

Macmillan/McGraw-Hill

Math Connects

2009

Pre-Kindergarten

Correlated with

**Maryland
Mathematics
Voluntary State Curriculum**

Pre-Kindergarten

**Macmillan/McGraw-Hill
The McGraw-Hill School Solutions Group
800-442-9685**

STANDARD 1.0 KNOWLEDGE OF ALGEBRA, PATTERNS, AND FUNCTIONS – Students will algebraically represent, model, analyze, or solve mathematical or real-world problems involving patterns or functional relationships.	
A. Patterns and Functions	
2. Identify, copy, and extend non-numeric patterns	
a) Match patterns kinesthetically such as: clap/snap/clap...	pp. 34G, 35C, 36D, 37C, 39C
b) Recognize simple patterns	pp. 34E, 34F, 35A, 35B, 35C, 35D, 36A, 36B, 36C, 36D, 37A, 37C, 38A, 38B, 38C, 38D, 39A, 39B, 39D, 40A-40B, 40C, 40D, 63A-63B
c) Represent simple repeating patterns using no more than 2 different objects, and different actions in the core of the pattern	pp. 34E, 35B, 35C, 36A, 36B, 36C, 36D, 37A, 37B, 37C, 38A, 38B, 39A, 40B, 40C, 63A-63B
d) Continue a simple pattern	pp. 34E, 35D, 36D, 38A, 38B, 38C, 38D, 39B, 39C, 40A-40B, 40C, 63A-63B
e) Create a simple pattern of 2 different objects when given the rule	pp. 34E, 34F, 36B, 36C, 36D, 37D, 38D, 39A, 39B, 39C, 40C, 40D
f) Identify patterns in real-world situations	pp. 34F, 34G, 35D, 36A, 36B, 36D, 37D, 38D, 39D, 40B, 40C, 63B
B. Expressions, Equations, and Inequalities	
2. Identify inequalities	
a) Explore relationships by comparing groups of no more than 5 objects to determine more or less	pp. 5A, 5B, 5C, 5D, 6A-6B, 6C
STANDARD 2.0 KNOWLEDGE OF GEOMETRY – Students will apply the properties of one-, two-, or three-dimensional geometric figures to describe, reason, or solve problems about shape, size, position, or motion of objects.	
A. Plane Geometric Figures	
1. Recognize and use the attributes of plane geometric figures	
a) Sort objects by one attribute such as: shape, color, and size	pp. 24C, 24D, 28D
b) Name the attributes of plane figures such as: shape, color, size	pp. 20G, 20H, 24A-24D, 25A-25D, 26A-26D, 26E, 26F, 28D, 66, 79
c) Match triangles, circles, and squares	pp. 20G, 24A, 24B, 24C, 24D, 26E
d) Identify triangles, circles, and squares in the environment	pp. 20E, 20G, 24B, 24D, 25C, 25D, 26D, 26E, 26F

B. Solid Geometric Figures	
1. Recognize and use the attributes of solid geometric figures	
a) Sort objects by one attribute such as: size, shape, weight, length	pp. 22A, 22B, 22C, 22D, 23A-23B, 31B
b) Find solid figures in the environment	pp. 20G, 21A, 21B, 21C, 21D, 22A, 22C, 22D, 23A, 26D
E. Transformations	
1. Begin to recognize a transformation	
a) Tell position by using words such as: over, under, above, on, next to, below, beside, behind	pp. 13E, 13F, 13G, 3H, 14A, 14B, 14C, 14D, 15A, 15B, 15C, 15D, 16A, 16B, 16C, 16D, 17A, 17B, 17C, 17D, 18A, 18B, 19A, 19B, 19C, 19D, 19E, 19F
b) Recognize a slide using concrete materials	pp. 22C, 22D, 23A, 23B
STANDARD 3.0 KNOWLEDGE OF MEASUREMENT- Students will identify attributes, units, or systems of measurements or apply a variety of techniques, formulas, tools, or technology for determining measurements.	
A. Measurement Units	
1. Recognize and use measurement attributes	
a) Demonstrate an understanding of comparative attributes such as: bigger, smaller, longer, shorter, lighter, heavier, shorter, taller, hotter, colder	pp. 47G, 47I, 47J, 48A-48D, 49A-49D, 51B-51D, 52A-52D, 53A-53B, 54E, 54F, 73, 83
b) Compare and describe objects according to a single attribute	pp. 47G, 47I, 47J, 48A-48D, 49A-49D, 51B-51D, 52A-52D, 53A-53B, 54E, 54F, 73, 83
B. Measurement Tools	
1. Measure in non-standard units	
a) Measure length of objects	pp. 47G, 48A-48D, 54E
b) Explore the capacity of containers	pp. 47H, 51A-51D, 54E
c) Explore the weight of objects	pp. 47G, 49A-49D, 54E
STANDARD 4.0 KNOWLEDGE OF STATISTICS – Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.	
A. Data Displays	
1. Explore and display data	
a) Explore data by answering a yes/no question	pp. 56C, 56D
b) Display data on real graphs	pp. 55F, 57A-57D, 59A-59B
c) Display data on picture graphs	pp. 55F, 58A-58D, 59A-59B, 59C, 59D, 74, 84

B. Data Analysis	
1. Analyze data	
a) Talk about data from real graphs to answer a question such as: Which category has the most?	pp. 55E, 55F, 55G, 56D, 57A, 57B, 57C, 57D, 58A, 58B, 58D, 59A, 59C
STANDARD 6.0 KNOWLEDGE OF NUMBER RELATIONSHIPS AND COMPUTATION/ARITHMETIC – Students will describe, represent, or apply numbers or their relationships or will estimate or compute using mental strategies, paper/pencil, or technology.	
A. Knowledge of Number and Place Value	
1. Apply knowledge of whole numbers	
a) Build concept of number	pp. 27E, 27F, 27G, 28A-28D, 29A-29D, 30A-30D, 31A-31B
b) Show an understanding of quantity	pp. 28A, 28B, 28C, 29A, 29B, 29C, 29D, 31D
c) Construct relationships based on quantity	pp. 29B, 29C, 29D
d) Use classroom experiences to indicate same, more, or less	pp. 5A, 5B, 5C, 5D, 27G
e) Count and discuss quantity	pp. 27E, 27F, 28A-28D, 29A-29D, 30A-30D, 31A-31D, 32A-32B, 41E, 41F, 41G, 41H, 42A-42D, 43A-43D, 44A-44D, 45A-45D, 46A-46B, 72, 80, 82
f) Use concrete materials to build sets 0 to 5	pp. 27F, 27G, 27H, 29A, 29B, 29C, 29D, 30A, 30B, 30C, 30D, 31B, 32B
g) Match a numeral to a set 0 to 5	pp. 28C, 29B, 30A, 30B, 31B, 31C, 32A-32B
h) Count to 10	pp. 27E, 27F, 28A-28D, 29A-29D, 30A-30D, 31A-31D, 32A-32B, 41E, 41F, 41G, 41H, 42A-42D, 43A-43D, 44A-44D, 45A-45D, 46A-46B, 72, 80, 82
i) Use ordinal words to indicate position such as: first, next, last	pp. 33A-33D, 33F
STANDARD 7.0 PROCESSES OF MATHEMATICS – Students demonstrate the processes of mathematics by making connections and applying reasoning to solve and to communicate their findings.	
A. Problem solving	
1. Apply a variety of concepts, processes, and skills to solve problems	
a. Identify the question in the problem	pp. 6A-6B, 11A-11B, 18A-18B, 23A-23B, 32A-32B, 40A-40B, 46A-46B, 53A-53B, 59A-59B, 63A-63B

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b. Decide if enough information is present to solve the problem	pp. 6A-6B, 11A-11B, 18A-18B, 23A-23B, 32A-32B, 40A-40B, 46A-46B, 53A-53B, 59A-59B, 63A-63B
c. Make a plan to solve a problem	pp. 6A-6B, 11A-11B, 18A-18B, 23A-23B, 32A-32B, 40A-40B, 46A-46B, 53A-53B, 59A-59B, 63A-63B
d. Apply a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation	pp. 6A-6B, 11A-11B, 18A-18B, 23A-23B, 32A-32B, 40A-40B, 46A-46B, 53A-53B, 59A-59B, 63A-63B
e. Select a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation f. Identify alternative ways to solve a problem g. Show that a problem might have multiple solutions or no solution	Readiness: pp. 6A-6B, 11A-11B, 18A-18B, 23A-23B, 32A-32B, 40A-40B, 46A-46B, 53A-53B, 59A-59B, 63A-63B
h. Extend the solution of a problem to a new problem situation	pp. 6B, 11B, 18B, 23B, 32B, 40B, 46B, 53B, 59B, 63B
B. Reasoning	
1. Justify ideas or solutions with mathematical concepts or proofs	
a. Use inductive or deductive reasoning	pp. 6A, 11A, 18A, 23A, 32A, 40A, 46A, 53A, 59A, 63A
b. Make or test generalizations	Refer to Kindergarten.
c. Support or refute mathematical statements or solutions	pp. 6A, 11A, 18A, 23A, 32A, 40A, 46A, 53A, 59A, 63A
d. Use methods of proof, i.e., direct, indirect, paragraph, or contradiction	pp. 1G, 21B, 28B, 35B, 38B, 46A, 47H, 51B, 53A, 62B
C. Communication	
1. Present mathematical ideas using words, symbols, visual displays, or technology	
a. Use multiple representations to express concepts or solutions	pp. 2A, 2C, 3C, 4B, 5A, 5C, 6A-6B, 7F, 8B, 8D, 11A-11B, 12B, 12C, 12D, 13E, 14B, 15B, 16B, 17B, 19D, 19E, 19F, 20B, 20E, 20F, 21B, 22B, 23B, 24C, 25B, 25C, 26B, 26C, 26D, 26F, 27B, 27F, 29B, 31D, 32B, 33B, 33E, 33F, 34E, 36A, 37A, 37B, 37D, 38A, 38B, 38C, 38D, 39B, 39C, 39D, 40B, 40C, 40D, 41E, 41F, 43B, 43C, 44D, 46A-46B, 47B, 47I, 48B, 49C, 49D, 50B, 50D, 51C, 54E, 55E, 55F, 56A, 56B, 56C, 56D, 57A, 57B, 57D, 58A, 58B, 58C, 59A-59B, 59C, 59D, 61B, 62B, 62C, 62D, 65C, 65E

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b. Express mathematical ideas orally	pp. 1E-6D, 7E-12F, 13E-19F, 20E-26F, 27E-33F, 34E-40D, 41E-46D, 47G-54F, 55E-59D, 60E-65F
c. Explain mathematical ideas in written form	pp. 29B, 30B, 41B, 46D, 53A
d. Express solutions using concrete materials	pp. 2A, 3A, 4A, 5A, 8A, 9A, 10A, 12A, 14A, 15A, 16A, 17A, 19A, 21A, 22A, 24A, 25A, 26A, 28A, 29A, 30A, 31A, 33A, 35A, 36A, 37A, 38A, 39A, 42A, 43A, 44A, 45A, 48A, 49A, 50A, 51A, 52A, 54A, 56A, 57A, 58A, 61A, 62A, 64A, 65A
e. Express solutions using pictorial, tabular, graphical, or algebraic methods	pp. 2A, 2C, 3C, 4B, 6A-6B, 7F, 8B, 12C, 16B, 19D, 19E, 19F, 20B, 20F, 21B, 24C, 26C, 26D, 26F, 27B, 29B, 32B, 33E, 33F, 34E, 36A, 38A, 38B, 38C, 38D, 39B, 39C, 39D, 40B, 40C, 41E, 41F, 43C, 47B, 49C, 50B, 50D, 55E, 55F, 56A, 56B, 56C, 56D, 57A, 57B, 57D, 58A, 58B, 58C, 59A, 59B, 59C, 59D, 61B, 62B, 62C, 62D, 65E
f. Explain solutions in written form	pp. 29B, 30B, 41B, 46D, 53A
g. Ask questions about mathematical ideas or problems	pp. 1G, 7G, 13G, 19B, 20G, 27G, 34G, 41G, 42D, 47I, 55G, 60G
h. Give or use feedback to revise mathematical thinking	pp. 6A, 11A, 18A, 23A, 32A, 40A, 46A, 53A, 59A, 63A
D. Connections	
1. Relate or apply mathematics within the discipline, to other disciplines, and to life	
a. Identify mathematical concepts in relationship to other mathematical concepts	pp. 5A-5B, 6C, 6D, 8C, 12F, 16B, 17B, 22C, 24C, 28D, 30D, 31B, 35B, 39D, 40B, 40C, 45D, 49B, 55F, 56B, 57B, 58B, 58C, 63B, 65A
b. Identify mathematical concepts in relationship to other disciplines	pp. 1E, 2A, 2D, 3A, 3D, 4A, 4D, 5A, 5D, 7F, 8A, 8D, 9A, 9D, 10A, 10D, 12A, 12D, 13F, 14A, 15D, 15A, 16A, 16D, 17A, 17D, 18A-18B, 19A, 19D, 21A, 21D, 22A, 22D, 23A-23B, 24A, 24D, 25A, 26A, 26D, 28A, 28D, 29A, 29D, 30A, 30D, 31A, 31D, 33A, 33D, 34F, 35A, 35D, 36A, 36D, 37A, 37D, 38A, 38D, 39A, 39D, 41F, 42A, 42D, 43A, 43D, 44A, 45A, 45D, 48A, 48D, 49A, 49D, 50A, 50D, 51A, 52A, 52D, 54A, 54D, 56A, 56D, 57A, 58A, 58D, 60F, 61A, 61D, 62A, 62D, 64A, 64D, 65A, 65D

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c. Identify mathematical concepts in relationship to life	pp. 2D, 3D, 4D, 9D, 12D, 14D, 15D, 16D, 17D, 19D, 22D, 26D, 28D, 29D, 30D, 31D, 33D, 35D, 36D, 37D, 38D, 39D, 44D, 45D, 48D, 49D, 50D, 51D, 52D, 54D, 56D, 57D, 64D, 65D
d. Use the relationship among mathematical concepts to learn other mathematical concepts	pp. 5A-5B, 6C, 6D, 8C, 12F, 16B, 17B, 22C, 24C, 28D, 30D, 31B, 35B, 39D, 40B, 40C, 45D, 49B, 55F, 56B, 57B, 58B, 58C, 63B, 65A