

Mathematics Pacing Guide Alignment with Common Core Standards

Time Frame: 8 Weeks – September - November

Second Grade

Unit 1: Addition and Subtraction with Understanding of Place Value

Common Core	GLCE	Essential Questions	Assessments	Vocabulary	Resources
<p>CRITICAL AREA: Extending understanding of base-ten notation</p> <p>Understand place value 2.NBT.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: a. 100 can be thought of as a bundle of ten tens — called a “hundred.” b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones). 2.NBT.2 Count within 1000; skip-count by 5s, 10s, and 100s. 2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. 2.NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to</p>	<p>FOCAL POINT: Developing an understanding of the base-ten numeration system and place-value concepts</p> <p>Count, write, and order numbers N.ME.02.01 Count to 1000 by 1’s, 10’s and 100’s starting from any number in the sequence. N.ME.02.02 Read and write numbers to 1000 in numerals and words, and relate them to the quantities they represent. N.ME.02.03 Compare and order numbers to 1000; use the symbols $>$ and $<$. N.ME.02.04 Count orally by 3’s and 4’s starting with 0, and by 2’s, 5’s, and 10’s starting from any whole number. Understand place value N.ME.02.05 Express numbers through 999 using place value, e.g., 137 is 1 hundred, 3 tens, and 7 ones; use concrete materials.</p>	<p>What is a number?</p> <p>How can numbers be grouped?</p> <p>How can numbers be represented?</p> <p>What is place value?</p>	<p>Before Observation Basic addition/subtraction skill pretest</p> <p>During Flash cards-addition and subtraction facts Timed test/quiz (addition and subtraction facts) Response cards Slate board response-“How many tens are in the number 346?” Use $<$, $>$, to compare two numbers Observation Oral counting 5, 10’s, 100’s</p> <p>After Test/Mini quizzes-addition facts, subtraction facts, place value, compare numbers, skip counting</p>	<p>Charts Diagrams Graphs Difference Series Addends Sum Count Sequence Quantities Whole number Greater than Less than Equal Addition Subtraction Fact families Ordering Rounding Compare Locate Estimate Place Value Ones Tens Hundreds Thousands Skip counting Number Number line Odd</p>	<p>Math Lessons: www.aaastudy.com</p> <p>Math Games: www.gamequarium.com www.arcademicskillbuilders.com www.mathisfun.com</p> <p>Games and Worksheets: www.aplusmath.com</p> <p>Math Software, Worksheets, and Games: www.superkids.com</p> <p>Base ten blocks Number lines Hundreds chart Flash cards Counters</p>

record the results of comparisons.				Even Equation Pairing	
<p>CRITICAL AREA: Building fluency with addition and subtraction</p> <p>Add and subtract within 20. 2.OA.2 Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.</p>	<p>FOCAL POINT: Developing quick recall of addition facts and related subtraction facts and fluency with multi-digit addition and subtraction</p> <p>Add and Subtract whole numbers N.FL.02.06 Decompose 100 into addition pairs, e.g., $99 + 1$, $98 + 2$... N.MR.02.07 Find the distance between numbers on the number line, e.g., how far is 79 from 26? N.MR.02.08 Find the missing values in open sentences, e.g., $42 + \blacksquare = 57$; use relationship between addition and subtraction. N.FL.02.10 Add fluently two numbers through 99 using strategies including formal algorithms; subtract fluently two numbers through 99. N.FL.02.11 Estimate the sum of two numbers with three digits.</p>	<p>What are math facts?</p> <p>Why do we need math facts?</p>			

Mathematics Pacing Guide Alignment with Common Core Standards

Time Frame: 6 Weeks – November - December

Second Grade

Unit 2: Understanding Place Value

Common Core	GLCE	Essential Questions	Assessments	Vocabulary	Resources
<p>CRITICAL AREA: Building fluency with addition and subtraction</p> <p>Represent and solve problems involving addition and subtraction. 2.OA.1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.</p> <p>Use place value understanding and properties of operations to add and subtract 2.NBT.5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. 2.NBT.6. Add up to four two-digit numbers using strategies based on place value and properties of</p>	<p>FOCAL POINT: Developing quick recall of addition facts and related subtraction facts and fluency with multi-digit addition and subtraction</p> <p>Add and subtract whole numbers N.MR.02.09 Given a contextual situation that involves addition and subtraction using numbers through 99: model using objects or pictures; explain in words; record using numbers and symbols; solve. N.FL.02.10 Add fluently two numbers through 99, using strategies including formal algorithms; subtract fluently two numbers through 99. N.FL.02.12 Calculate mentally sums and differences involving three-digit numbers and ones; three-digit numbers and tens; three-digit numbers and hundreds.</p>	<p>How do math facts help us?</p> <p>How do we put numbers together?</p> <p>How do we take numbers apart?</p>	<p>Before Observation Addition/subtraction timed pretest</p> <p>During Slate board response-do an add/subtraction problem Observation Quiz-add/subtraction problems, tell place value Around the world –addition/subtraction activity Think-Pair-Share Daily word problem-simple add/subtraction problem Math journal-put vocabulary words in</p> <p>After Slate board response-do an add/subtraction problem</p>	<p>Addend Difference Sum Digit Number Place value Ones Tens Hundreds Thousands Operation Word problem How many more? How many less? All together Fewer Model Charts Carrying Borrowing Regrouping Take apart Compare Symbols Problem Solution</p>	<p>Math Software, Worksheets, and Games: www.superkids.com</p> <p>Base ten blocks</p> <p>Connecting cubes</p>

<p>operations.</p> <p>2.NBT.7. Add and subtract within 1000, 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. Understand that in adding or subtracting three digit numbers one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.</p> <p>2.NBT.8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.</p> <p>2.NBT.9. Explain why addition and subtraction strategies work, using place value and the properties of operations.</p>			<p>Observation</p> <p>Quiz</p> <p>Around the world –addition/subtraction activity</p> <p>Math journal –keep vocabulary words in it</p>		
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Mathematics Pacing Guide Alignment with Common Core Standards

Time Frame: 7 Weeks – January - February

Second Grade

Unit 3: Measurement

Common Core	GLCE	Essential Questions	Assessments	Vocabulary	Resources
<p>CRITICAL AREA: Using standard units of measure</p> <p>Measure and estimate lengths in standard units. 2.MD.1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.</p> <p>2MD.3. Estimate lengths using units of inches, feet, centimeters, and meters.</p> <p>2MD.4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.</p> <p>Relate addition and subtraction to length. 2MD.5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.</p>	<p>FOCAL POINT: Developing quick recall of addition facts and related subtraction facts and fluency with multi-digit addition and subtraction</p> <p>Measure, add, and subtract length M.UN.02.01 Measure lengths in meters, centimeters, inches, feet, and yards approximating to the nearest whole unit and using abbreviations: cm, m, in, ft, yd.</p> <p>M.PS.02.02 Compare lengths; add and subtract lengths (no conversion of units).</p> <p>Tell time and solve time problems M.UN.02.05 Using both A.M. and P.M., tell and write time from the clock face in 5 minute intervals and from digital clocks to the minute; include reading time: 9:15 as nine-fifteen and 9:50 as nine-fifty. Interpret time both as minutes after the hour and minutes before the next hour, e.g., 8:50 as eight-fifty and</p>	<p>What is measurement?</p> <p>What can we measure?</p> <p>Do measurements need to be exact?</p> <p>What is time? How can we measure time?</p> <p>How do we count money?</p>	<p>Before Observation</p> <p>Verbally tell time</p> <p>During Response cards</p> <p>Slate board response-write time shown on clock, write dollar amounts</p> <p>Think-Pair-Share – Have students think about the answer, then partner up and share answer, then share answers with group/discuss answers</p> <p>Daily word problem</p> <p>Verbally tell time</p> <p>Observation</p> <p>After Test-Write times show on clocks, count money, solve simple money word problems</p>	<p>Analog</p> <p>Digital</p> <p>Minutes</p> <p>Seconds</p> <p>Hours</p> <p>Days</p> <p>Dollars</p> <p>Quarters</p> <p>Dimes</p> <p>Nickels</p> <p>Hour hand</p> <p>Minute hand</p> <p>Dollar sign</p> <p>Decimal point</p> <p>Coins</p> <p>Dollar sign</p> <p>Cent sign</p> <p>Half past</p> <p>Quarter past</p> <p>Quarter till</p> <p>Measure</p> <p>Length</p> <p>Yard stick</p> <p>Meter stick</p> <p>Ruler</p> <p>Inches</p> <p>Foot</p> <p>Yards</p> <p>Centimeters</p> <p>Tape measure</p> <p>Compare</p>	<p>Math Software, Worksheets, and Games: www.superkids.com</p> <p>Individual clocks for students</p> <p>Teacher clock</p> <p>Coins</p>

<p>2.MD.6. Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.</p> <p>Work with time and money.</p> <p>2.MD.7. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.</p> <p>2MD.8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?</p>	<p>ten to nine. Show times by drawing hands on clock face.</p> <p>Solve Measurement Problems</p> <p>M.PS.02.10 Solve simple word problems involving length and money.</p> <p>M.TE.02.11 Determine perimeters of rectangles and triangles by adding lengths of sides, recognizing the meaning of perimeter.</p>		<p>Slate board response-write time shown on clock, write dollar amounts</p> <p>Verbally tell time</p> <p>Daily word problem-simple money problem</p> <p>Observation</p>	<p>Add Subtract Longer Shorter Units Unknown number Whole number Number line Difference Sum</p>	
	<p>Moving out of 2nd Grade</p> <p>Read Thermometers</p> <p>M.UN.02.09 Read temperature using the scale on a thermometer in degrees Fahrenheit.</p> <p>Use coordinate systems</p> <p>G.LO.02.07 Find and name locations using simple coordinate systems such as maps and first quadrant grids.</p>		<p>Before</p> <p>Tell temperature verbally</p> <p>Observation</p> <p>During</p> <p>Tell temperature verbally</p> <p>Observation</p> <p>Quiz –read thermometers, find locations on grid</p>	<p>Temperature Fahrenheit Thermometer Degrees Location Coordinate system Map Axis Quadrants Grid</p>	<p>Thermometer</p> <p>Interactive Thermometer: http://www.mathsisfun.com/measurement/thermometer.html</p>

			Find a location on a grid worksheet		
			<u>After</u> Test-temperature and grid systems		
<p>Moving to 3rd Grade Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.</p> <p>3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.</p> <p>Moving to 4th Grade Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.</p> <p>4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent</p>	<p>Moving to 3rd Grade Tell time and solve time problems</p> <p>M.UN.02.06 Use the concept of duration of time, e.g., determine what time it will be half an hour from 10:15.</p> <p>Record, add and subtract money</p> <p>M.UN.02.07 Read and write amounts of money using decimal notations, e.g., \$1.15.</p> <p>M.PS.02.08 Add and subtract money in mixed units, e.g., \$2.50 + 60 cents and \$5.75 - \$3, but not \$2.50 + \$3.10.</p>				

measurement quantities using diagrams such as number line diagrams that feature a measurement scale.					
Moving Into 2nd Grade Measure and estimate lengths in standard units 2.MD.2. Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.	Moving Into 2nd Grade Measure and use units for length, weight, temperature and time M.UN.03.03 Understand relationships between sizes of standard units, e.g., feet and inches, meters and centimeters.				

Mathematics Pacing Guide Alignment with Common Core Standards

Time Frame: 4 Weeks – February - March

Second Grade

Unit 4: Data Analysis and Statistics

Common Core	GLCE	Essential Questions	Assessments	Vocabulary	Resources
<p>Represent and interpret data. 2.MD.9 Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.</p> <p>2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems⁴ using information presented in a bar graph.</p>	<p>Create, interpret, and solve problems involving pictographs D.RE.02.01 Make pictographs using a scale representation, using scales where symbols equal more than one.</p> <p>D.RE.02.02 Read and interpret pictographs with scales, using scale factors of 2 and 3.</p> <p>D.RE.02.03 Solve problems using information in pictograph include scales such as each ■ represents 2 apples; avoid partial cases.</p>	<p>What is a graph?</p> <p>How can we group items?</p> <p>How can we measure items?</p>	<p>Before Observation</p> <p>During Measure several objects Observation</p> <p>Response cards</p> <p>Estimate length of objects</p> <p>Tell the difference of length in two objects</p> <p>After Measure several objects Observation</p> <p>Estimate length of objects</p> <p>Tell the difference of length in two objects</p>	<p>Diagram Line plot Horizontal Vertical Picture graph Title Bar graph Data Axis Labels Scale Interval Key</p>	<p>Interactive Bar Graph: http://www.amblesideprimary.com/ambleweb/mentalmaths/grapher.html</p> <p>Math Games: www.mathisfun.com</p> <p>Ruler</p> <p>Yard stick</p> <p>Meter stick</p> <p>Tape measure</p> <p>Objects to measure</p>

Mathematics Pacing Guide Alignment with Common Core Standards

Time Frame: 6 Weeks – March - April

Second Grade

Unit 5: Geometry

Common Core	GLCE	Essential Questions	Assessments	Vocabulary	Resources
<p>CRITICAL AREA: Describing and analyzing two-dimensional shapes</p> <p>Reason with shapes and their attributes 2.G.3 Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.</p>	<p>FOCAL POINT: Composing and decomposing geometric shapes</p> <p>Work with unit fractions N.ME.02.18 Recognize, name, and represent commonly used unit fractions with denominator 12 or less; model $1/2$, $1/3$, and $1/4$ by folding strips.</p> <p>N.ME.02.22 Recognize that fractions such as $2/2$, $3/3$, and $4/4$ are equal to the whole (one)</p>	<p>What are shapes?</p> <p>How do we break down numbers?</p> <p>How do we break down objects?</p> <p>What is a fraction?</p> <p>What are shapes?</p>	<p>Before Observation Name a variety of shapes</p> <p>During Quiz Name a variety of shapes</p> <p>Response Cards</p> <p>Drawings of geometric shapes</p> <p>After Unit Test-draw, name, recognize shapes, tell attributes Observation Partition objects using line Write an expression based on a given array Name a variety of shapes</p>	<p>Three thirds Four fourths Halves Thirds Identical Whole</p>	<p>Math Lessons and Games: www.mathisfun.com/geometry</p> <p>Variety of 2-D shapes</p> <p>Variety of 3-D shapes</p> <p>Graph paper</p> <p>Geo boards</p> <p>Protractor</p> <p>Shape stencil</p> <p>Ruler</p>
<p>Reason with shapes and their attributes 2.G.1 Recognize and draw shapes having specified attributes, such as</p>	<p>Identify and describe shapes G.GS.02.01 Identify, describe, and compare familiar two-dimensional and</p>			<p>Describe Two dimensional Three dimensional</p>	

<p>a given number of angles or a given number of equal faces.5 Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.</p>	<p>three-dimensional shapes, such as triangles, rectangles, squares, circles, semi-circles, spheres, and rectangular prisms.</p>			<p>Recognize Draw Attributes Faces Vertices</p>	
<p>Reason with shapes and their attributes. 2.G.G.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.</p>	<p>Understand the concept of area M.UN.02.03 Measure area using non-standard units to the nearest whole unit. M.TE.02.04 Find the area of a rectangle with whole number side lengths by covering with unit squares and counting, or by using a grid of unit squares; write the area as a product.</p>	<p>How do we represent size? What is area?</p>		<p>Partition</p>	
<p>Moving to Kindergarten Identify and describe shapes K.G.2 Correctly name shapes regardless of their orientations or overall size. Moving to 1st Grade Reason with shapes and their attributes. 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. 1.G.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or</p>	<p>Moving to Kindergarten Identify and describe shapes G.GS.02.02 Explore and predict the results of putting together and taking apart two-dimensional and three-dimensional shapes. G.GS.02.04 Distinguish between curves and straight lines and between curved surfaces and flat surfaces. G.SR.02.05 Classify familiar plane and solid objects, e.g., square, rectangle, rhombus, cube, pyramid, prism, cone, cylinder, and sphere, by common attributes such as shape, size, color, roundness, or number of corners and explain which attributes are being used</p>			<p>Roundness Color Classify Orientation Flip Turn Slide Equal Shapes Triangle Quadrilateral Pentagon Hexagon Cube Rectangle Circle Square Semi-circle Trapezoid Rhombus</p>	

<p>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.</p> <p>Moving to 4th Grade Draw and identify lines and angles, and classify shapes by properties of their lines and angles. 4.G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p>	<p>for classification. G.TR.02.06 Recognize that shapes that have been slid, turned, or flipped are the same shape, e.g., a square rotated 45° is still a square.</p>			Pyramid Cylinder Sphere Rectangular prism Cone Prism Rays Line Point Angle Right Acute Obtuse Perpendicular Parallel Properties Line segment	
<p>Moving to 3rd Grade Reason with shapes and their attributes 3.G.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape. Develop understanding of fractions as numbers 3.NF.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram. b. Represent a fraction a/b on a number line diagram by</p>	<p>Moving to 3rd Grade Work with unit fractions N.ME.02.19 Recognize, name, and write commonly used fractions: $1/2$, $1/3$, $2/3$, $1/4$, $2/4$, $3/4$. N.ME.02.20 Place 0 and halves, e.g., $1/2$, $1 1/2$, $2 1/2$ on the number line; relate to a ruler. N.ME.02.21 For unit fractions understand the inverse relationship between the size of a unit fraction and the size of the denominator; compare unit fractions from $1/12$ to $1/2$.</p>		<p>Before Observation Identify common fractions</p> <p>During Quiz Slate board response Response cards Partition a shape into equal parts Put fractions on a number line</p>	Partition Fraction Half Whole Number line Equal Denominator Numerator Interval End point Compare Scale	<p>Fraction Games: www.vectorkids.com/vkfractions.htm http://www.gamequarium.org/dir/Gamequarium/Math/Fractions/</p> <p>Math Games: www.mathisfun.com</p> <p>Fraction strips Number line Ruler</p>

<p>marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.</p> <p>Represent and interpret data.</p> <p>3.MD.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.</p>			<p>Measure objects</p> <p>Make a line plot with measurement data</p> <p>Drawing of shapes divided</p> <p>After</p> <p>Observation</p> <p>Unit Test- Partition a shape into equal parts</p> <p>Put fractions on a number line</p> <p>Measure objects</p> <p>Make a line plot with measurement data</p> <p>Drawing of shapes divided</p>		
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**Mathematics Pacing Guide Alignment with Common Core Standards
Second Grade**

**Time Frame: 5 Weeks – April - June
Unit 6: Multiplication and Division**

GLCE	Essential Questions	Assessments	Vocabulary	Resources
<p>Understand meaning of multiplication and division N.MR.02.14 Represent multiplication using area and array models.</p> <p>N.MR.02.16 Given a situation involving groups of equal size or of sharing equally, represent with objects, words, and symbols; solve.</p>	<p>How do we add to or take away groups of numbers? What is area? What is an array?</p>	<p>Before Multiplication flash cards Oral multiplication problems Observation</p> <p>During Multiplication flash cards Slate board response Timed multiplication test Quiz-use objects to represent a multiplication problem, determine even and odd numbers, multiply and divide numbers</p> <p>After Multiplication flash cards Division flash cards Timed multiplication/division test Unit test -use objects to represent a multiplication problem, determine even</p>	<p>Multiplication Group Equal Objects Multiply Product Set Strategy Relationship Array Equation Rows Columns Addends Symbol</p>	<p>Math Games: www.mathisfun.com www.funbrain.com Counters Graph paper</p>

		and odd numbers, multiply and divide numbers		
<p>Moving to 3rd Grade</p> <p>Understand meaning of multiplication and division</p> <p>N.MR.02.13 Understand multiplication as the result of counting the total number of objects in a set of equal groups, e.g., 3×5 gives the number of objects in 3 groups of 5 objects, or $3 \times 5 = 5 + 5 + 5 = 15$.</p> <p>N.MR.02.15 Understand division (\div) as another way of expressing multiplication, using fact families within the 5×5 multiplication table; emphasize that division “undoes” multiplication, e.g., $2 \times 3 = 6$ can be rewritten as $6 \div 2 = 3$ or $6 \div 3 = 2$.</p> <p>N.MR.02.17 Develop strategies for fluently multiplying numbers up to 5×5.*</p>				