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Mathematics—Grade Level Expectations

Grade Five

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Grade 5

Number and Number Relations

In problem-solving investigations, students demonstrate an understanding of the real number system and communicate the relationships within that system using a variety of techniques and tools.

Students use estimation, mental arithmetic, number lines, graphs, appropriate models, manipulatives, calculators, and computers as they extend their investigations of problems involving rational numbers.

GRADE LEVEL EXPECTATIONS	CORRELATION NOTATIONS
1. Differentiate between the terms *factor* and *multiple*, and *prime* and *composite* (N-1-M)	164A–164B, 164–167, 464A–464B, 464–465
2. Recognize, explain, and compute equivalent fractions for common fractions (N-1-M) (N-3-M)	410A–410B, 410–413, 462A–462B, 462–464
3. Add and subtract fractions with common denominators and use mental math to determine whether the answer is reasonable (N-2-M)	460A–460B, 460–461, 462A–462B, 462–463, 466A–466B, 466–468, 470–471, 472A–472B, 472–475, 476A–476B, 476–477, 488–489
4. Compare positive fractions using number sense, symbols (i.e., <, =, >), and number lines (N-2-M)	418A–418B, 418–419, 420A–420B, 420–423
5. Read, explain, and write a numerical representation for positive improper fractions, mixed numbers, and decimals from a pictorial representation and vice versa (N-3-M)	400A–400B, 400–401
6. Select and discuss the correct operation for a given problem involving positive fractions using appropriate language such as *sum*, *difference*, *numerator*, and *denominator* (N-4-M) (N-5-M)	462A–462B, 462–463, 466A–466B, 466–468, 476A–476B, 476–477, 478A–478B, 478–480, 504A–504B, 504–505

GRADE LEVEL EXPECTATIONS	CORRELATION NOTATIONS
7. Select, sequence, and use appropriate operations to solve multi-step word problems with whole numbers (N-5-M) (N-4-M)	*On these pages, students solve multi-step problems with money expressed as decimal numbers.* 226A–226B, 226–227
8. Use the whole number system (e.g., computational fluency, place value, etc.) to solve problems in real-life and other content areas (N-5-M)	10, 96, 110–111, 180–181, 254, 268, 306–307, 370, 376, 506–507, 513, 572–573, 626–627, 730–731
9. Use mental math and estimation strategies to predict the results of computations (i.e., whole numbers, addition and subtraction of fractions) and to test the reasonableness of solutions (N-6-M) (N-2-M)	22–25, 28–31, 68A–68B, 68–69, 86A–86B, 86–87, 88, 94, 169, 138A–138B, 138–141, 154, 204A–204B, 204–207, 236, 402A–402B, 402–403, 494A–494B, 494–495, 497, 615, 617, 698
10. Determine when an estimate is sufficient and when an exact answer is needed in real-life problems using whole numbers (N-6-M) (N-5-M)	68A–68B, 68–69, 138A–138B, 138–141, 218A–218B, 218–221, 624A–624B, 624–625
11. Explain concepts of ratios and equivalent ratios using models and pictures in real-life problems (e.g., understand that 2/3 means 2 divided by 3) (N-8-M) (N-5-M)	646A–646B, 646–647, 648A–648B, 648–651, 652A–652B, 652–653, 662A–662B, 662–665

Algebra

In problem-solving investigations students demonstrate an understanding of concepts and processes that allow them to analyze, represent, and describe relationships among variable quantities and to apply algebraic methods to real-world situations.

Students use manipulatives, models, graphs, tables, technology, number sense, and estimation as they extend their investigations of problems involving the concepts and application of algebra.

GRADE LEVEL EXPECTATIONS	CORRELATION NOTATIONS
12. Find unknown quantities in number sentences by using mental math, backward reasoning, inverse operations (i.e., unwrapping), and manipulatives (e.g., tiles, balance scales) (A-2-M) (A-3-M)	85, 90, 97, 108A–108B, 108–109, 133, 137, 163, 231, 337, 396, 419, 611, 612, 700–701, 702A–702B, 702–703, 704–705, 706A–706B, 706–709, 720–721
13. Write a number sentence from a given physical model of an equation (e.g., balance scale) (A-2-M) (A-1-M)	104A–104B, 104–105, 704–705, 706A–706B, 706–709, 720–721
14. Find solutions to one-step inequalities and identify positive solutions on a number line (A-2-M) (A-3-M)	Solving inequalities is addressed in Grade 6.

Measurement

In problem-solving investigations, students demonstrate an understanding of the concepts, processes, and real-life applications of measurement.

Students use number sense, estimation, appropriate manipulatives, tools, and technology as they extend their investigations of problems involving measurement.

GRADE LEVEL EXPECTATIONS	CORRELATION NOTATIONS
15. Model, measure, and use the names of all common units in the U.S. and metric systems (M-1-M)	528B, 528–531, 536A–536B, 536–538, 614–615, 616B, 616–617, 620–621, 622A–622B, 622–623

GRADE LEVEL EXPECTATIONS	CORRELATION NOTATIONS
16. Apply the concepts of elapsed time in real-life situations and calculate equivalent times across time zones in real-life problems (M-1-M) (M-6-M)	564A–564B, 564–567
17. Distinguish among the processes of counting, calculating, and measuring and determine which is the most appropriate strategy for a given situation (M-2-M)	*These pages provide opportunities for students to apply this expectation.* 528A–528B, 528–531, 532A–532B, 532–533, 534A–534B, 534–535, 536A–536B, 536–539, 614A–614B, 614–615, 616A–616B, 616–617, 620A–620B, 620–621, 622A–622B, 622–623
18. Estimate time, temperature, weight/mass, and length in familiar situations and explain the reasonableness of answers (M-2-M)	529, 530, 537, 538, 541, 544, 551, 603, 613, 615, 617, 621
19. Compare the relative sizes of common units for time, temperature, weight, mass, and length in real-life situations (M-2-M) (M-4-M)	528B, 528–531, 536A–536B, 536–538, 562–563, 568A–568B, 568–569, 616B, 620A–620B, 620–621, 622A–622B, 622–623
20. Identify appropriate tools and units with which to measure time, mass, weight, temperature, and length (M-3-M)	530, 531, 535, 614, 616, 620, 622
21. Measure angles to the nearest degree (M-3-M)	332A–332B, 332–335
22. Compare and estimate measurements between the U.S. and metric systems in terms of common reference points (e.g., l vs. qt., m vs. yd.) (M-4-M)	568, 569
23. Convert between units of measurement for length, weight, and time, in U.S. and metric, within the same system (M-5-M)	528A–528B, 528–531, 536A–536B, 536–539, 562A–562B, 562–563, 614A–614B, 614–615, 616A–616B, 616–617, 620A–620B, 620–621, 622A–622B, 622–623

Geometry

In problem-solving investigations, students demonstrate an understanding of geometric concepts and applications involving one-, two-, and three-dimensional geometry, and justify their findings.

Students use number sense, estimation, models, drawings, manipulatives, and technology as they extend their investigations of problems involving geometric concepts.

GRADE LEVEL EXPECTATIONS	CORRELATION NOTATIONS
24. Use mathematical terms to classify and describe the properties of 2-dimensional shapes, including circles, triangles, and polygons (G-2-M)	326J, 340A–340B, 340–341, 342A–342B, 342–345, 346A–346B, 346–349
25. Identify and use appropriate terminology for transformations (e.g., *translation* as *slide*, *reflection* as *flip*, and *rotation* as *turn*) (G-3-M)	364A–364B, 364–367
26. Identify shapes that have rotational symmetry (G-3-M)	370
27. Identify and plot points on a coordinate grid in the first quadrant (G-6-M)	174A–174B, 174–175

Data Analysis, Probability, and Discrete Math

In problem-solving investigations, students discover trends, formulate conjectures regarding cause-and-effect relationships, and demonstrate critical thinking skills in order to make informed decisions.

Students use collection and organizational techniques, number sense, estimation, manipulatives, and technology as they extend their investigations of problems involving data.

GRADE LEVEL EXPECTATIONS	CORRELATION NOTATIONS
28. Use various types of charts and graphs, including double bar graphs, to organize, display, and interpret data and discuss patterns verbally and in writing (D-1-M) (D-2-M) (P-3-M) (A-4-M)	260A–260B, 260–261, 262A–262B, 262–265, 266A–266B, 266–269, 270A–270B, 270–273, 274A–274B, 274–275, 276A–276B, 276–279, 286A–286B, 286–287, 288A–288B, 288–291
29. Compare and contrast different scales and labels for bar and line graphs (D-1-M)	262A–262B, 262–265, 266A–266B, 266–269, 288A–288B, 288–291
30. Organize and display data using spreadsheets, with technology (D-1-M)	Visit www.scottforesman.com and click on *Math e Tools*.
31. Compare and contrast survey data from two groups relative to the same question (D-2-M)	260A–260B, 260–261
32. Represent probabilities as common fractions and recognize that probabilities fall between 0 and 1, inclusive (D-5-M)	302A–302B, 302–305

Patterns, Relations, and Functions

In problem-solving investigations, students demonstrate an understanding of patterns, relations, and functions that represent and explain real-world situations.

Students use number sense, estimation, manipulatives, drawings, tables, graphs, formulas, and technology as they extend their investigations of problems involving patterns, relations, and functions.

GRADE LEVEL EXPECTATIONS	CORRELATION NOTATIONS
33. Fill in missing elements in sequences of designs, number patterns, positioned figures, and quantities of objects (P-1-M)	106A–106B, 106–107, 136A–136B, 136–137, 142–143, 144A–144B, 144–145, 202A–202B, 202–203