



Math Framework

NUMBERS & COUNTING

Understanding how many, order, or position and number words

Pre-K and Kindergarten (4,5,and 6s) with game examples	Grades 1 and 2 (6, 7, and 8s) with game examples
COUNTING	
<p>Count by ones up to 50</p> <p>Curious George games: Monkey Jump: http://pbskids.org/curiousgeorge/busyday/jump/ Flower Garden: http://pbskids.org/curiousgeorge/busyday/flowers/ Bunny Ride: http://pbskids.org/curiousgeorge/busyday/drive/ Bubble Pop: http://pbskids.org/curiousgeorge/busyday/bubbles/ Meatball Launcher: http://pbskids.org/curiousgeorge/busyday/meatballs/ Count with Allie: http://pbskids.org/curiousgeorge/busyday/allie/</p> <p>Sid the Science Kid: Vegetable Harvest: Vegetable Harvest: http://pbskids.org/sid/fablab_vegetableharvest.html</p>	<p>Count by ones up to 120 (grade 1) and 200(grade 2)</p> <p>Fizzy's Lunch Lab Carnival Count-Off: http://pbskids.org/lunchlab/games/carnival-countoff</p>

Skip counting by tens (up to 100), and fives (50) and twos (up to 20)	Curious George: High Five: http://pbskids.org/curiousgeorge/busyday/fives/	Skip counting by two and fives (up to 100) and tens (up to 1000)	Fizzy's Lunch Lab: Carnival Count-Off: http://pbskids.org/lunchlab/games/carnival-countoff Crane Game: http://pbskids.org/lunchlab/games/escape-from-greasy-world?level=5
Count backwards from 10	Curious George: Blast Off: http://pbskids.org/curiousgeorge/busyday/rocket/	Use objects, words, and numerals to show larger amounts. (up to 100)	
Use number lines to place, order and find missing numbers	Curious George: Apple Picking: http://pbskids.org/curiousgeorge/busyday/apples/		
Use objects, words, and numerals 0 to 19 to show amounts	Curious George: Hide and Seek: http://pbskids.org/curiousgeorge/busyday/hideseek/ Count with Allie: http://pbskids.org/curiousgeorge/busyday/allie/		
COMPARING SETS OF NUMBERS			
Compare two numbers or two sets of objects and determine which is greater or less than	Curious George: Bug Catcher: http://pbskids.org/curiousgeorge/busyday/bugs/	Compare two numbers and determine which is greater or less than by counting or estimating or using a graph	

PLACE VALUE			
Put together and break down numbers into tens and ones (e.g. 19 equals 1 ten and 9 ones or 10+9)		Understand the concept of zero	The Electric Company Prankster Planet: Zero Hero mini-game: http://pbskids.org/electriccompany/pranksterplanet/
		Understand that a 3-digit number is made up of hundreds, tens, and ones	The Electric Company Prankster Planet: Match the Batch mini-game: http://pbskids.org/electriccompany/pranksterplanet/
VOCABULARY/LITERACY			
Read word names for 0 to 19 When comparing sets of numbers, it's appropriate to use <i>greater than</i> , <i>less than</i> , <i>fewer</i> , <i>more than</i>		Read word names for 0 to 100	

OPERATIONS

Working with numbers to solve problems. Examples of operations are addition, subtraction, multiplication, and division.

Pre-K and Kindergarten (4,5,and 6s) with game links		Grades 1 and 2 (6, 7, and 8s) with game links	
ADDITION AND SUBTRACTION			
Add and subtract up to 10 using objects, finger-pointing, counting, or mentally	Curious George: Train Station: http://pbskids.org/curiousgeorge/busyday/trains/ Sid the Science Kid: Vegetable Harvest: Vegetable Harvest: http://pbskids.org/sid/fablab_vegetableharvest.html	Mentally, add and subtract up to 10 (grade 1) and 20 (grade 2)	
Understand the addition combinations to make 10 (e.g. 1+9, 2+8, 3+7, 4+6, 5+5)	Curious George: Museum of Tens: http://pbskids.org/curiousgeorge/busyday/ten/	Solve addition and subtraction sentences like this: 8 + ____ = 11	

		Begin 2-digit addition and subtraction with blocks and counting sticks	
MULTIPLICATION AND GROUPING			
Separate a group of objects (up to 12) into two or three equal groups	Curious George: Fair Shares: http://pbskids.org/curiousgeorge/busyday/dogs/	Group objects into same size groups	
DIVISION AND FRACTIONS			
		Recognize that simple shapes can be split up into $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, and $\frac{1}{6}$	
REPRESENTING OPERATIONS			
Use + (plus), - (minus), and = (equals)	Curious George: Ribbit: http://pbskids.org/curiousgeorge/busyday/frogs/	Use (not equals sign)	
VOCABULARY/LITERACY			
<i>add, plus; subtract, take away, minus; equals, is</i>		<i>this is, has less, fewer than</i>	

GEOMETRY

Understanding objects in our world and the shape of objects, and relationship among these objects.

Pre-K and Kindergarten (4,5,and 6s) with game links

Grades 1 and 2 (6, 7, and 8s) with game links

SHAPES

Recognize 2D shapes: circles, squares, triangles, rectangles, pentagons, and hexagons	Dinosaur Train: Buddy's Gem Hunt: http://pbskids.org/dinosaurtrain/games/buddysgemhunt.html Cat in the Hat: Huff-Puff-a-Tron: http://pbskids.org/catinthehat/games/huff-puff-a-tron.html Sketch-a-Mite: http://pbskids.org/catinthehat/games/sketch-	Recognize additional 2D shapes: octagon, parallelogram	
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	a-mite.html		
Recognize 3D shapes: cubes, rectangular prisms, cylinders, spheres		Recognize additional 3D shapes: square pyramids, triangular prisms	
Identify shape by the number of sides and corners	Dinosaur Train: Buddy's Gem Hunt: http://pbskids.org/dinosaurtrain/games/buddysgemhunt.html Cat in the Hat: Huff-Puff-a-Tron: http://pbskids.org/catinthehat/games/huff-puff-a-tron.html	Identify complex shapes by the number of sides and corners	
SHAPE PUZZLES			
Put together and take apart simple shape puzzles	Cat in the Hat : Great Shape Race: http://pbskids.org/catinthehat/games/great-shape-race.html	Put together and take apart complex shape puzzles (a puzzle that uses simple shapes is often called a tangram)	Fizzy's Lunch Lab: Robo Rebuild: http://pbskids.org/lunchlab/games/escape-from-greasy-world?level=1
VOCABULARY/LITERACY			
<i>circle, square, triangle, rectangle, pentagon, hexagon, rhombus, sides, cubes, prism, cylinder, sphere</i>		<i>octagon, parallelogram, pyramid, angles</i>	

SPATIAL SENSE

Understanding positions, directions, and locations.

Pre-K and Kindergarten (4,5,and 6s) with game links		Grades 1 and 2 (6, 7, and 8s) with game links	
SYMMETRY			
Draw lines of symmetry in simple 2D shapes (circle, square) and in figures such as snowflakes and hearts	Sid the Science Kid: Snowflake Match: Snowflake Match: http://pbskids.org/sid/fablab_snowflakematch.html	Draw lines of symmetry in shapes like regular pentagons, octagons, and hexagons and irregular shapes	
SPATIAL SENSE			
In puzzles, flip, and turn a shape and move into its correct placed	Fizzy's Lunch Lab: Robo Rebuild: http://pbskids.org/lunchlab/?level=1#/games/escape-from-greasy-world	Create shapes that have symmetry	

		In puzzles, flip, turn, a shape and move into its correct place	Fizzy's Lunch Lab: Robo Rebuild: http://pbskids.org/lunchlab/games/escape-from-greasy-world?level=1 Dunk Tank Dilemma: http://pbskids.org/lunchlab/games/escape-from-greasy-world?level=4 Fetch Ruff Cut: Grandma's Game: http://pbskids.org/fetch/games/hollywood/ruffcut/
MAPPING			
Use a simple 2D map of a room to identify where an object is hidden in a real room	Sid the Science Kid: Snow Search: http://pbskids.org/sid/fablab_snowsearch.html	Use coordinates to locate positions on a graph or map	Prankster Planet clip (2B vending machine) (no link; delete if you want)
Build 3D maps of an environment using materials (e.g. build a model of your neighborhood or a farm)		Give and follow directions for moving in a real space and on a map	
		Use 2D maps to locate landmarks and find a location	
VOCABULARY/LITERACY			
Describe location and position using words like, <i>next to, above, below, behind, between, under, over, on top of</i>		Describe location and position using words like, <i>next to, above, below, behind, right, left</i>	

MEASUREMENT

Measuring means to break up into equal sizes that can then be counted. You can measure length, weight, capacity, temperature, and time. For example, a shoe can be 4 inches long, 1 minute is 60 seconds long, etc...

Pre-K and Kindergarten (4,5, and 6s) with game links

Grades 1 and 2 (6, 7, and 8s) with game links

LENGTH AND HEIGHT

Use standard and non-standard measurement tools to measure, compare, and order	Sid the Science Kid: Crystals Rule: http://pbskids.org/sid/fablab_crystalsrule.html	Use feet, inches, or yard to measure and compare objects	The Electric Company Prankster Planet: Measure Up mini-game: http://pbskids.org/electriccompany/pranksterplanet/
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objects (e.g. same sized crayons could be used as a non-standard measuring tools)			
Add two lengths together to get the total length			
WEIGHT			
Use a pan balance to compare and order weights	<p>Sid the Science Kid: Pan Balance: http://pbskids.org/sid/fablab_panbalance.html</p> <p>Fetch Ruff Cut: Blackmuzzle's game: http://pbskids.org/fetch/games/hollywood/ruffcut/ Helga's Game: http://pbskids.org/fetch/games/hollywood/ruffcut/</p>	Use pounds or ounces to measure and compare weights	<p>Fizzy's Lunch Lab Crane Game: http://pbskids.org/lunchlab/games/escape-from-greasy-world?level=5</p> <p>The Electric Company Prankster Planet: Scale Master mini-game: http://pbskids.org/electriccompany/pranksterplanet/</p>
CAPACITY			
Identify which of 2 or 3 containers hold more or less		Fill containers to the top	Fetch Ruff Cut: Bluff's Game: http://pbskids.org/fetch/games/hollywood/ruffcut/
		Use standard capacity measurements: quarts, cups, , pints, gallon, and half gallon	Fizzy's Lunch Lab: Dunk Tank Dilemma: http://pbskids.org/lunchlab/games/escape-from-greasy-world?level=4
TEMPERATURE			
Associate activities, object, and events with hot or cold temperatures	<p>Sid the Science: Weather Surprise: http://pbskids.org/sid/fablab_weathersurprise.html</p>	Use Fahrenheit thermometer to measure and compare temperatures	
TIME			
Understand and		Tell time to the hour on	FETCH FONE: You're Late:

associate activities with time of day		analog clock, and to the hour, half-hour, quarter hour, and to the nearest 5 minutes on a digitalclock.	http://pbskids.org/fetch/games/hollywood/fetchfone.html
Understand today, tomorrow, yesterday		Match time on analog and digital clocks	FETCH FONE: You're Late: http://pbskids.org/fetch/games/hollywood/fetchfone.html
Use a calendar, including months of the year and days		Order events by time	FETCH FONE: Calendar: http://pbskids.org/fetch/games/hollywood/fetchfone.html
		Explore what you can do in a minute	FETCH FONE: Just a Minute: http://pbskids.org/fetch/games/hollywood/fetchfone.html
MONEY			
		Know values of pennies, nickels, dimes, and quarters and add a set of coins to get total value	FETCH FONE: Snack Attack: http://pbskids.org/fetch/games/hollywood/fetchfone.html The Electric Company Prankster Planet: On the Money mini-game: http://pbskids.org/electriccompany/pranksterplanet/
		Determine if you have enough money to buy an object	FETCH FONE: Snack Attack: http://pbskids.org/fetch/games/hollywood/fetchfone.html
ESTIMATION			
Make informal guesses about measurements or amounts	Fizzy's Lunch Lab: Beanbag Game: http://pbskids.org/lunchlab/games/escape-from-greasy-world?level=6	Estimate using standard measurement (e.g. This building is about 20 feet long)	
VOCABULARY/LITERACY			
Length: <i>smaller, larger, longer, shorter, taller, same length, same height, tall, taller</i> Weight: <i>heavy, light, weighs more, weighs less, weighs the same</i> Capacity: When measuring, discuss what container <i>holdsmore, most, less, least</i>		Length: <i>Feet, inches, yard</i> Weight: <i>pounds, ounces</i> <i>same weight, heavy, heavier, heaviest, light, lighter, lightest</i> Capacity: <i>quarts, cups, pint, gallon</i> Temperature: <i>thermometer, degrees, Fahrenheit</i>	

Temperature: *Hot, warm, cool, cold*
 Time: Discuss the order of events using words like, *first, second... last, before, after, between*

Time: *hour, half-hour, quarter hour, minute, analog, digital*

DATA COLLECTION & ANALYSIS

Data Collection and Analysis is making sense of information and making predictions based on that information.

Pre-K and Kindergarten (4,5,and 6s) with game links		Grades 1 and 2 (6, 7, and 8s) with game links	
SORTING			
Sort objects by a single attribute (i.e. sort by shape, color, or size)	Sid the Science Kid: Mae's stone collection: http://pbskids.org/sid/fablab_sortingbox.html Dinosaur Train: Crystal Caves: http://pbskids.org/dinosaurtrain/games/buddysgemhunt.html	Sort objects by several attributes (e.g. red circles, green circles; or large circles and green circles)	
DATA COLLECTION AND ANALYSIS			
Collect information or data to answer a question	Curious George: Hat Grab: http://pbskids.org/curiousgeorge/busyday/hats/	Conduct surveys and experiments and collect data to answer questions	
		Solve probability problems (e.g. How likely will package arrive on time?)	The Electric Company Prankster Planet: Mission: Possible mini-game: http://pbskids.org/electriccompany/pranksterplanet/
		Make predictions about events	
GRAPHING			
Use picture graphs to organize, describe, and analyze data	Curious George: Hat Grab: http://pbskids.org/curiousgeorge/busyday/hats/	Use bar graphs	The Electric Company Prankster Planet: Graph Master mini-game: http://pbskids.org/electriccompany/pranksterplanet/
VOCABULARY/LITERACY			
<i>data, sort, graph</i>		<i>Classify, analyze, predict, probability</i> When talking about probability use words like, <i>certain, uncertain, sure, unsure, likely, unlikely, maybe, possible, must happen, impossible, can't happen, might happen</i>	

ALGEBRAIC THINKING

Understanding order, structure, and patterns.

Pre-K and Kindergarten (4,5,and 6s) with game links		Grades 1 and 2 (6, 7, and 8s) with game links	
PATTERNS			
<p>Create, and finish a repeating pattern, starting with simple patterns (ABAB) to more complex patterns (ABBABBA or ABCABC).</p> <p>Extending a pattern (ABABA__) is easier than filling in a pattern (AB__BAB).</p>	<p>Peg+Cat: Chicken Dance: http://pbskids.org/peg/#/games/chicken-dance</p> <p>Sid the Science Kid: Vegetable Patterns: http://pbskids.org/sid/fablab_vegetablepatterns.html</p>	<p>Continue growing patterns, like number patterns- even and odd numbers and skip counting</p>	<p>Fizzy’s Lunch Lab: Crane Game: http://pbskids.org/lunchlab/games/escape-from-greasy-world?level=5</p> <p>Curious George: High Five: http://pbskids.org/curiousgeorge/busyday/fives/</p>
DEDUCTIVE REASONING			
<p>Use clues, rules, and patterns to solve math problems.</p> <p>Examples: If 8 comes after 7, then 38 will come after 37.</p> <p>Any number minus itself equals 0 ($7-7 = 0$)</p> <p>Any number plus 0 equals itself ($7+0 = 7$)</p>		<p>Use complex clues, rules, and patterns.</p> <p>Examples: Commutative property of addition ($9+7=7+9=16$)</p> <p>If $7+7= 14$, then $7+8= 15$</p>	
VOCABULARY/LITERACY			
When discussing math rules, use cause and effect words like <i>if... then</i>			

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