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<b>Number and Operations Standard</b>	
Understand numbers, ways of representing numbers, relationships among numbers, and number systems	
<ul style="list-style-type: none"> <li>count with understanding and recognize "how many" in sets of objects;</li> </ul>	TE: 11A–11B, 13, 15, 65A–65B, 65, 67, 505A–505B PE: 13, 15, 65, 67, 505–506
<ul style="list-style-type: none"> <li>use multiple models to develop initial understandings of place value and the base-ten number system;</li> </ul>	TE: 65–70, 67A–67B, 69A–69B, 71A–71B, 73A–73B, 73–74, 505A–505B, 507A–507B, 509A–509B, 511A–511B, 513A–513B, 515A–515B, 505–516 PE: 65–70, 73–74, 505–516
<ul style="list-style-type: none"> <li>develop understanding of the relative position and magnitude of whole numbers and of ordinal and cardinal numbers and their connections;</li> </ul>	TE: 85A–85B, 87A–87B, 85–88, 481–482, 525A–525B, 527A–527B, 529A–529B, 525–530 PE: 85–88, 481–482, 525–530
<ul style="list-style-type: none"> <li>develop a sense of whole numbers and represent and use them in flexible ways, including relating, composing, and decomposing numbers;</li> </ul>	TE: 41A–41B, 41–42, 71A–71B, 73A–73B, 71–74, 523A–523B, 523–524 PE: 41–42, 71–74, 523–524
<ul style="list-style-type: none"> <li>connect number words and numerals to the quantities they represent, using various physical models and representations;</li> </ul>	TE: 65–68, 507–508, 512 PE: 65–68, 507–508, 511
<ul style="list-style-type: none"> <li>understand and represent commonly used fractions, such as <math>\frac{1}{4}</math>, <math>\frac{1}{3}</math>, and <math>\frac{1}{2}</math>.</li> </ul>	TE: 325A–335A, 325–336, 339–340 PE: 325–336, 339–340
Understand meanings of operations and how they relate to one another	
<ul style="list-style-type: none"> <li>understand various meanings of addition and subtraction of whole numbers and the relationship between the two operations;</li> </ul>	TE: 11A–11B, 11–12, 25A–26A, 27A–27B, 25–28, 31, 39A–39B, 39–40, 196, 285A–285B, 285–286, 575A–575B, 575–576 PE: 9, 27–28, 31, 39–40, 195, 285–286, 575–576
<ul style="list-style-type: none"> <li>understand the effects of adding and subtracting whole numbers;</li> </ul>	TE: 9, 11A–11B, 11, 25A–25B, 26, 39A–39B, 40, 195A–195B, 195–196 PE: 9, 11, 25, 39, 195–196
<ul style="list-style-type: none"> <li>understand situations that entail multiplication and division, such as equal groupings of objects and sharing equally.</li> </ul>	TE: 359A–359B, 359–360, 362, 366, 374, 377–378, 379–380, 385A–385B, 385–386, 388, 390, 392 PE: 359–360, 362, 366, 374, 377–378, 379–380, 385–386, 388, 390, 392
Compute fluently and make reasonable estimates	
<ul style="list-style-type: none"> <li>develop and use strategies for whole-number computations, with a focus on addition and subtraction;</li> </ul>	TE: 9A–21B, 9–22, 25A–27B, 25–28, 251A–257B, 251–258, 377A–377B, 377–378, 553A–553B, 553–554, 561A–561B, 561–562 PE: 9–22, 25–28, 251–258, 377–378, 553–554, 561–562
<ul style="list-style-type: none"> <li>develop fluency with basic number combinations for addition and subtraction;</li> </ul>	TE: 13A–15B, 13–16, 27A–31B, 27–32, 43A–43B, 43–44 PE: 13–16, 27–32, 43–44

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<ul style="list-style-type: none"> <li>use a variety of methods and tools to compute, including objects, mental computation, estimation, paper and pencil, and calculators.</li> </ul>	<p>TE: 159A–159B, 159–161, 195A–195B, 195–196, 203A–205B, 203–206, 215A–215B, 215–216, 223, 251A–251B, 251–252, 263A–263B, 263–264, 275A–275B, 275–276, 47A–475B, 475–476, 553A–553B, 553–554, 561A–561B, 561–562, 577A–577B, 577–578</p> <p>PE: 159–161, 195–196, 215–216, 251–252, 263–264, 275–276, 475–476, 553–554, 561–562, 577–578</p>
<p><b>Algebra Standard</b></p>	
<p>Understand patterns, relations, and functions</p>	
<ul style="list-style-type: none"> <li>sort, classify, and order objects by size, number, and other properties;</li> </ul>	<p>TE: 307A–309B, 307–308, 311A–313B, 311–314, 429A–431B, 429–432, 435A–435B, 435–436</p> <p>PE: 307–308, 311–314, 429–432, 435–436</p>
<ul style="list-style-type: none"> <li>recognize, describe, and extend patterns such as sequences of sounds and shapes or simple numeric patterns and translate from one representation to another;</li> </ul>	<p>TE: 83A–83B, 83–84, 91A–91B, 91–92, 212, 319A–319B, 319–320, 506, 518A–518B, 518–519</p> <p>PE: 66, 82–84, 91–92, 212, 280, 319–320, 506, 518–519</p>
<ul style="list-style-type: none"> <li>analyze how both repeating and growing patterns are generated.</li> </ul>	<p>TE: 83A–83B, 83–84, 91A–91B, 91–92, 319A–319B, 319–320</p> <p>PE: 83–84, 91–92, 319–320</p>
<p>Represent and analyze mathematical situations and structures using algebraic symbols</p>	
<ul style="list-style-type: none"> <li>illustrate general principles and properties of operations, such as commutativity, using specific numbers;</li> </ul>	<p>TE: 9A–9B, 9–10, 21A–21B, 21–22, 367A–367B, 367–368, 375A–375B, 375–376</p> <p>PE: 9–10, 21–22, 367–368, 375–376</p>
<ul style="list-style-type: none"> <li>use concrete, pictorial, and verbal representations to develop an understanding of invented and conventional symbolic notations.</li> </ul>	<p>TE: 85A–85B, 85–86, 157A–157B, 157–158, 331A–331B, 331–332, 339–340, 525A–525B, 525–526, 528</p> <p>PE: 85–86, 157–158, 331–332, 339–340, 525–526, 528</p>
<p>Use mathematical models to represent and understand quantitative relationships</p>	
<ul style="list-style-type: none"> <li>model situations that involve the addition and subtraction of whole numbers, using objects, pictures, and symbols.</li> </ul>	<p>TE: 13A–15B, 13–16, 17–18, 19–20, 27, 31B, 33A–33B, 33–34, 39A–39B, 39–40, 45A–45B, 45–47, 215B, 216, 218–219, 223, 231B, 231–233, 251B, 253–254, 260, 262, 263A–263B, 263–265, 276, 281B, 282, 283–284, 287–288, 567A–567B, 567–569, 579–580, 581B, 581–583</p> <p>PE: 14, 16, 18–20, 33–34, 40, 45–47, 216–219, 231–233, 254, 260, 262, 263–265, 276, 282, 284, 287–288, 567–569, 580, 581–583</p>

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Analyze change in various contexts	
• describe qualitative change, such as a student's growing taller;	TE: 440, 473A–475B, 473–477 PE: 440, 473–477
• describe quantitative change, such as a student's growing two inches in one year.	TE: 440, 473A–475B, 473–477 PE: 440, 473–477
<b>Geometry Standard</b>	
Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships	
• recognize, name, build, draw, compare, and sort two- and three-dimensional shapes;	TE: 307A–311B, 307–312 PE: 307–312
• describe attributes and parts of two- and three-dimensional shapes;	TE: 307A–311B, 307–312 PE: 307–312
• investigate and predict the results of putting together and taking apart two- and three-dimensional shapes.	TE: 315A–315B, 315–316 PE: 315–316
Specify locations and describe spatial relationships using coordinate geometry and other representational systems	
• describe, name, and interpret relative positions in space and apply ideas about relative position;	TE: See Level K. PE: See Level K.
• describe, name, and interpret direction and distance in navigating space and apply ideas about direction and distance;	TE: See Level K. PE: See Level K.
• find and name locations with simple relationships such as "near to" and in coordinate systems such as maps.	TE: See Level K. PE: See Level K.
Apply transformations and use symmetry to analyze mathematical situations	
• recognize and apply slides, flips, and turns;	TE: See Level 3. PE: See Level 3.
• recognize and create shapes that have symmetry.	TE: 317A–317B, 317–318 PE: 317–318
Use visualization, spatial reasoning, and geometric modeling to solve problems	
• create mental images of geometric shapes using spatial memory and spatial visualization;	TE: 313B, 313–314, 319A–319B, 319–320 PE: 313–314, 319–320
• recognize and represent shapes from different perspectives;	TE: 313–314 PE: 313–314
• relate ideas in geometry to ideas in number and measurement;	TE: 421A–422B, 421–424 PE: 421–424
• recognize geometric shapes and structures in the environment and specify their location.	TE: 305–306, 307B, 311B, 312, 315B, 318 PE: 300–306, 312, 318
<b>Measurement Standard</b>	
Understand measurable attributes of objects and the units, systems, and processes of measurement	
• recognize the attributes of length, volume, weight, area, and time;	TE: 413A–423B, 413–424, 429A–435B, 429–436, 439A–439B, 439–440, 463A–485B, 463–485

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	PE: 413–424, 429–436, 439–440, 463–485
<ul style="list-style-type: none"> <li>compare and order objects according to these attributes;</li> </ul>	TE: 413A–413B, 413–414 PE: 413–414
<ul style="list-style-type: none"> <li>understand how to measure using nonstandard and standard units;</li> </ul>	TE: 413A–415B, 413–416 PE: 413–416
<ul style="list-style-type: none"> <li>select an appropriate unit and tool for the attribute being measured.</li> </ul>	TE: 417A–419B, 417–420, 429A–429B, 429–430, 435A–435B, 435–436, 441A–441B, 441–442 PE: 417–420, 429–430, 435–436, 441–442
<b>Apply appropriate techniques, tools, and formulas to determine measurements</b>	
<ul style="list-style-type: none"> <li>measure with multiple copies of units of the same size, such as paper clips laid end to end;</li> </ul>	TE: 413A–415B, 413–416, 423A–423B, 423–424 PE: 413–416, 423–424
<ul style="list-style-type: none"> <li>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;</li> </ul>	TE: 415B, 443–444 PE: 443–444
<ul style="list-style-type: none"> <li>use tools to measure;</li> </ul>	TE: 417A–421B, 417–422, 439A–439B, 439–440, 443A–443B, 443–444 PE: 417–422m 439–440, 443–444
<ul style="list-style-type: none"> <li>develop common referents for measures to make comparisons and estimates.</li> </ul>	TE: 413A–419B, 413–420, 423A–423B, 423–424, 429A–431B, 429–432, 435A–435B, 435–436 PE: 413–420, 423–424, 429–432, 435–436
<b>Data Analysis and Probability Standard</b>	
<b>Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them</b>	
<ul style="list-style-type: none"> <li>pose questions and gather data about themselves and their surroundings;</li> </ul>	TE: 111A–111B, 111–112, 115B, 115–116, 123B, 123, 125B, 125–126 PE: 112, 116, 123, 125–126
<ul style="list-style-type: none"> <li>sort and classify objects according to their attributes and organize data about the objects;</li> </ul>	TE: 111–112, 114, 115B, 115–116, 117–118, 125–126, 127B, 127–128 PE: 112, 114, 116, 117–118, 125–128
<ul style="list-style-type: none"> <li>represent data using concrete objects, pictures, and graphs.</li> </ul>	TE: 111A–111B, 111–112, 115B, 115–116, 123B, 125B, 125–128 PE: 111, 116, 125–128
<b>Select and use appropriate statistical methods to analyze data</b>	
<ul style="list-style-type: none"> <li>describe parts of the data and the set of data as a whole to determine what the data show.</li> </ul>	TE: 111–112, 113A–113B, 113–114, 115A–115B, 115–116, 123B, 123–124, 125–128, 129B, 129–130 PE: 111–116, 123–130
<b>Develop and evaluate inferences and predictions that are based on data</b>	
<ul style="list-style-type: none"> <li>discuss events related to students' experiences as likely or unlikely.</li> </ul>	TE: 337A–337B, 337–338 PE: 337–338

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Understand and apply basic concepts of probability	TE: 337A–337B, 337–338 PE: 337–338
<b>Problem Solving Standard</b>	
Instructional programs from prekindergarten through grade 12 should enable all students to—	
<ul style="list-style-type: none"> <li>build new mathematical knowledge through problem solving;</li> </ul>	TE: 33A–33B, 33–35, 45A–45B, 45–47, 75A–75B, 75–77, 91A–91B, 91–93, 117A–117B, 117–119, 129A–129B, 129–131, 159A–159B, 159–161, 175A–175B, 175–177, 217A–217B, 217–219, 231A–231B, 231–233, 263A–263B, 263–265, 287A–287B, 287–289, 319A–319B, 319–321, 339A–339B, 339–341, 379A–379B, 379–381, 393A–393B, 393–395, 423A–423B, 423–425, 443A–443B, 443–445, 475A–475B, 475–477, 485A–485B, 485–487, 517A–517B, 517–519, 533A–533B, 533–535, 567A–567B, 567–569, 581A–581B, 581–583 PE: 35–37, 45–47, 75–77, 129–131, 159–161, 175–177, 217–219, 263–265, 287–289, 319–321, 379–381, 393–395, 423–425, 443–445, 475–477, 485–487, 517–519, 533–535, 567–569, 581–583
<ul style="list-style-type: none"> <li>solve problems that arise in mathematics and in other contexts;</li> </ul>	TE: 45A–45B, 45–47, 75A–75B, 75–77, 129A–129B, 129–131, 175A–175B, 175–177, 231A–231B, 231–233, 287A–287B, 287–289, 339A–339B, 339–341, 393A–393B, 393–395, 443A–443B, 443–445, 485A–485B, 485–487, 533A–533B, 533–535, 567A–567B, 567–569 PE: 45–47, 75–77, 129–131, 175–177, 231–233, 287–289, 339–341, 393–395, 443–445, 485–487, 533–535, 567–569
<ul style="list-style-type: none"> <li>apply and adapt a variety of appropriate strategies to solve problems;</li> </ul>	TE: 33A–33B, 33–35, 91A–91B, 91–93, 117A–117B, 117–119, 159A–159B, 159–161, 217A–217B, 217–219, 263A–263B, 263–265, 319A–319B, 319–321, 379A–379B, 379–381, 423A–423B, 423–425, 475A–475B, 475–477, 517A–517B, 517–519, 581A–581B, 581–583 PE: 33–35, 91–93, 159–161, 217–219, 263–265, 319–321, 379–381, 423–425, 475–477, 517–519, 581–583
<ul style="list-style-type: none"> <li>monitor and reflect on the process of mathematical problem solving.</li> </ul>	TE: 33A–33B, 33–35, 91A–91B, 91–93, 117A–117B, 117–119, 159A–159B,

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	159–161, 217A–217B, 217–219, 263A–263B, 263–265, 319A–319B, 319–321, 379A–379B, 379–381, 423A–423B, 423–425, 475A–475B, 475–477, 517A–517B, 517–519, 581A–581B, 581–583 PE: 33–35, 91–93, 159–161, 217–219, 263–265, 319–321, 379–381, 423–425, 475–477, 517–519, 581–583
<b>Reasoning and Proof Standard</b>	
Instructional programs from prekindergarten through grade 12 should enable all students to—	
<ul style="list-style-type: none"> <li>recognize reasoning and proof as fundamental aspects of mathematics;</li> </ul>	TE: 30, 40, 44, 74, 150, 152, 174, 200, 230, 252, 274, 286, 362, 368, 376, 422, 442, 512, 564 PE: 29, 39, 43, 74, 149, 151, 173, 199, 229, 252, 273, 285, 361, 367, 375, 421, 441, 511, 563
<ul style="list-style-type: none"> <li>make and investigate mathematical conjectures;</li> </ul>	TE: 34, 45A–45B, 45–47, 92, 118, 160, 217A–217B, 217–219, 264, 320, 380, 393A–393B, 393–395, 423A–423B, 423–425, 476, 518, 567A–567B, 567–569, 581A–581B, 581–583 PE: 33, 45–47, 91, 117, 159, 217–219, 263, 319, 379, 393–395, 423–425, 475, 517, 567–569, 5581–583
<ul style="list-style-type: none"> <li>develop and evaluate mathematical arguments and proofs;</li> </ul>	TE: 44, 128, 152, 174, 196, 214, 226, 230, 274, 284, 286, 316, 362, 415, 512, 580 PE: 43, 127, 151, 173, 195, 213, 225, 229, 273, 283, 285, 315, 361, 415, 511, 579
<ul style="list-style-type: none"> <li>select and use various types of reasoning and methods of proof.</li> </ul>	TE: 44, 70, 88, 90, 114, 117A–118A, 117–118, 170, 174, 226, 252, 310, 484, 514 PE: 44, 70, 88, 90, 114, 117–118, 170, 174, 226, 252, 310, 484, 514
<b>Communication Standard</b>	
Instructional programs from prekindergarten through grade 12 should enable all students to—	
<ul style="list-style-type: none"> <li>organize and consolidate their mathematical thinking through communication;</li> </ul>	This standard is addressed throughout the entire text. These are a few of the many examples. TE: 28, 32, 72, 172, 216, 228, 256, 258, 284, 286, 312, 316, 362, 366, 376, 418, 422, 442, 464, 482, 506, 526, 530, 558, 562 PE: 28, 32, 72, 172, 216, 228, 256, 258, 284, 286, 312, 316, 362, 366, 376, 418, 422, 442, 464, 482, 506, 526, 530, 558, 562
<ul style="list-style-type: none"> <li>communicate their mathematical thinking coherently and clearly to peers, teachers, and others;</li> </ul>	This standard is addressed throughout the entire text. These are a few of the many examples. TE: 112, 114, 124, 226, 258, 316, 326, 388, 484, 526 PE: 111, 113, 123, 225, 257, 315, 325, 387, 483, 525
<ul style="list-style-type: none"> <li>analyze and evaluate the mathematical</li> </ul>	This standard is addressed throughout the entire

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thinking and strategies of others;	text. These are a few of the many examples. TE: 17, 21, 39, 65, 85, 129, 213, 227, 255B, 273, 313, 365, 393, 485, 517, 531, 565
<ul style="list-style-type: none"> <li>use the language of mathematics to express mathematical ideas precisely.</li> </ul>	<p><i>Math Vocabulary Reviews</i> begin every lesson. These are a few of the pages on which they appear.</p> <p>TE: 13A, 29A67A, 83A, 113A, 127A155A, 171A, 199A, 225A, 257A, 281A, 309A, 325A, 367A, 389A, 419A, 433A, 473A, 483A, 513A, 527A, 555A, 577A</p>
<b>Connections Standard</b>	
Instructional programs from prekindergarten through grade 12 should enable all students to—	
<ul style="list-style-type: none"> <li>recognize and use connections among mathematical ideas;</li> </ul>	<p>TE: 15A–15B, 15–16, 27A–31B, 27–32, 43A–43B, 43–44, 361A–365B, 361–366, 421A–421B, 421–422, 575A–575B, 575–576</p> <p>PE: 15–16, 27–32, 43–44, 361–366, 421–422, 575–576</p>
<ul style="list-style-type: none"> <li>understand how mathematical ideas interconnect and build on one another to produce a coherent whole;</li> </ul>	<p>TE: 27A–31B, 27–32, 195A–205B, 195–206, 209A–213B, 209–214, 251A–261B, 251–262, 387A–391B, 387–392, 505A–513B, 505–514, 553A–557B, 553–558, 561A–565B, 561–566</p> <p>PE: 27–32, 195–206, 209–214, 251–262, 387–392, 505–514, 553–558, 561–566</p>
<ul style="list-style-type: none"> <li>recognize and apply mathematics in contexts outside of mathematics.</li> </ul>	<p>TE: 7–8, 63–64, 109–110, 147–148, 193–194, 249–250, 305–306, 357–358, 411–412, 461–462, 503–504, 551–552</p> <p>PE: 1–8, 57–64, 103–110, 141–148, 187–194, 243–250, 299–306, 351–358, 405–412, 455–462, 497–504, 545–552</p>
<b>Representation Standard</b>	
Instructional programs from prekindergarten through grade 12 should enable all students to—	
<ul style="list-style-type: none"> <li>create and use representations to organize, record, and communicate mathematical ideas;</li> </ul>	<p>TE: 33A–33B, 33–35, 111A–111B, 111–112, 115B, 115–116, 123B, 125B, 125–128, 159A–159B, 159–161, 263A–263B, 263–265, 379A–379B, 379–381, 475A–475B, 475–477, 517A–517B, 517–519</p> <p>PE: 33–35, 111, 116, 125–128, 159–161, 263–265, 379–381, 474–477, 517–519</p>
<ul style="list-style-type: none"> <li>select, apply, and translate among mathematical representations to solve problems;</li> </ul>	<p>TE: 45A–45B, 45–47, 111–112, 113A–113B, 113–114, 115A–115B, 115–116, 123B, 123–124, 125–128, 129B, 129–130, 287A–287B, 287–289, 393A–393B, 393–395, 567A–567B, 567–569</p> <p>PE: 45–47, 111–116, 123–130, 287–289, 393–395, 567–569</p>

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<ul style="list-style-type: none"><li>• use representations to model and interpret physical, social, and mathematical phenomena.</li></ul>	TE: 33A–33B, 33–35, 111A–111B, 111–112, 115B, 115–116, 123B, 125B, 125–128, 159A–159B, 159–161, 263A–263B, 263–265, 379A–379B, 379–381, 475A–475B, 475–477, 517A–517B, 517–519 PE: 33–35, 111, 116, 125–128, 159–161, 263–265, 379–381, 474–477, 517–519
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