

Grade 6: NYS Mathematics Content Strands and Performance

Content Strand: Number Sense and Operations

Web Resources - Grade 6	
Number Systems: <i>Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.</i>	
6.N.1 Read and write whole numbers to trillions	Available on Destination Math http://www.aaamath.com/B/g6_31_x1.htm http://www.kwiznet.com/p/takeQuiz.php?ChapterID=1282 mbers.htm
6.N.2 Define and identify the commutative and associative properties of addition and multiplication.	http://www.purplemath.com/modules/numbprop.htm http://www.learningwave.com/chapters/numbers/com_assoc_add.html http://www.learningwave.com/lwonline/numbers/com_assoc_mult.html http://www.glencoe.com/sec/math/studytools/cgi-bin/msgQuiz.php4?isbn=0-02-825326-4&chapter=1&lesson=8
6.N.3 Define and identify the distributive property of multiplication	tm http://www.purplemath.com/modules/numbprop.htm http://www.riverdeep.net/portal/page?_pageid=336,241362&_dad=portal&_schema=PORTAL http://www.themathpage.com/arith/mental-arithmetic-multiplication-2.htm http://www.learningwave.com/lwonline/numbers/distrib.html
6.N.4 Define and identify the identity and inverse properties of addition and multiplication.	http://www.321know.com/pro.htm http://www.wtamu.edu/academic/anns/mps/math/mathlab/beg_algebra/beg_alg_tut8_property.htm
6.N.5 Define and identify the zero property of multiplication	http://www.mathleague.com/help/wholenumbers/wholenumbers.htm http://www.bmcc.edu/virtual_docs/MathTutorials/Numbers/n-rules.htm#multzero http://www.eduplace.com/math/mathsteps/3/c/3.multiplication.ask.html http://www.multiplication.com/basics/teach3.htm
6.N.6 Understand the concept of rate	http://www.webmath.com/Wordp/menu_rate.html http://www.eduplace.com/math/mathsteps/6/e/6.rates.ideas.html http://www.mathleague.com/help/ratio/ratio.htm#rate http://www.321know.com/g7-unit-rate.htm
6.N.7 Express equivalent ratios as a proportion	http://www.edhelper.com/ratios.htm http://mathforum.org/library/problems/sets/prealg_ratio.html

	http://www.iit.edu/~smart/dvorber/lesson3.htm
	http://argyll.epsb.ca/jreed/math7/strand1/1209.htm
6.N.8 Distinguish the difference between rate and ratio	http://mathforum.org/library/drmath/sets/mid_ratio.html
	http://www.321know.com/rat62ax2.htm
	http://www.321know.com/rat-unit-rate.htm
6.N.9 Solve proportions using equivalent	http://www.learningplanet.com/sam/ff/index.asp
	http://www.321know.com/rat-prop-crossx.htm
	http://cstl.syr.edu/FIPSE/Decunit/ratios/revprop.htm
	http://illuminations.nctm.org/ActivityDetail.aspx?ID=80
	http://pbskids.org/cyberchase/games/equivalentfractions/index.html
6.N.10 Verify the proportionality using the product of the means equals the product of the extremes.	http://www.algebrahelp.com/lessons/proportionbasics/
	http://www.math.com/school/subject1/lessons/S1U2L2DP.html
6.N.11 Read, write, and identify percents of a whole (0% to 100%)	http://www.bbc.co.uk/schools/revisewise/maths/number/03_act.shtml
	http://www.purplemath.com/modules/percents.htm
	http://www.mathhomeworkhotline.com/percents.html
	http://www.themathpage.com/ARITH/multiply-by-powers-of-10.htm
6.N.12 Solve percent problems involving percent, rate, and base	http://mathforum.org/library/drmath/sets/select/dm_percent_increase.html
	http://www.bbc.co.uk/scotland/education/bitesize/standard/maths/number_gen/dst_rev1.shtml
	http://argyll.epsb.ca/jreed/math7/strand1/1207.htm
	http://www.mathsisfun.com/percentage-difference.html
6.N.13 Define absolute value and determine the absolute value of rational numbers (including positive and negative)	http://www.purplemath.com/modules/absolute.htm
	http://www.eduplace.com/math/mathsteps/7/b/
	http://cs.gmu.edu/cne/modules/dau/algebra/basicarith/arith1_frm.html
6.N.14 Locate rational numbers on a number line (including positive and negative)	http://www.purplemath.com/modules/absolute.htm
	http://www.eduplace.com/math/mathsteps/7/b/
	http://cs.gmu.edu/cne/modules/dau/algebra/basicarith/arith1_frm.html
6.N.15 Order rational numbers (including positive and negative)	http://www.edhelper.com/math/rationalnumbers13.htm
	http://www.explorelearning.com/index.cfm?method=cResource.dspDetail&ResourceID=300
	http://www.homeschoolmath.net/teaching/rational-numbers-countable.php

Operations: *Students will understand meanings of operations and procedures, and how they relate to one*

6.N.16 Add and subtract fractions with unlike denominators

<http://www.math.com/school/subject1/lessons/S1U4L3GL.html>
http://www.learningwave.com/lwonline/fractions/add_sub_frac_un.html
<http://www.edhelper.com/fractions.htm>
http://www.riverdeep.net/portal/page?_pageid=336,240505&_dad=portal&_schema=PORTAL
<http://www.aaamath.com/fra66k-addfracud.html>

6.N.17 Multiply and divide fractions with unlike denominators

http://www.riverdeep.net/portal/page?_pageid=336,240505&_dad=portal&_schema=PORTAL
<http://www.mathleague.com/help/fractions/fractions.htm>
<http://www.aaamath.com/fra.html#topic23>
<http://mathforum.org/paths/fractions/e.fraclessons.html>

6.N.18 Add, subtract, multiply, and divide mixed numbers with unlike denominators

<http://www.mathleague.com/help/fractions/fractions.htm>
<http://www.learnalberta.ca/content/mejhm/index.html?launch=true>
http://www.riverdeep.net/portal/page?_pageid=336,240505&_dad=portal&_schema=PORTAL

6.N.19 Identify the multiplicative inverse (reciprocal) of a number

http://www.learner.org/channel/courses/learningmath/number/session1/part_a/inverse.html
<http://www.visualfractions.com/Inverse.html>
http://www.riverdeep.net/portal/page?_pageid=336,240505&_dad=portal&_schema=PORTAL

6.N.20 Represent fractions as terminating or repeating decimals

http://www.learner.org/channel/courses/learningmath/number/session7/part_b/index.html
<http://argyll.epsb.ca/jreed/math7/strand1/1108.htm>
http://www2.whidbey.net/ohmsmath/webwork/story/mf_story_denom.htm
http://hotmath.com/help/gt/genericprealg/section_3_6.html

6.N.21 Find multiple representations of rational numbers (fractions, decimals, and percents 0 to 100)

<http://regentsprep.org/Regents/mathb/3a1/practicemult.htm>
<http://www.eduplace.com/math/mathsteps/7/a/>
<http://regentsprep.org/Regents/math/rational/Lrat.htm>

6.N.22 Evaluate numerical expressions using order of operations (may include exponents of two and three)

<http://www.learnalberta.ca/content/mejhm/index.html?launch=true>
http://www.riverdeep.net/portal/page?_pageid=336,241362&_dad=portal&_schema=PORTAL

6.N.23 Represent repeated multiplication in exponential form	http://www.math.com/school/subject1/lessons/S1U1L8GL.html http://www.learnalberta.ca/content/mejhm/index.html?launch=true http://www.321know.com/exp.htm http://www.mathleague.com/help/decwholeexp/decwholeexp.htm
6.N.24 Represent exponential form as repeated multiplication	http://www.mathleague.com/help/decwholeexp/decwholeexp.htm http://www.321know.com/exp.htm http://www.learnalberta.ca/content/mejhm/index.html?launch=true
6.N.25 Evaluate expressions having exponents where the power is an exponent of one, two, or three	http://www.learnalberta.ca/content/mejhm/index.html?launch=true http://www.mathleague.com/help/decwholeexp/decwholeexp.htm
Estimation: <i>Students will compute accurately and make reasonable estimates</i>	
6.N.26 Estimate a percent of quantity (0% to 100%)	http://www.glencoe.com/sec/math/studytools/cgi-bin/msgQuiz.php4?isbn=1-57039-850-X&chapter=4&lesson=2 http://www.bbc.co.uk/scotland/education/bitesize/standard/maths/number_gen/percentages_rev2.shtml http://www.321know.com/pct.htm http://www.mathleague.com/help/percent/percent.htm
6.N.27 Justify the reasonableness of answers using estimation (including rounding)	http://www.learnalberta.ca/content/mesg/html/math6web/math6shell.html?launch=true http://www.bbc.co.uk/scotland/education/bitesize/standard/maths/number_gen/rounding_rev1.shtml http://www.321know.com/est.htm http://www.math.com/school/subject1/lessons/S1U1L3GL.html
Content Strand: Algebra	
Performance Indicators	Additional Websites
Variables and Expressions: <i>Students will represent and analyze algebraically a wide variety of problem</i>	
Variables and Expressions: <i>Students will perform algebraic procedures accurately.</i>	
6.A.1 Translate two-step verbal expressions into algebraic expressions	http://www.mathgoodies.com/lessons/vol7/equations.html www.math.com/school/subject2/lessons/S2U2L2GL.html http://www.edhelper.com/algebra.htm http://www.bbc.co.uk/scotland/education/bitesize/standard/maths/algebra_gen/manipulation_rev1.shtml

6.A.2* Use substitution to evaluate algebraic expressions (may include Expressions exponents of one, two and three)	
	www.algebrahelp.com/lessons/simplifying/numberexp/
	http://library.thinkquest.org/20991/alg/powers.html
Equations and Inequalities	
6.A.3* Translate two-step verbal sentences into algebraic equations	http://www.math.com/school/subject2/lessons/S2U3L1GL.html
	http://www.bbc.co.uk/scotland/education/bitesize/standard/mathsl/algebra_gen/solving_equations_rev1.shtml
6.A.4* Solve and explain two-step equations involving whole numbers using inverse operations	http://www.learnalberta.ca/content/mesg/html/math6web/math6shell.html?launch=true
6.A.5* Solve simple proportions within context	
	http://www.learnalberta.ca/content/mesg/html/math6web/math6shell.html?launch=true
6.A.6 Evaluate formulas for given input values (circumference, area, volume, distance, temperature, interest, etc.)	
Content Strand: Geometry	
Performance Indicators	Additional Websites
Shapes: <i>Students will use visualization and spatial reasoning to analyze characteristics and properties of</i>	
6.G.1 Calculate the length of corresponding sides of similar triangles, using proportional reasoning	
6.G.2 Determine the area of triangles and quadrilaterals (squares, rectangles, rhombi, and trapezoids) and develop formulas	
6.G.3 Use a variety of strategies to find the area of regular and irregular polygons	

6.G.4 Determine the volume of rectangular prisms by counting cubes and develop the formula	
6.G.5 Identify radius, diameter, chords and central angles of a circle	
6.G.6 Understand the relationship between the diameter and radius of a circle	
6.G.7 Determine the area and circumference of a circle, using the appropriate formula	
6.G.8 Calculate the area of a sector of a circle, given the measure of a central angle and the radius of the circle	
6.G.9 Understand the relationship between the circumference and the diameter of a circle	
Coordinate Geometry: <i>Students will apply coordinate geometry to analyze problem solving situations.</i>	
6.G.10* Identify and plot points in all four quadrants	
6.G.11* Calculate the area of basic polygons drawn on a coordinate plane (rectangles and shapes composed of rectangles having sides with integer lengths)	
Content Strand: Measurement	
Performance Indicators	Additional Websites

Units of Measurement: <i>Students will determine what can be measured and how, using appropriate</i>	
6.M.1 Measure capacity and calculate volume of a rectangular prism	
6.M.2 Identify customary units of capacity (cups, pints, quarts, and gallons)	
6.M.3 Identify equivalent customary units of capacity (cups to pints, pints to quarts, and quarts to gallons)	
6.M.4 Identify metric units of capacity (liter and milliliter) This indicator is outside the scope of the course.	
6.M.5 Identify equivalent metric units of capacity (milliliter to liter and liter to milliliter) This indicator is outside the scope of the course.	
Tools and Methods	
6.M.6 Determine the tool and technique to measure with an appropriate level of precision: capacity	
Estimation: <i>Students will develop strategies for estimating measurements.</i>	
6.M.7 Estimate volume, area, and circumference (see figures identified in geometry strand)	

6.M.8 Justify the reasonableness of estimates 284-285, 294-295	
6.M.9 Determine personal references for capacity This indicator is outside the scope of the course.	
Content Strand: Statistics and Probability	
Performance Indicators	Additional Websites
Collection of Data: <i>Students will collect, organize, display, and analyze data.</i>	
6.S.1* Develop the concept of sampling when collecting data from a population and decide the best method to collect data for a particular question.	
Organization and Display of Data	
6.S.2* Record data in a frequency table	
6.S.3* Construct Venn diagrams to sort data	
6.S.4* Determine and justify the most appropriate graph to display a given set of data (pictograph, bar graph, line graph, histogram, or circle graph)	
Analysis of Data	
6.S.5 Determine the mean, mode and median for a given set of data	
	http://www.factmonster.com/ipka/A0001736.html
6.S.6 Determine the range for a given set of data	

6.S.7 Read and interpret graphs	
Predictions from Data: <i>Students will make predictions that are based upon data analysis.</i>	
6.S.8 Justify predictions made from data	
Probability: <i>Students will understand and apply concepts of probability.</i>	
6.S.9* List possible outcomes for compound	
6.S.10* Determine the probability of dependent	
6.S.11* Determine the number of possible outcomes for a compound event by using the fundamental counting principle and use this to determine the probabilities of events when the outcomes have equal probability	
*Indicator is not tested on the Grade 6 Test. SS = Study Skills Feature, PS = Prerequisite Skill Appendix (pp. 554-563)	
Favorite sites Learn Alberta Math	http://www.learnalberta.ca/content/mesg/html/math6web/math6shell.html?launch=true
	http://www.learnalberta.ca/content/mejhm/index.html?launch=true
BBC Maths	http://www.bbc.co.uk/schools/websites/11_16/site/maths.shtml