

Douglas County School District
4th Grade Critical Content Checklist
Math

Teacher: _____

Year: _____

The Nevada Mathematics Standards and Douglas County's Mathematics Critical Content connect the *Process* and *Content Standards*. The *Process Standards* describe the process in which students should learn mathematics and engage in mathematical thinking. They are included on this checklist as a constant reminder of how our students should be supported in their mathematical thinking and embedded in every lesson. The *Content Standards* outline the big mathematical ideas that all students should know and be able to do. These are provided in the typical checklist format. Neither will develop mathematically proficient students when used in isolation.

Grades 3-5 Process Standards

Process Standard:
Problem Solving

- Generalize and apply previous experiences and strategies to new problem solving situations
- Determine an efficient strategy, verify, interpret, and evaluate the results with respect to the original problem
- Try more than one strategy when the first strategy proves to be unproductive
- Interpret and solve a variety of mathematical problems by paraphrasing
- Identify necessary and extraneous information
- Check the reasonableness of a solution
- Use technology, including calculators, to develop mathematical concepts

Process Standard:
Mathematical Communication

- Use inquiry techniques to solve mathematical problems
- Use a variety of methods to represent and communicate mathematical ideas through oral, verbal, and written formats
- Identify and translate key words and phrases that imply mathematical operations
- Use everyday language, both orally and in writing, to communicate strategies and solutions to mathematical problems

Process Standard:
Mathematical Reasoning

- Draw logical conclusions about mathematical problems
- Follow a logical argument and judge its validity
- Review and refine the assumptions and steps used to derive conclusions in mathematical arguments
- Justify and explain the solutions to problems using manipulatives and physical models

Process Standard:
Mathematical Connections

- Use mathematical ideas from one area of mathematics to explain an idea from another area of mathematics
- Use physical models to explain the relationship between concepts and procedures
- Apply mathematical thinking and modeling to solve problems that arise in other disciplines, such as rhythm in music and motion in science
- Identify, explain, and use mathematics in everyday life

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Note: Although these are mastery objectives, pacing of content is at the discretion of the teacher.

Key: E = Enduring, I = Important, W = Worth being familiar with, S = Assessed at the state and local level, L= Assessed at the local level only

Key Vocabulary is in bold print.

Competency/Standards	Dates/Notes	Resources
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**Content Standard 1:
 Numbers, Number Sense, and Computation**

Place Value		<i>E/S</i>
Identify and use place value positions of whole numbers to one million		Ch. 1, pgs. 6-8
Students will read and write standard numbers up to 1,000,000		
Read and write standard and expanded forms through millions place		
Fractions		<i>E/S</i>
Identify, build, write, and compare fractions with like denominators using models, drawings, and numbers		Ch. 19
Comparing and Ordering		<i>I/S</i>
Compare and order numbers to millions using $>$, $<$, $=$		Ch. 2, pgs. 24-25
Compare numbers up to 1,000,000		
Compare standard numbers using $>$, $<$, $=$ to 1,000,000		
Complete number sentences with the appropriate words and symbols ($+$, $-$, \times , \div , $>$, $<$, $=$)		
Counting		<i>I/L</i>
Count by multiples of a given number.		Ch. 10
Explain relationships between skip counting, repeated addition, and multiples .		
Facts		<i>I/S</i>
Immediately recall and use multiplication and corresponding division facts (products to 144). Set fluency goals such as say or write 40-60 per minute		Ch. 4: pgs 90-99 “Mad Minutes” & “Math Wrap-Ups”, etc. for timed tests <i>Arrays and Shares,</i> <i>Packages and Groups</i>
Estimating and Estimation Strategies		<i>I/S</i>
Rounding to the nearest place value given		Ch. 2, pgs. 38-39
Rounding numbers to the highest place value in the number (i.e. 3,208 round the nearest thousand) up to hundred thousands		

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		Ch. 7, pgs. 174-175
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Estimate to determine the reasonableness of an answer in mathematical and practical situations		
Estimate products using rounding up to 2 digits times 4 digits		

Computation		<i>E/S</i>
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Add with and without regrouping up to six digit numbers		<i>Mathematical Thinking</i> Ch. 3 : pg. 70-71, 76-78
Subtract with and without regrouping up to six digit numbers		<i>Money, Miles and Large Numbers</i> Ch. 3 pgs. 72-78
Multiply and divide 4 digits by one digit number with regrouping, including monetary amounts as decimals		
Multiply 2 digits by 2 digits		
Understand dividing large into small groups. Understand division as repeated subtraction. Divide number of objects into equal or groups (with or without remainders)		Ch. 6. Ch. 7: pgs. 178-179
Understand division as inverse of multiplication.		<i>Packages and Groups</i> Ch. 4: pgs 92-93
Multiply and divide by a one digit whole number producing a solution with no remainder including monetary amounts as decimals.		Ch. 4: pgs 88-95
Divide 1 digit into 3 digit dividend with and without remainders.		(x) Ch. 6: pgs 160-161 (÷) Ch. 9: pgs 234-236

Solving Problems and Number Theory		<i>E/S</i>
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Generate and solve addition, subtraction, multiplication, and division problems using whole numbers in practical situations		embedded
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Content Standard 2:

Patterns Functions, and Algebra

Patterns		<i>E/S</i>
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Identify, describe, and represent patterns and relationships in the number system, including arithmetic and geometric sequences		Ch. 18, pgs. 476-477 Ch. 4, pgs. 90-91
Explain relationships between skip counting , repeated addition, and multiples.		Houghton Mifflin: Daily Reviews

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Variables and Unknowns		<i>I/S</i>
Model, explain, and solve open number sentences involving addition, subtraction, multiplication, and division.		Ch. 4, pg. 93
Select the solution to an equation from a given set of numbers		Ch. 4: pgs 102-103; pgs 228-223; pgs 238-239 Ch. 4: pgs 88-93
Number Sentences, Expressions, and Polynomials		<i>I/S</i>
Complete number sentences with the appropriate words and symbols including (+, -, x, ÷, >, < and =)		

Content Standard 3:
Measurement

Comparison, Estimation, and Conversion		<i>E/S</i>
Estimate and convert units of measure for length, area, and weight with the same measurement system (customary and metric)		
<u>Distance</u> - Measure and compare lengths in metric units - Complete basic conversions within each system: inches/feet/yard/mile - Metric units for length include millimeter, centimeter, meter and kilometer		Ch. 12, pgs. 320-321 Ch. 12, pgs. 308-309
<u>Weight</u> - Recognize tons/pound/ounces - Metric units for weight include milligram, gram, and kilogram		Ch. 12, pgs. 312-315
<u>Capacity</u> - Recognize cup/pint/quart/gallon - Make clearer appropriate estimates		Ch. 12, pgs. 310-311
<u>Temperature</u> - Identify freezing and boiling temperatures - Estimate temperature in practical situations		Ch. 13, pgs. 344-347 Ch. 13, pgs. 344-347
Precision in Measurements		<i>E/S</i>
Measure length to the nearest $\frac{1}{2}$ inch and $\frac{1}{4}$ inch		Ch. 12, pgs. 306-307
Measure length, area, temperature, and weight to the required degree of accuracy in customary and metric systems		Ch. 12 – Length and Weight Ch. 13 – Temperature Ch. 18 – Area
Formulas		<i>I/S</i>
Define, describe, and determine the perimeter of polygons and area of rectangles (including squares)		Ch. 18

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Money		<i>E/S</i>
Determine totals for monetary amounts in practical situations		Ch. 3: pgs 70-73 <i>Mathematical Thinking</i>
Use money notation to add and subtract given monetary amounts		
Time		<i>E/S</i>
Use A.M. and P. M. appropriately in describing time		Ch. 13
Use elapsed time in quarter-hour increments, beginning on the quarter-hour, to determine start, end, and elapsed time.		Ch. 13
Recognize the number of weeks in a year, days in a year, and days in a month		

**Content Standard 4:
 Spatial Relationships, Geometry, and Logic**

Two – Dimensional Shapes		<i>I/S</i>
Identify, draw, and classify angles, including straight, right, obtuse, and acute		<i>Seeing Solids and Silhouettes, Sunken Ships and Grid Patterns</i>
Congruence, Similarity, and Transformations		<i>I/S</i>
Identify shapes that are congruent, similar, and/or symmetrical using a variety of methods including transformational motion (slides, flips and turns)		Ch. 16, pgs 408-411
Coordinate Geometry and Lines of Symmetry		<i>I/S</i>
Identify coordinates for a given point in the first quadrant		<i>Sunken Ships and Grid Patterns</i>
Locate points of given coordinates on a grid in the first quadrant		
Three – Dimensional Figures		<i>E/S</i>
Identify, describe, and classify two and three dimensional figures by relevant properties including the number of vertices, edges, and shapes of faces , using models - Two dimensional figures include circle, triangle, rectangle, square, rhombus, pentagon, hexagon, octagon, and trapezoid - Three dimensional figures include cube, cone, sphere, rectangular prism, triangular prism, and cylinder		Ch. 17, pgs 430-443
Lines, Angles, and their Properties		<i>I/S</i>
Identify, draw, label, and describe points, line segments, rays, and angles		Ch 16, pgs 404-406
Logic		<i>I/L</i>
Use the connectors and, or, and not to describe the members of a set. (Venn Diagram)		Ex.: Sort and classify angles using Venn Diagrams

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Content Standard 5:
Data Analysis

Data Collection and Organization		<i>I/S</i>
Pose questions that guide the collection of categorical and numerical data		<i>Mathematical Thinking, Changes Over Time, The Shape of Data.</i> Ch. 15, pgs. 376-387 Ch. 14, pgs. 360-362, 356-358 Ch. 23, pgs. 598-601
Organize and represent data using a variety of graphical representations including frequency tables and line plots		
Central Tendency and Data Distribution		<i>I/L</i>
Model and Compute range		Ch. 14
Model and compute the measures of central tendency for average/mean, median, and mode		
Interpretation of Data		<i>I/S</i>
Interpret data and make predictions using frequency tables and line plots		<i>Changes Over Time, The Shape of Data</i> Ch. 13
Experimental and Theoretical Probability		<i>I/L</i>
Conduct simple probability experiments using concrete materials		Ch. 23, pgs. 590-601
Represent the results of simple probability experiments as fractions to make predictions about future events		