

Houghton Mifflin *MATHEMATICS*
 Kindergarten
 correlated to
 NCTM Standards 2000

NCTM Standard

Houghton Mifflin *MATHEMATICS*

Number and Operations Standard	
Understand numbers, ways of representing numbers, relationships among numbers, and number systems	
<ul style="list-style-type: none"> count with understanding and recognize "how many" in sets of objects; 	TE: 150–171, 190–225, 240–247, 598–609, 626–635 PE: C19–C30, D9–D26, D35–D40, J9–J14, J23–J28
<ul style="list-style-type: none"> use multiple models to develop initial understandings of place value and the base-ten number system; 	TE: 150–171, 190–225, 598–609, 626–635 PE: C19–C30, D9–D26, J9–J14, J23–J28
<ul style="list-style-type: none"> develop understanding of the relative position and magnitude of whole numbers and of ordinal and cardinal numbers and their connections; 	TE: 172–175, 230–233, 244–247, 614–617, 636–639, 648–651 PE: C31–C32, D29–D30, D37–D40, J17–J18, J31–J32
<ul style="list-style-type: none"> develop a sense of whole numbers and represent and use them in flexible ways, including relating, composing, and decomposing numbers; 	TE: 208–211, 226–229 PE: D17–D18, D27–D28
<ul style="list-style-type: none"> connect number words and numerals to the quantities they represent, using various physical models and representations; 	TE: 150–171, 190–225, 240–247, 598–609, 626–635 PE: C19–C30, D9–D26, D35–D38, D39–D40, J9–J14, J23–J28
<ul style="list-style-type: none"> understand and represent commonly used fractions, such as $\frac{1}{4}$, $\frac{1}{3}$, and $\frac{1}{2}$. Understand meanings of operations and how they relate to one another 	TE: See Level 1. PE: See Level 1.
<ul style="list-style-type: none"> understand various meanings of addition and subtraction of whole numbers and the relationship between the two operations; 	TE: 406–413, 464–467 PE: G9–G10
<ul style="list-style-type: none"> understand the effects of adding and subtracting whole numbers; 	TE: 406–409, 464–467 PE:
<ul style="list-style-type: none"> understand situations that entail multiplication and division, such as equal groupings of objects and sharing equally. 	TE: See Level 1. PE: See Level 1.
Compute fluently and make reasonable estimates	
<ul style="list-style-type: none"> develop and use strategies for whole-number computations, with a focus on addition and subtraction; 	TE 418–425, 428–439, 448–451, 476–483, 486–493 PE: G13–G16, G19–G24 G29–G30, H13–H16, H19–H22
<ul style="list-style-type: none"> develop fluency with basic number combinations for addition and subtraction; 	TE: 418–425, 440–447, 476–497 PE: G13–G16, G25–G28, H13–H24
<ul style="list-style-type: none"> use a variety of methods and tools to compute, including objects, mental computation, estimation, paper and pencil, and calculators. 	TE: 418–425, 428–447, 476–483, 486–495, 498–501 PE: G13–G16, G19–G28, H13–H16, H19–H24, H25–H26
Algebra Standard	
Understand patterns, relations, and functions	
<ul style="list-style-type: none"> sort, classify, and order objects by size, number, and other properties; 	TE: 30–45, 48–55, 240–243, 334–341, 360–363, 368–371, 534–537, 548–551, 560–563

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	PE: A19–A26, A29–A30, D35–D36, F11–F12, F19–F20, F21–F22, I13–I14, I19–I20, I23–I24
<ul style="list-style-type: none"> recognize, describe, and extend patterns such as sequences of sounds and shapes or simple numeric patterns and translate from one representation to another; 	TE: 76–113, 234–247, 538–541 PE: B9–B26, D31–D32, I15–I16
<ul style="list-style-type: none"> analyze how both repeating and growing patterns are generated. 	TE: 106–109 PE: B23–B24
Represent and analyze mathematical situations and structures using algebraic symbols	
<ul style="list-style-type: none"> illustrate general principles and properties of operations, such as commutativity, using specific numbers; 	TE: See Level 1. PE: See Level 1.
<ul style="list-style-type: none"> use concrete, pictorial, and verbal representations to develop an understanding of invented and conventional symbolic notations. 	TE: 418–425, 476–479 PE: G13–G16, H13–H14
Use mathematical models to represent and understand quantitative relationships	
<ul style="list-style-type: none"> model situations that involve the addition and subtraction of whole numbers, using objects, pictures, and symbols. 	TE: 406–409, 448–451, 464–467, 480–483 PE: G29–G30, H15–H16
Analyze change in various contexts	
<ul style="list-style-type: none"> describe qualitative change, such as a student's growing taller; 	TE: 286, 328–333, 338–341 PE: F9–F12
<ul style="list-style-type: none"> describe quantitative change, such as a student's growing two inches in one year. 	TE: See Level 1. PE: See Level 1.
Geometry Standard	
Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships	
<ul style="list-style-type: none"> recognize, name, build, draw, compare, and sort two- and three-dimensional shapes; 	TE: 526–539, 544–551, 556–563 PE: I9–I14, I19–I24
<ul style="list-style-type: none"> describe attributes and parts of two- and three-dimensional shapes; 	TE: 526–539, 556–559 PE: I9–I14, I21–I22
<ul style="list-style-type: none"> investigate and predict the results of putting together and taking apart two- and three-dimensional shapes. 	TE: 570–573, 578–581 PE: I29–I30, I33–I34
Specify locations and describe spatial relationships using coordinate geometry and other representational systems	
<ul style="list-style-type: none"> describe, name, and interpret relative positions in space and apply ideas about relative position; 	TE: 8–15 PE: A9–A12
<ul style="list-style-type: none"> describe, name, and interpret direction and distance in navigating space and apply ideas about direction and distance; 	TE: 20–23, 375 PE: F23
<ul style="list-style-type: none"> find and name locations with simple relationships such as "near to" and in coordinate systems such as maps. 	TE: 16–19 PE: A13–14
Apply transformations and use symmetry to analyze mathematical situations	
<ul style="list-style-type: none"> recognize and apply slides, flips, and turns; 	TE: See Level 3.

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	PE: See Level 3.
<ul style="list-style-type: none"> recognize and create shapes that have symmetry. 	TE: 566–569 PE: I27–I28
Use visualization, spatial reasoning, and geometric modeling to solve problems	
<ul style="list-style-type: none"> create mental images of geometric shapes using spatial memory and spatial visualization; 	TE: 540–541, 556–559, 570–573, 578–581 PE: I15–I16, I21–I22, I29–I30, I33–I34
<ul style="list-style-type: none"> recognize and represent shapes from different perspectives; 	TE: 533, 534–537, 548–551, 556–559 PE: I11, I13–I14, I19–I22
<ul style="list-style-type: none"> relate ideas in geometry to ideas in number and measurement; 	TE: 528–529, 560–563 PE: I9–I10, I23–I24
<ul style="list-style-type: none"> recognize geometric shapes and structures in the environment and specify their location. 	TE: 528, 544–547, 563 PE: I23–I24
Measurement Standard	
Understand measurable attributes of objects and the units, systems, and processes of measurement	
<ul style="list-style-type: none"> recognize the attributes of length, volume, weight, area, and time; 	TE: 330–333, 359–367 PE: F9–F10, F19–F22
<ul style="list-style-type: none"> compare and order objects according to these attributes; 	TE: 330–341, 359–367 PE: F9–F12, F19–F22
<ul style="list-style-type: none"> understand how to measure using nonstandard and standard units; 	TE: 343–349, 375 PE: F13–F14, F24
<ul style="list-style-type: none"> select an appropriate unit and tool for the attribute being measured. 	TE: See Level 1. PE: See Level 1.
Apply appropriate techniques, tools, and formulas to determine measurements	
<ul style="list-style-type: none"> measure with multiple copies of units of the same size, such as paper clips laid end to end; 	TE: 343–349 PE: F13–F14
<ul style="list-style-type: none"> use repetition of a single unit to measure something larger than the unit, for instance, measuring the length of a room with a single meterstick; 	TE: See Level 1. PE: See Level 1.
<ul style="list-style-type: none"> use tools to measure; 	TE: 375 PE: F24
<ul style="list-style-type: none"> develop common referents for measures to make comparisons and estimates. 	TE: 342–353, 375–376 PE: F13–F16, F23–F24
Data Analysis and Probability Standard	
Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them	
<ul style="list-style-type: none"> pose questions and gather data about themselves and their surroundings; 	TE: 48–55 PE: A31–A32
<ul style="list-style-type: none"> sort and classify objects according to their attributes and organize data about the objects; 	TE: 30–63, 560–563 PE: A19–26, A29–A32, F15–F16, I23–I24

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<ul style="list-style-type: none"> represent data using concrete objects, pictures, and graphs. 	TE: 33–33, 48–63 PE: A19–A20, A29–A32, F15–F16, J19–J20
Select and use appropriate statistical methods to analyze data	
<ul style="list-style-type: none"> describe parts of the data and the set of data as a whole to determine what the data show. 	TE: 63, 176–179, 252–255, 353, 560–563, 618–621 PE: A32, C33–C34, D39–D40, F16, I23–I24, J19–J20
Develop and evaluate inferences and predictions that are based on data	
<ul style="list-style-type: none"> discuss events related to students' experiences as likely or unlikely. 	TE: See Level 1. PE: See Level 1.
Understand and apply basic concepts of probability	TE: See Level 1. PE: See Level 1.
Problem Solving Standard	
Instructional programs from prekindergarten through grade 12 should enable all students to—	
<ul style="list-style-type: none"> build new mathematical knowledge through problem solving; 	TE: 42–45, 60–63, 92–95, 110–113, 142–145, 176–179, 234–237, 252–255, 288–291, 314–317, 350–353, 372–375, 422–425, 448–451, 480–483, 510–513, 560–563, 578–581, 618–621, 648–652 PE: A25–A26, A31–A32, B15–B16, B25–B26, C15–C16, C33–C34, D31–D32, D39–D40, E15–E16, E25–E26, F15–F16, F23–F24, G15–G16, G29–G30, H15–H16, H29–H30, I23–I24, I33–I34, J19–J20, J31–J32
<ul style="list-style-type: none"> solve problems that arise in mathematics and in other contexts; 	TE: 60–63, 110–113, 176–179, 252–255, 288–291, 350–353, 422–425, 510–513, 560–563, 618–621 PE: A31–A32, B25–B26, C33–C34, D39–D40, E15–E16, F15–F16, G15–G16, H29–H30, I23–I24, J19–J20
<ul style="list-style-type: none"> apply and adapt a variety of appropriate strategies to solve problems; 	TE: 42–45, 92–95, 142–145, 234–237, 314–317, 372–375, 448–451, 480–483, 578–581, 648–651 PE: A25–A26, B15–B16, C15–C16, D31–D32, E25–E26, F23–F24, G29–G30, H15–H16, I33–I34, J31–J32
<ul style="list-style-type: none"> monitor and reflect on the process of mathematical problem solving. 	TE: 42–45, 60–63, 92–95, 110–113, 142–145, 176–179, 234–237, 252–255, 288–291, 314–317, 350–353, 372–375, 422–425, 448–451, 480–483, 510–513, 560–563, 578–581, 618–621, 648–652 PE: A25–A26, A31–A32, B15–B16, B25–B26, C15–C16, C33–C34, D31–D32, D39–D40, E15–E16, E25–E26, F15–F16, F23–F24, G15–G16, G29–G30, H15–H16, H29–H30, I23–I24, I33–I34, J19–J20, J31–J32

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Reasoning and Proof Standard	
Instructional programs from prekindergarten through grade 12 should enable all students to—	
<ul style="list-style-type: none"> • recognize reasoning and proof as fundamental aspects of mathematics; 	TE: 42–45, 94–95, 512–513, 563, 650–651 PE: A25–A26, B16, H29–H30, I23–I24, J31–J32
<ul style="list-style-type: none"> • make and investigate mathematical conjectures; 	TE: 112–113, 250–251, 374–375, 424–425, 451, 482–483, 580–581, 621, 651 PE: B25–B26, F23–F24, G15–G16, G29–G30, H15–H16, I33–I34, J19–J20, J32
<ul style="list-style-type: none"> • develop and evaluate mathematical arguments and proofs; 	TE: 42–45, 250–251, 512–513, 650–651 PE: A25–A26, H29–H30, J31–J32
<ul style="list-style-type: none"> • select and use various types of reasoning and methods of proof. 	TE: 42–45, 578–581, 648–651 PE: A25–A26, I33–I34, J31–J32
Communication Standard	
Instructional programs from prekindergarten through grade 12 should enable all students to—	
<ul style="list-style-type: none"> • organize and consolidate their mathematical thinking through communication; 	This standard is addressed throughout the entire text. These are a few of the many examples. TE: 28–29, 62–63, 112–113, 144–145, 224–225, 290–291, 296–297, 352–353, 439, 478–479, 528–529, 600–601 PE: A17–A18, A31–A32, B25–B26, C15–C16, D25–D26, E15–E16, F15–F16, G24, H13–H14, I9–I10, J9–J10
<ul style="list-style-type: none"> • communicate their mathematical thinking coherently and clearly to peers, teachers, and others; 	This standard is addressed throughout the entire text. These are a few of the many examples. TE: 33, 42–45, 62–63, 94–95, 224–225, 250–251, 512–513, 563, 650–651 PE: A19–A20, A25–A26, A31–A32, B16, D25–D26, H29–H30, I23–I24, J31–J32
<ul style="list-style-type: none"> • analyze and evaluate the mathematical thinking and strategies of others; 	This standard is addressed throughout the entire text. These are a few of the many examples. TE: 36, 82, 136, 202, 232, 316, 378, 434, 492, 576, 596 PE:
<ul style="list-style-type: none"> • use the language of mathematics to express mathematical ideas precisely. 	<i>Math Vocabulary Reviews</i> begin every lesson. These are a few of the pages on which they appear. TE: 12, 30, 80, 98, 134, 168, 196, 240272, 302, 338, 364, 410, 440, 472, 502, 530, 566, 602, 632
Connections Standard	
Instructional programs from prekindergarten through grade 12 should enable all students to—	
<ul style="list-style-type: none"> • recognize and use connections among mathematical ideas; 	TE: 406–421, 428–443, 464–483, 486–497, 499–505, 508–509, 556–559, 640–643 PE: G9–G14, G19–G26, H9–H16, H19–H22, H25–H26, H27–H28, I21–I22, J29–J30
<ul style="list-style-type: none"> • understand how mathematical ideas 	TE: 408–413, 418–421, 436–447, 466–471,

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interconnect and build on one another to produce a coherent whole;	476–479, 494–497 PE: G9–G10, G13–G14, G23–G28, H9–H10, H13–H14, H23–H24
• recognize and apply mathematics in contexts outside of mathematics.	TE: 6–7, 74–75, 124–125, 190–192, 266–267, 328–329, 404–405, 462–463, 524–525, 592–593 PE: A1–A7, B1–B8, C1–C8, D1–D8, E1–E8, F1–F8, G1–G8, I1–I8, J1–J8
Representation Standard	
Instructional programs from prekindergarten through grade 12 should enable all students to—	
• create and use representations to organize, record, and communicate mathematical ideas;	TE: 52–63, 142–145, 314–317, 350–353, 372–375, 448–451, 578–581 PE: A29–A32, C15–C16, E25–E26, F15–F16, F23–F24, G29–G30, H15–H16, I33–I34
• select, apply, and translate among mathematical representations to solve problems;	TE: 56–63, 126–129, 142–145, 176–179, 252–255, 288–291, 350–353, 422–425, 506–513, 560–563, 618–621, 648–651 PE: A29–A32, C15–C16, C33–C34, D39–D40, E15–E16, F15–F16, G15–G16, H27–H30, I23–I24, J19–J20, J31–J32
• use representations to model and interpret physical, social, and mathematical phenomena.	TE: 56–63, 142–145, 314–317, 350–353, 372–375, 448–451 PE: A29–A32, C15–C16, E25–E26, F15–F16, F23–F24, G29–G30, H15–H16