

**Helping Your Child Learn Math**  
**A guide for parents of children in grades pre-K to 5:**  
**Correlation to the National Council of Teachers of Mathematics'**  
**Principles and Standards for School Mathematics**  
**For Prekindergarten-Grade 2 and Grades 3-5**

The following data describe the pages of the guide *Helping Your Child Learn Math* that address the *Principles and Standards for School Mathematics* (National Council of Teachers of Mathematics) for students in prekindergarten through grade 5. Analysis data show the page numbers of the guide that correlate to each expectation.

<b>Principles and Standards for School Mathematics (NCTM)</b>	
<b>Number and Operations Standard</b>	<b>Analysis Data</b>
<b>Instructional programs should enable all students to understand numbers, ways of representing numbers, relationships among numbers, and number systems.</b>	
<b>In prekindergarten through grade 2 all students should:</b>	
Count with understanding and recognize "how many" in sets of objects.	Pages 3, 4, 5, 6
Develop understanding of the relative position and magnitude of whole numbers and of ordinal and cardinal numbers and their connections.	Pages 4, 6, 7,
Develop a sense of whole numbers and represent and use them in flexible ways, including relating, composing, and decomposing numbers.	Pages 4, 5, 6, 7
Connect number words and numerals to the quantities they represent, using various physical models and representations.	Pages 4, 5, 6
<b>Instructional programs should enable all students to understand meanings of operations and how they relate to one another.</b>	
<b>In prekindergarten through grade 2 all students should:</b>	
Understand various meanings of addition and subtraction of whole numbers and the relationship between the two operations.	Pages 6, 7, 13
Understand the effects of adding and subtracting whole numbers.	Pages 6, 7, 13
Understand situations that entail multiplication and division, such as equal groupings of objects and sharing equally.	Pages 5, 6, 13
<b>In grades 3-5 all students should:</b>	
Understand various meanings of multiplication and division.	Pages 8, 9, 10
Understand the effects of multiplying and dividing whole numbers.	Pages 8, 9, 10
<b>Instructional programs should enable all students to compute fluently and make reasonable estimates.</b>	
<b>In prekindergarten through grade 2 all students should:</b>	
Develop and use strategies for whole-number computations, with a focus on addition and subtraction.	Pages 6, 7, 13

Develop fluency with basic number combinations for addition and subtraction.	Pages 6, 7, 13
Use a variety of methods and tools to compute, including objects, mental computation, estimation, paper and pencil, and calculators.	Pages 5, 6, 7, 12
<b>In grades 3-5 all students should:</b>	
Develop fluency with basic number combinations for multiplication and division and use these combinations to mentally compute related problems, such as $30 \times 50$ .	Pages 8, 9, 10
Develop fluency in adding, subtracting, multiplying, and dividing whole numbers.	Pages 8, 9, 10, 12
Develop and use strategies to estimate the results of whole-number computations and to judge the reasonableness of such results.	Page 9
Develop and use strategies to estimate computations involving fractions and decimals in situations relevant to students' experience.	Page 9
Select appropriate methods and tools for computing with whole numbers from among mental computation, estimation, calculators, and paper and pencil according to the context and nature of the computation and use the selected method or tools.	Pages 8, 9, 10, 12

<b>Algebra Standard</b>	<b>Analysis Data</b>
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<b>Instructional programs should enable all students to understand patterns, relations, and functions.</b>	
<b>In prekindergarten through grade 2 all students should:</b>	
Sort, classify, and order objects by size, number, and other properties.	Page 3
Recognize, describe, and extend patterns such as sequences of sounds and shapes or simple numeric patterns and translate from one representation to another.	Pages 3, 6
<b>Instructional programs should enable all students to use mathematical models to represent and understand quantitative relationships.</b>	
<b>In prekindergarten through grade 2 all students should:</b>	
Model situations that involve the addition and subtraction of whole numbers, using objects, pictures, and symbols.	Pages 6, 7

<b>Geometry Standard</b>	<b>Analysis Data</b>
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<b>Instructional programs should enable all students to analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships.</b>	
<b>In prekindergarten through grade 2 all students should:</b>	
Recognize, name, build, draw, compare, and sort two- and three-dimensional shapes.	Page 3
Describe attributes and parts of two- and three-dimensional shapes.	Page 3

Investigate and predict the results of putting together and taking apart two- and three-dimensional shapes.	Page 6
<b>Instructional programs should enable all students to use visualization, spatial reasoning, and geometric modeling to solve problems.</b>	
<b>In prekindergarten through grade 2 all students should:</b>	
Recognize geometric shapes and structures in the environment and specify their location.	Page 3

Measurement Standard	Analysis Data
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<b>Instructional programs should enable all students to understand measurable attributes of objects and the units, systems, and processes of measurement.</b>	
<b>In prekindergarten through grade 2 all students should:</b>	
Recognize the attributes of length, volume, weight, area, and time.	Pages 3, 5, 7
Compare and order objects according to these attributes.	Page 3
Understand how to measure using nonstandard and standard units.	Pages 3, 5, 7
Select an appropriate unit and tool for the attribute being measured.	Page 5
<b>In grades 3-5 all students should:</b>	
Understand such attributes as length, area, weight, volume, and size of angle and select the appropriate type of unit for measuring each attribute.	Page 10
Understand the need for measuring with standard units and become familiar with standard units in the customary and metric systems.	Page 10
<b>Instructional programs should enable all students to apply appropriate techniques, tools, and formulas to determine measurements.</b>	
<b>In prekindergarten through grade 2 all students should:</b>	
Measure with multiple copies of units of the same size, such as paper clips laid end to end.	Pages 3, 5, 7
Use repetition of a single unit to measure something larger than the unit, for instance, measuring the length of a room with a single meter stick.	Pages 5, 7
Use tools to measure.	Pages 5, 7
Develop common referents for measures to make comparisons and estimates.	Page 5
<b>In grades 3-5 all students should:</b>	
Select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and the size of angles.	Page 10
Develop, understand, and use formulas to find the area of rectangles and related triangles and parallelograms.	Page 10

<b>Data Analysis and Probability Standard</b>	<b>Analysis Data</b>
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<b>Instructional programs should enable all students to formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.</b>	
<b>In prekindergarten through grade 2 all students should:</b>	
Sort and classify objects according to their attributes and organize data about the objects.	Page 3
<b>In grades 3-5 all students should:</b>	
Design investigations to address a question and consider how data-collection methods affect the nature of the data set.	Page 11
Collect data using observations, surveys, and experiments.	Page 11
Represent data using tables and graphs such as line plots, bar graphs, and line graphs	Page 11
<b>Instructional programs should enable all students to select and use appropriate statistical methods to analyze data.</b>	
<b>In grades 3-5 all students should:</b>	
Compare different representations of the same data and evaluate how well each representation shows important aspects of the data.	Page 11
<b>Instructional programs should enable all students to understand and apply basic concepts of probability.</b>	
<b>In grades 3-5 all students should:</b>	
Describe events as likely or unlikely and discuss the degree of likelihood using such words as certain, equally likely, and impossible.	Page 8

<b>Problem Solving Standard</b>	<b>Analysis Data</b>
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<b>In prekindergarten through grade 2 all students should:</b>	
Solve problems that arise in mathematics and in other contexts.	Pages 5, 6, 7, 13
<b>In grades 3-5 all students should:</b>	
Solve problems that arise in mathematics and in other contexts.	Pages 8, 9, 10, 11, 13

<b>Communication Standard</b>	<b>Analysis Data</b>
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<b>In prekindergarten through grade 2 all students should:</b>	
Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.	Pages 5, 6
Use the language of mathematics to express mathematical ideas precisely.	Page 5
<b>In grades 3-5 all students should:</b>	
Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.	Pages 8, 9, 10, 11

Use the language of mathematics to express mathematical ideas precisely.	Pages 8, 9, 10, 11
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Connections Standard	Analysis Data
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<b>In prekindergarten through grade 2 all students should:</b>	
Recognize and use connections among mathematical ideas.	Pages 5, 6, 14
Recognize and apply mathematics in contexts outside of mathematics.	Pages 3, 5, 6, 13, 14
<b>In grades 3-5 all students should:</b>	
Recognize and use connections among mathematical ideas.	Pages 8, 9, 10, 11, 14
Recognize and apply mathematics in contexts outside of mathematics.	Pages 8, 9, 10, 11, 14

Representation Standard	Analysis Data
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<b>In grades 3-5 all students should:</b>	
Create and use representations to organize, record, and communicate mathematical ideas.	Page 11
Use representations to model and interpret physical, social, and mathematical phenomena.	Page 11