NUMBER LINE TO ADD EXERCISE: Shows how to add and subtract using a number line--limit range to 0 to 10	http://www.ehow.com/how_8569041_teach-subtraction
	INTERACTIVE GAME: To teach addition and subtraction using a number line	http://www.funbrain.com/cgi-bin/nl.cgi?A1=c&A2=0&A3=4&A4=[4][1][3][1]&A11=1&A12=1
4	Explicitly recognize that adding zero does not change a number's value < verbalize >	1.OA.3. (see above)
	SUGGESTED ACTIVITY	Use a number line and make jumps of zero to teach what happens when one addend is 0
	SUGGESTED ACTIVITY	Use counters and add or subtract zero to show what happens when 0 is added or subtracted
5	Learn to automaticity the doubles from 1 to 10 < verbalize >	1.OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).
	DOUBLES SONG: For learning doubles to 5 (2:12)	http://www.youtube.com/watch?NR=1&feature=endscreen&v=auem1DFtDrY
	DOUBLES SONG: For learning doubles to 10 (1:22)	http://www.youtube.com/watch?v=yFuskIXXQa4
	DOUBLES WORKSHEET: Use to practice doubles up to 10	http://www.helpingwithmath.com/printables/worksheets/basic_facts/wor0201basic_facts07a.htm
6	Learn the addends that equal 20 for 11 to 19	1.OA.6. (see above)
	ADDEND ON NUMBER LINE WORKSHEET GENERATOR - An excellent tool which enables the user to create a number line from the problem or a problem from the number line.	http://www.math-aids.com/Number_Lines/Adding_Number_Lines.html

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	INTERACTIVE NUMBER LINE: Use to show addends for 5, 10	http://www.eduplace.com/cgi-bin/schtemplate.cgi?template=/kids/mw/manip/mn_popup.html&filename=nmb1_int&ti
	OUT OF SIGHT MISSING ADDENDS ACTIVITY - Students use beans to determine how many beans have been removed from an initial amount (up to 12)	http://www.uen.org/Lessonplan/preview?LPid=14358
7	Learn to add numbers from 0 to 20 by decomposing to formulate problems as a benchmark + addend, using doubles, counting forward, number line jumping < verbalize >	1.OA.6. (see above)
	VIDEO ON MENTAL MATH: Covers the basic principles, including: doubles, doubles plus one, making ten, making multiples of ten and front end addition (13:22)	http://www.youtube.com/watch?v=wZmIDfRekPU
	WORKSHEETS AND VIDEO EXERCISES FOR MENTAL MATH: Teaching and practicing a broad array of mental math strategies	http://www.helpingwithmath.com/by_grade/grade1/1OA06.htm
	SUGGESTED ACTIVITY (see approach from video): Have students practice mental math strategies for several minutes on a daily basis and have students verbalize their strategies. See the video for an example of 1st grade students doing these suggested exercises for adding.	http://mathsolutions.com/MathTalk/videos/CRD_Gr1.html
	DOUBLES GAMES: Doubles Minus 1 game, Doubles Plus 1 Game <u>under</u> "Add and subtract within 20" / 2.OA.2	http://www.k-5mathteachingresources.com/2nd-grade-number-activities.html
8	Learn to subtract numbers from 0 to 20 by decomposing to formulate problems as a benchmark - subtrahend < verbalize >	1.OA.6. (see above)
	TEACHER REFERENCE: How to Teach Decomposed & Composed Numbers for First Grade Math	http://www.ehow.com/how_7858486_teach-numbers-first-grade-math.html
	VIDEO: Subtracting two numbers with decomposing (2:05)	http://www.schooltube.com/video/0c33fbb1709d4820b695/Subtracting%20two%20numbers%20with%20decomposing
	SUGGESTED ACTIVITY - Breaking the Minuend or Subtrahend into Tens and Ones	Use the video example above to have students practice for several minutes on a daily basis during which they verbalize their strategies. Problems where the subtrahend is broken into tens and ones such as $20-13 = 20-10-3 = 10-3 = 7$. • Also practice problems where the minuend is broken into tens and ones: $12-8 = 10+2-8 = 10-8+2 = 2+2 = 4$
	WORKSHEET - DECOMPOSITION EXERCISES: Practice doubles worksheet/Practice subtraction of numbers with difference=1	http://www.helpingwithmath.com/printables/worksheets/basic_facts/wor0201basic_facts09a.htm

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9	<p>Understand the equivalence of addition problems with missing total and missing addend: e.g., $10 + 3 = \underline{\quad}$; $10 + \underline{\quad} = 13$; i.e., Understand addition with a missing addend as a subtraction problem; i.e., If $3 + 3 = 6$, what is $6 - 3$?</p> <p>< verbalize ></p>	<p>1.OA.4. Understand subtraction as an unknown-addend problem. For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8.</p> <p>1.OA.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations: $8 + ? = 11$,</p>
	<p>VIDEO ON NUMBER BONDS: Shows the use of Number Bonds (from Singapore) to understand the relationship of addition and subtraction (7:10)</p>	<p>http://www.youtube.com/watch?NR=1&feature=fvwp&v=kn26on8U1X4</p>
	<p>WORKSHEET - NUMBER BONDS</p>	<p>http://www.math-aids.com/Number_Bonds/Number_Bonds_Trees.html</p>
	<p>ACTIVITY - MISSING ADDENDS</p>	<p>https://www.juab.k12.ut.us/index.php?option=com_content&view=article&id=1061:1st-grade-number-sense-lesson-plan-missing-addends&catid=66:grammar&Itemid=58Grade%201</p>
	<p>SUGGESTED ACTIVITY - Understand Missing Addend problems using Counters and Addition Strategies</p>	<p>Solve Missing Addend problems like $8 + \underline{\quad} = 15$ by using counters and addition strategies.</p> <p>• Show that 8 counters + 2 make 10 counters. Show that 5 more counters are needed to make 15. That is: $(8+2) + 5 = 15$</p> <p>• Show that this problem can be done another way. Instead of adding 8 counters to 2 counters and then adding 5 counters to make 15, we could add the 2 counters to the 5 counters (making 7) and then add the 7 counters to the 8 counters to obtain the sum of 15. In math steps that is: $5 + 2 = 7$, and $8 + 7 = 15$ --or-- $8 + (2+5) = 15$</p>
	<p>SUGGESTED ACTIVITY - Show that addition and subtraction are related</p>	<p>Repeat the above activity having students draw the counters (or other objects) to show that $8 + 7 = 15$ is equivalent to $15 - 8 = 7$.</p> <ul style="list-style-type: none"> • First add 8 counters to 7 counters to get 15 and then show we could find either addend by subtracting the other from the Sum. Remove 8 counters from 15 counters to show we get 7 counters (the missing addend). • Also show that removing 7 counters from 15 results in 8 counters, the other addend. • Explain these operations using NUMBER BONDS.
	<p>SUGGESTED ACTIVITY - Show the solution to missing addend problems using a math mat.</p>	<p>Put a known number of objects on one side, put the total number of objects on the other side. Use subtraction to find the missing addend. Show adding the addends produces the total.</p>
	<p>OUT OF SIGHT MISSING ADDENDS ACTIVITY - Students use beans to determine how many beans have been removed from an initial amount (up to 12)</p>	<p>http://www.uen.org/Lessonplan/preview?LPid=14358</p>
	<p>INTERACTIVE GAME: Missing addend practice using Addition</p>	<p>http://www.adaptedmind.com/p.php?tagId=118</p>
	<p>INTERACTIVE GAME: Missing addend practice using Subtraction</p>	<p>http://www.adaptedmind.com/p.php?tagId=73</p>
	<p>INTERACTIVE EXERCISE: Missing addend practice using addition</p>	<p>http://www.ixl.com/math/grade-1/complete-the-addition-sentence</p>
10	<p>Understand subtraction problems with a missing difference as unknown addend problems < verbalize ></p>	<p>1.OA.4. (see above)</p> <p>(see above)</p> <p style="text-align: right;">1.OA.8.</p>
		<p>These pan balance questions use the interactive pan balance tool provided by clicking the link below.</p>

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	<p>PAN BALANCE ACTIVITIES</p>	<p>http://illuminations.nctm.org/ActivityDetail.aspx?id=26</p> <ul style="list-style-type: none"> There is a bowl of pennies on each scale. One bowl contains 16 pennies and the other contains 9. How many pennies must be taken away from the bowl with 16 pennies to balance the scale. Can you write an addend equation for this problem? <i>INSTRUCTION: Click on the left red pan and type in 16. Click on the right blue pan and enter 9. The scales will not be balanced. Now type - 7 after the 16. The pans will balance and the balanced equation window will read $16-7=9$</i> There are 7 pennies in one bowl. The pennies in the other bowl haven't been counted but when 11 are taken away, the scales balance. How many were originally in the bowl. Can you write an addend equation for this problem. There are 17 on the left and an uncounted amount on the right. When 9 pennies are added to the right side the scales balance. How many were in the bowl on the right side. Can you write an addend question for this problem?
	<p>SUGGESTED ACTIVITY</p>	<p>Use a number line subtraction to find the unknown difference by moving to the left on the number line. See Concept 3.</p>
	<p>GAME: Provide the missing addend in an addition equation</p>	<p>http://www.fuelthebrain.com/Game/play.php?ID=1</p>
<p>11</p>	<p>Use concepts of addition and subtraction to solve word problems <i>< verbalize ></i></p>	<p>1.OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</p>
	<p>TEACHER RESOURCE VIDEO - THINKING BLOCKS: Powerful tool for working any type of problem using the Singapore Math approach <i>< 5 part instructional video ></i></p>	<p>http://www.thinkingblocks.com/InstructionalVideo/thinking_blocks_instructional_video.html</p>
	<p>TEACHER RESOURCE VIDEO - THINKING BLOCKS: <i>Catalog</i> of instructional videos on each type of problem (e.g., addition, subtraction [i.e., comparison], part-whole, multiplication, etc.)</p>	<p>http://www.mathplayground.com/ThinkingBlocks//thinking_blocks_start.html</p>
	<p>TEACHER RESOURCE VIDEO (Thinking Blocks): Using Singapore Math for subtraction word problems (4:22)</p>	<p>http://www.youtube.com/watch?v=6jVKeTVwFqw&feature=related</p>
	<p>TEACHER RESOURCE VIDEO: Using Singapore Math for addition word problems (5:06)</p>	<p>http://www.youtube.com/watch?v=7VG0CthXs0o</p>
	<p>TEACHER RESOURCE VIDEO : Using Singapore Math to solve missing addend word problems (9:50)</p>	<p>http://www.watchknowlearn.org/Video.aspx?VideoID=44411&CategoryID=4912</p>
	<p>TEACHER RESOURCE VIDEO : Using Singapore Math to solve part-whole word problems (4:49)</p>	<p>http://www.youtube.com/watch?v=RbJOUX6ltyI</p>
	<p>ACTIVITIES: Addition and subtraction word problems</p>	<p>http://www.illustrativemathematics.org/illustrations/160</p>
	<p>ACTIVITIES: Addition and subtraction word problems</p>	<p>http://www.illustrativemathematics.org/illustrations/161</p>

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	ACTIVITY How would you use the Pan Balance (see Exercise 9) to answer these questions?	http://www.illustrativemathematics.org/illustrations/196
12	Add 3 whole numbers using skills of adding-on and re-ordering and composing tens and adding doubles; apply to word problems in Concept 13 <verbalize>	1.OA.2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem .
	VIDEO ON MENTAL MATH: Covers the basic principles, including: doubles, doubles plus one, making ten, making multiples of ten and front end addition (13:22)	http://www.youtube.com/watch?v=wZmIDfRekpU
	INTERACTIVE GAME: Composing 10	http://www.learningtoday.com/player/swf/STA_Addition_3_or_more_L2_V1_T1a.swf
	ACTIVITY: Games for adding doubles/counting on	https://docs.google.com/file/d/0B618ahbgtIRwMTU5MDIkZDEtZTZiMi00ZmQ4LWE5NiUtYTE4YzJhZTRmMmY2/edit?hl=en_US&pli=1
	ACTIVITY: Add 3 numbers using addition strategies (different numbers each time)	http://www.mrnussbaum.com/mathdrills/additiondrills/add3.htm
13	Use addition and subtraction skills to solve word problems with 3 numbers <verbalize >	1.OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
	ACTIVITY - Daisies in vases: All possible ways to decompose 3 addends	http://www.illustrativemathematics.org/illustrations/468
14	Learn the meaning of the equals sign in an equation	1.OA.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false?
	ACTIVITY: Are addends, which decomposed differently on both sides of an equation, equal	http://www.illustrativemathematics.org/illustrations/466
	TEACHER RESOURCE: What is an equal sign #1?	http://math4teaching.com/2011/06/21/meaning-of-equal-sign/
	TEACHER RESOURCE: What is an equal sign #2?	http://www.instructorweb.com/lesson/numbersequal.asp
	TEACHER RESOURCE: What students think about an equal sign	http://math4teaching.com/2009/09/19/what-pupils-think-about-the-equal-sign/
15	Determine the unknown whole number in an addition or subtraction equation relating three whole numbers	1.OA.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations: $8 + ? = 11$,

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	INTERACTIVE EXERCISE: Number sentence with 1 of 3 numbers is missing.	http://www.haelmedia.com/html/mc_m1_001.html
Math concepts 16 through 27 address the Number and Operations in Base Ten Domain of the first grade math curriculum. Generally, students are expected to understand place value and use place value knowledge, operation properties, and "mental math" strategies to add and subtract.		
16	Learn to count to 120 starting at any number	1.NBT.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
	INTERACTIVE GAME RESOURCE: A number of different games for Counting and Recognizing	http://www.ictgames.com/counting.htm
	INTERACTIVE WORKSHEET #1: Find the missing number (roll mouse wheel for answer)	http://www.superteacherworksheets.com/counting/missing-number-balloons-2digit_TWBWD.pdf
	INTERACTIVE WORKSHEET #2: Find the missing number (roll mouse wheel for answer)	http://www.superteacherworksheets.com/counting/missing-number-lines-2digit_TWBTW.pdf
	INTERACTIVE WORKSHEET #3: Find the missing number (roll mouse wheel for answer)	http://www.superteacherworksheets.com/counting/missing-number-penguins-2digit_TWBTZ.pdf
	SUGGESTED ACTIVITY	Students should complete a numeral list from 1-120 where the list is organized into columns (e.g., 1-10, 81-90, 101-110) and students should be able to verbalize the patterns seen the various rows (e.g., each number in the first row ends in a 1; all numbers in the bottom row end in zero)
	SUGGESTED ACTIVITY	Students should organize randomized number cards from 1-120 into least to greatest groups of 10 (e.g., 81-90, 101-110) and students should be able to verbalize the patterns seen the various groups (e.g., the first card in each group ends in a 1; the last card in each group ends in zero)
	SUGGESTED ACTIVITY	Suggested activity: Student should use number cards to practice ordering of numbers, reading of numbers, adding 1 more, finding 1 less, etc.
17	Learn to read numbers to 120	1.NBT.1. (see above)
	COUNTING SONG: Song teaches recognizing and naming numbers to 120	http://www.youtube.com/watch?v=sijJVm_Nhsl&feature=related
	TEACHER RESOURCE: Numerous games for all basic math operations - grades Addition Math Games (select proper grade at the top of the main menu).	http://www.softschools.com/mathg.jsp
18	Learn to write numbers to 120	1.NBT.1. (see above)

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	WORKSHEET: Writing numbers up to 30	http://www.mathworksheetwizard.com/files/ordering.html
	SUGGESTED ACTIVITY	Provide students with 120 pennies (or other small objects such as mini-marshmallows). Students work in pairs. One student grabs a large group of the objects. Both students count the objects in the group and the second student writes the numeral on a sheet provided. The first student then writes 1 less and 1 more on his/her sheet. Activity can be used for Concept 19 below as well.
19	Learn to represent numbers to 120 with objects	1.NBT.1. (see above)
	INTERACTIVE LESSONS: A large array of counting lessons is provided	http://www.ixl.com/math/grade-1
20	Students should learn to count on a number line by 1s, 2s, 5s, 10s called "skipping" or "jumping"	1.NBT.1. (see above)
	INTERACTIVE LESSON: Number Line Jump Tool	http://www.ictgames.com/numberlineJumpMaker/index.html
	SONG: Count by 10s song (2:42)	http://www.youtube.com/watch?v=uYRTtwZGwj8
	SONG: Count by 5s song (3:04)	http://www.youtube.com/watch?v=awKIEMyleA
	SONG: Count by 2s song (2:53)	http://www.youtube.com/watch?v=8wwydguSKOU
	SKIP COUNTING: Instructions and Worksheets	http://www.helpingwithmath.com/by_subject/counting/skip_counting.htm
	GAMES: Skip Counting by 2s, 5s, & 10s	http://www.ehow.com/info_11404214_games-skipped-counting-2s-5s-10s-first-grade.html
21	Learn to decompose two-digit numbers into "how many tens?" and "how many ones?" <verbalize>	1.NBT.2 Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones — called a "ten." b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).
	VIDEO LESSON: Tens and Ones (12:53)	http://www.youtube.com/watch?v=XHGbkjnQuBg
	WORKSHEETS: Place Value Generator	http://www.softschools.com/math/worksheets/place_value_concepts.jsp

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	INTERACTIVE MATH GAMES: Catalog of OVER 50 math games	http://www.softschools.com/mathg.jsp
	INTERACTIVE GAME: Place value game	http://www.softschools.com/math/place_value/games/tens_and_ones/
	SONG VIDEO: Place value (3:29)	http://www.youtube.com/watch?v=5W47G-h7myY&feature=related
	VIDEO : Place value for addition (9:13)	http://www.youtube.com/watch?v=YbfFOCFISow
	ACTIVITY: Place value	https://docs.google.com/file/d/0B6zC45cAimWuYjEwYjEwMTItMjU2Ny00YTBiLTgyOTMtYmQxYzU3MzRmYzBl/edit?pli=1
	ACTIVITY: Place value practice (Choose one way of naming from each column)	http://www.sadlier-oxford.com/math/practice/gr2/Chapt_2/expand/0202.htm
	GAME ACTIVITY: Place value practice using the "Bull's Eye" Game".	http://whattheteacherwants.blogspot.com/2011/03/place-value-k-2.html
	WORKSHEETS: A large selection of worksheets for most math operations (e.g., addition, subtraction, multiplication, division, fractions, etc)	http://www.helpingwithmath.com/printables/others/lin0301number66.htm
23	Students should be able to compare 1-digit and 2-digit numbers (< , > , = , least, most) based on number of tens and ones < verbalize >	1.NBT.3. Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.
	VIDEO ACTIVITY FOR NUMBER COMPARISON: Use the place value video lesson to show how to compare numbers by place value (e.g., 47=4 tens+ 7 ones so it is bigger than 37 which is 3 tens + 7 ones)	http://www.youtube.com/watch?v=XHGbkinQuBg
	MORE THAN - LESS THAN VIDEO - Using > and < to mean greater than and less than.	http://www.youtube.com/watch?v=Q1Ojd1knhZI&list=PLAF6A03EF22F22BBC&index=2&feature=plpp_video
	INTERACTIVE ACTIVITY: Number comparison practice: Children should verbalize (or write) their reasoning of comparing tens, then ones	http://www.ixl.com/math/grade-1/comparing-numbers-up-to-100
	WORKSHEET GENERATOR: Greater or less than.	http://www.softschools.com/math/worksheets/lessthan_greater.jsp
	NUMBER ORDERING ACTIVITY: (from 0 to 100)	http://www.illustrativemathematics.org/illustrations/6
	PLACE VALUE GAME	http://www.bgfl.org/bgfl/custom/resources_ftp/client_ftp/ks2/maths/bead/questions/q4.htm

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24	Students should be able to add a 2-digit number and 1-digit number with the strategies previously taught: decomposition, re-ordering, doubles, adding-on < verbalize >	1.NBT.4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
	VIDEO LESSON: Adding using place value #1 (10:00)	http://www.youtube.com/watch?v=sfYdVJU2s2A&feature=related
	VIDEO LESSON: Adding using place value # (5:52)	http://www.youtube.com/watch?v=Jq1C_slm8Q4
	Practice on adding with tens and ones #1	http://www.ixl.com/math/grade-1/count-tens-and-ones-up-to-30
	Practice on adding with tens and ones #2	http://www.ixl.com/math/grade-1/regrouping-tens-and-ones-i
25	Students should be able to add two 2-digit numbers with the strategies previously taught: decomposition, re-arrangement, doubles, adding-on, jumping < verbalize >	1.NBT.4. (see above)
	TEACHER RESOURCE: Examples of adding a pair of 2 digit numbers using mental math strategies	Example 1. $37 + 22 = 30 + 20 + 7 + 2 = 50 + 7 + 2 = 50 + 9 = 59$ Example 2. $45 + 18 = 40 + 10 + 5 + 8 = 50 + 5 + 5 + 3 = 50 + 10 + 3 = 60 + 3 = 63$
	VIDEO ON MENTAL MATH: Covers the basic principles, including: doubles, doubles plus one, making ten, making multiples of ten and front end addition (13:22)	http://www.youtube.com/watch?v=wZmIDfRekPJ
26	Students should understand why adding or subtracting a multiple of 10 changes only the tens place in the total or difference < verbalize >	1.NBT.5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. uÛ àtract multiples of 10 in the range 10–90 from multiples of 10 in the range 10–90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
	10 LESS SHOOT OUT GAME	http://www.ictgames.com/football2.html
	SUBTRACT AND ADD 10'S EXERCISE: Use a 100's chart and the simple tool shown in the picture to add and subtract 10's and 1'. Add and subtract multiples of 10 by moving the tool up and down once for each 10.	http://world-shaker.tumblr.com/post/20587152507/an-awesome-and-simple-little-teaching-tool-over-at
	SUBTRACT 10 GAME: Wait for the big red word QUIZ to appear and click on it to start the game	http://maths.primarytopics.co.uk/calculating/mental/year3/interactive/quizzes/subm10q.htm
	SUBTRACT 10 WORKSHEETS	http://maths.primarytopics.co.uk/calculating/mental/year3/resources/madmaths/55subm10mmab.pdf

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	ADD MULTIPLES OF 10 GAME	http://maths.primarytopics.co.uk/calculating/mental/year3/interactive/quizzes/addm10q.htm
	ADD 10 WORKSHEET	http://maths.primarytopics.co.uk/calculating/mental/year3/resources/madmaths/54addm10mmab.pdf
	MULTIPLES OF 10 GAME	http://maths.primarytopics.co.uk/calculating/mental/year2/interactive/quizzes/mult10q.htm
27	Students should be able to demonstrate concept 26 using a number line as well as by using manipulatives like counting rods	See 1.NBT.5. See 1.NBT.6.
Math concepts 28 through 34 address the Measurement and Data domain of the first grade math curriculum. Students should be able to measure lengths indirectly and by iterating length units. Students should be able to tell and write time in hours and half hours, and students should be able to represent and interpret data.		
28	Order three objects by length learning the importance of endpoint alignment and using appropriate terms like longer, shorter, taller	1.MD.1. Order three objects by length; compare the lengths of two objects indirectly by using a third object.
	SMART BOARD INTERACTIVE LESSON: Length	http://exchange.smarttech.com/details.html?id=5a26256f-3ecf-4a05-a358-e8039a89da7b
	LENGTH WORKSHEETS	http://www.education.com/slideshow/wonderful-world-measurement/ranking-longer/
29	Learn to compare length of two objects to a standard and conclude which of the 2 objects is longer	1.MD.1. (see above)
	MEASUREMENT WORKSHEETS #1	http://www.kidslearningstation.com/measurement/
	MEASUREMENT WORKSHEETS #2	http://www.education.com/worksheets/measurement/
	INTERACTIVE ACTIVITY: Make one number bar (e.g. 5 or 10) the standard. Ask students to put a shorter bar on top and a longer one on the bottom.	http://www.mathplayground.com/mathbars.html
	SUGGESTED ACTIVITY	Cut up the straws in a box of straws so the straws are of different lengths. Pick a middle length straw and mark it as the standard. Give every student one of the remaining straws. Have the student come up in twos and compare their straw to the standard. Have the students mark the straw that is bigger than the standard with a colored marker and the shorter straw with a different colored marker. Have all the students with a straw shorter than the standard stand on one side of the room and show their straws. Have the students with the longer straws do the same thing on the other side of the room.

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30	Learn that the term length applies to both dimensions of a 2-dimensional object	1.MD.1. (see above)
	SUGGESTED ACTIVITY: Use thinking blocks (in Math Playground) to build rectangles of a specified length and width (i.e., the other length).	http://www.mathplayground.com/ThinkingBlocks/thinking_blocks_modeling%20_tool.html
31	Learn to express the length of an object in terms of "length units" such as paper clips or blocks without fractional units	1.MD.2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.
	INTERACTIVE MEASUREMENT LESSON: Measure in "paperclip units"	http://www.harcourtschool.com/activity/length_strength3/
32	Tell time in hours and half hours using both digital and analog clocks*	1.MD.3. Tell and write time in hours and half-hours using analog and digital clocks.
	CLOCK ACTIVITY - Move the hands on the clock to match the time that is given	http://www.worsleyschool.net/socialarts/telling/time.html
	VIDEO CLOCK LESSONS: A large number of clock lessons	http://www.timemonsters.com/
	CLOCK GAME #1	http://www.abcya.com/telling_time.htm
	CLOCK GAME #2	http://www.gpbkids.org/countonit/1stgrade/clock/
	HALF-HOUR TIME QUIZ	http://www.fi.edu/time/Journey/JustInTime/time_quiz.html
	CLOCK ACTIVITY - Set the difficulty level; type in the time shown on the clock	http://www.teachingtreasures.com.au/teaching-tools/Maths4-5/clock-flash/clock-flash-pop.html
	TIME TELLING WORKSHEETS	http://www.superteacherworksheets.com/time.html
	CREATE TELLING TIME WORKSHEETS	http://worksheets.theteacherscorner.net/make-your-own/telling-time/
33	Learn to collect and tally data in a chart with up to 3 categories (groups)	1.MD.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less

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	ACTIVITY AND VIDEO TO TEACH THE USE OF TALLY MARKS: Lesson plan for teaching tally marks. Use the second video (Mrs. Dill's Dice Roll and Tally lesson 4:05)	http://www.squidoo.com/how-to-teach-tally-marks
	TALLY LESSON AND VIDEO: Select the tally chart lesson (upper right)	http://www.brainpopjr.com/math/data/tallychartsandbargraphs/grownups.weml
	GINGERBREAD MAN TALLY ACTIVITY: Take a survey to see which part of a gingerbread man each student in the class would bite off first. Tally the answers on the answer sheet.	https://docs.google.com/file/d/0B345tcyP_s9yN2VIMmlzNDEtODlzYy00MTMxLWI3MGUyYjVhMThjZDMzNTJj/edit?pli=1

34	Learn to answer questions about the numbers in the groups: e.g., which category has more	1.MD.4. (see above)
	TALLY LESSON AND VIDEO: Select the tally chart lesson (upper right)	http://www.brainpopjr.com/math/data/tallychartsandbargraphs/grownups.weml
	INTERACTIVE VIDEO LESSON: Determining the numbers in each group from tally charts	http://www.harcourtschool.com/activity/lets_graph/
	SUGGESTED ACTIVITY	Each student should have a chance to survey a group of classmates by his/her own questioning, tallying and graphing. Graphs can be presented to the class and a teacher-asked question can enable the whole class to participate in interpreting each graph.

Geometry domain of the first grade math curriculum.

Students should be able to distinguish between shape attributes that are defining and those that are not. Students should be able to compare 2 and 3 dimensional shapes, compose shapes and partition circles and rectangles into equal shares.

35	Distinguish between defining and non-defining attributes of 2D and 3D shapes < verbalize >	1.G.1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
	GAMES FOR 2D AND 3D ATTRIBUTES	http://www.learnalberta.ca/content/me3usa/flash/index.html?goLesson=14
	SMART BOARD LESIONS: Several lessons on learning 2D and 3D shapes.	http://exchange.smarttech.com/search.html?q=2d+3d+shapes
	INTERACTIVE VIDEO LESSON: Polygon Attributes MUST REGISTER (Free)	http://gpb.pbslearningmedia.org/content/ce4f3d31-ed3d-41db-9652-8d3f2848ee79/
	SUGGESTED ACTIVITY:	Students watch the SONG videos below and then draw and name where they find the shapes on a piece of paper to share with classmates. Go on a shape hunt within the classroom and outdoors if possible. (You can also have the children search their homes.) Use the sharing activity to emphasize the differences among the shapes and have students articulate the differences and show the differences in their drawings. Students should also verbalize why an object is NOT a specific shape.
	SONG VIDEO: 2D Shape Features (1:43)	http://www.youtube.com/watch?v=dhQtiMaXmcM

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	SONG VIDEO: 3D Shape Features (3:18)	http://www.youtube.com/watch?v=K9L9I86N-xM
	INTERACTIVE VIDEO LESSON: Practice with a cube	http://qpb.pbslearningmedia.org/content/572457b2-1532-4b33-98a9-e15768a8a865/
36	Learn vocabulary of vertices, faces, edges	1.G.1. (see above)
	ACTIVITY AND WORKSHEET - Vertex, Edge and Face for 3D shapes	http://mathcoachscorner.blogspot.com/2012/03/identifying-geometric-attributes.html
	VIDEO LESSON - Vertices	http://qpb.pbslearningmedia.org/content/dc39e348-75fc-4481-a985-6a4cd9ef3da9/
37	Learn to distinguish 2D and 3D shapes	1.G.2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. (Students do not need to learn formal names such as "right rectangular prism.")
	INTERACTIVE VIDEO LESSON - Distinguish 2D and 3D shapes	http://www.ngfl-cymru.org.uk/vtc/castle_shapes/eng/Introduction/StarterActivityPart2.htm
38	Compose and decompose 2 and 3 dimensional shapes	1.G.2. (see above)
	SUGGESTED ACTIVITY:	Use tangram parts as well as circles, semi-circles, stars, and ovals to have the students combine them to form other polygons (e.g., 2 right triangles make a square) as well as familiar objects (e.g., a house) or an animal. Use the video link below for inspiration. Extend to 3D shapes using manipulatives like building blocks and marshmallows.
	VIDEO LESSON: How to make and use Tangrams (2:21)	http://www.youtube.com/watch?NR=1&feature=fvwp&v=AVUy058_JNE
	TANGRAM TEMPLATE	http://www.curiouser.co.uk/tangram/template.htm
	INTERACTIVE VIDEO ACTIVITY - Compose 2D shapes	http://www.learningtoday.com/player/swf/Geometry_2DShapes_L1_V1_T1a_1.swf
39	Partition circles and rectangles into 2 or 4 shares using words halves, fourths, quarters < verbalize >	1.G.3. Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

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	<p>VIDEO ACTIVITY - Splitting rectangle made with colored blocks into halves with the same numbers of each colored block</p> <p>http://express.smarttech.com/?url=http://exchangedownloads.smarttech.com/public/content/78/782ff5ee-2c85-4fb3-adb7-2354f250e4ac/class%20math%20halves%20of%20rectangles.notebook#</p>
	<p>VIDEO ACTIVITY - Splitting candy bars into fourths and halves</p> <p>http://express.smarttech.com/?url=http://exchangedownloads.smarttech.com/public/content/28/287bf255-35b6-4ba8-b5c4-c7d115517fb2/hershey%27s%20fractions-halves,%20thirds,%20fourths.notebook#</p>
	<p>ACTIVITY - Exercise to partition circles and rectangles into halves and quarters</p> <p>http://webcache.googleusercontent.com/search?q=cache:9u713-L2HYAJ:elementarymath.cmswiki.wikispaces.net/file/view/1st%2BGrade%2BMathematicsPartitioning%2BLessons.docx+partitioning+shapes+lesson&hl=en&gl=us</p>
40	<p>Demonstrate an understanding of equal pieces and the sum of pieces which are less than one whole < verbalize ></p>
	<p>ACTIVITY: Cut circle and other shapes into equal parts NOTE: "See Activity 1 - Equal Parts" lesson Plan. Use worksheet (under "paper/pencil activity") to apply equal parts lesson to non-circular shapes</p> <p>http://mathforum.org/varnelle/knum1.html</p>
	<p>Lesson plan on equal parts</p> <p>http://alex.state.al.us/lesson_view.php?id=26362</p>
41	<p>Describe the whole as the sum of all the pieces <verbalize></p>
	<p>ACTIVITY: Making parts into a whole NOTE: "See Activity 3 - Parts to Whole" lesson Plan. Use worksheet (under "paper/pencil activity") to apply equal parts lesson to non-circular shapes</p> <p>http://mathforum.org/varnelle/knum1.html</p>