

Houghton Mifflin *MATHSTEPS*
Level 7
correlated to
Chicago Academic Standards and Framework
Grade 7

Curriculum Framework Statement

Houghton Mifflin *MATHSTEPS*

State Goal 6: <i>Demonstrate and apply a knowledge and sense of numbers, including basic arithmetic operations, number patterns, ratios and proportions.</i>	
CAS A. Describe and apply concepts of real numbers, in particular integers, rational numbers, and special irrational numbers (e.g. π , $\sqrt{2}$) and various kinds of notation, including expanded, exponential, and scientific.	
1. Represent and use rational numbers in several different forms.	TE: T127–128, T138, T152 PE: 231–236, 245, 279
2. Interpret percent as part of 100.	TE: T76–84 PE: 129–149
3. Determine the fractional equivalent of repeating decimals.	TE: T37 PE: 49
4. Compare fractions and percents (e.g., compare 84% to $\frac{21}{25}$).	TE: T69–71, T80 PE: 116–122, 130
5. Reason proportionately to compare quantities and to solve problems involving equivalent fractions of equal ratios.	TE: T66 PE: 99–100
6. Approximate and find the square root of numbers with and without a calculator.	TE: T138 PE: 245
7. Identify relationships among rational and irrational numbers.	TE: T127, T138, T152 PE: 231–232, 245, 279
CAS B. Explain and apply the basic arithmetic operations and number properties (including distributive, transitive, identity, inverse, order of operations, and zero) to solve problems.	
1. Add, subtract, multiply, and divide number expressions involving integers, fractions, decimals and exponents.	These pages prepare students to meet this objective: TE: T16–19, T24, T30–33, T41 PE: 22–23, 67–68
2. Explain the inverse operation between addition/subtraction and multiplication/division when solving equations.	TE: T21–22, T141 PE: 9–13, 261–262
3. Identify and explain greatest common factor (GCF) and least common multiple (LCM) and use them to solve problems.	TE: T30–33, T36 PE: 45–46
CAS C. Identify, select, and use appropriate strategies (e.g., drawing a diagram, organizing information in a table, breaking a problem into simpler parts) and mathematical logic to solve real-world problems.	
1. Solve consumer application problems involving tips, discounts, fractions, decimals, and percents.	TE: T76–79, T82 PE: 34–36, 38, 40, 41, 44, 50, 54, 56, 64, 114, 116, 118, 120, 122, 130, 132, 134, 138–140

Houghton Mifflin *MATHSTEPS*
 Level 7
 correlated to
 Chicago Academic Standards and Framework
 Grade 7

Curriculum Framework Statement

Houghton Mifflin *MATHSTEPS*

2. Solve problems by using logical reasoning.	TE: T21–24, T52–56, T66–71, T80–82, T124, T126–128, T138–143, T152–153, T155159, T168–169 PE: 8, 11, 13, 18, 21, 23, 26, 76, 78, 80, 84, 86, 88, 90, 92, 100–101, 104, 106, 108, 113, 116, 118, 120, 122, 130, 132, 134, 138, 222, 228, 230, 232, 234, 236, 238, 245, 247, 249, 251, 253, 259, 262, 265, 270, 275, 279, 282–286, 292, 295, 297, 299, 301, 305, 310, 319, 322, 328
3. Explain (orally and in writing) solutions to problems.	TE: T21–24, T52–56, T66–71, T80–82, T124, T126–128, T138–143, T152–153, T155159, T168–169 PE: 8, 11, 13, 21, 23, 26, 76, 78, 80, 84, 86, 88, 90, 92, 100–101, 104, 106, 108, 113, 116, 118, 120, 122, 130, 132, 134, 138, 222, 228, 230, 232, 234, 236, 238, 245, 249, 251, 253, 259, 262, 265, 270, 275, 279, 282–286, 292, 295, 297, 299, 301, 305
State Goal 7: Estimate, make, and use measurements of objects, quantities, and relationships, and determine acceptable levels of accuracy.	
CAS A. Select and use appropriate units of measure to solve problems involving distance, rate, capacity, weight/mass, perimeter, area, volume, time, temperature, and angles to the degree of accuracy required by a particular situation.	
1. Measure length, area, volume, weight, and time accurately.	TE: T152–153, T157–158 PE: 25–26, 40, 75–81, 83–86, 91–92, 277–286, 300–303, 305
2. Investigate and solve problems involving the volume and surface area of cubes and rectangular prisms.	TE: T148–151, T155–156 PE: 293–299, 300–303, 305
3. Select and use appropriate units and formulas to solve problems.	TE: T24–25, T152–159 PE: 24–28, 279, 284, 286, 288, 295–296, 298, 300, 305, 310
4. Given the vertices as ordered pairs, plot, connect points, and determine the area of a polygon.	These pages prepare students to meet this objective: TE: T148–151, T153 PE: 285–286
5. Solve problems involving proportional change (e.g., change in area while perimeter remains constant, $P = 14$; $A = 10$, $A = 12$, $A = 6$.)	TE: T62–65, T67–68 PE: 103–108
6. Reason proportionally with measurements to interpret maps and to convert a simple scale drawing from one scale to another.	TE: T69 PE: 111–112
7. Reason proportionally in situations involving similar figures.	TE: T169 PE: 323–325

Houghton Mifflin *MATHSTEPS*
Level 7
correlated to
Chicago Academic Standards and Framework
Grade 7

Curriculum Framework Statement

Houghton Mifflin *MATHSTEPS*

8. Convert and compare Celsius and Fahrenheit units.	TE: T25, T55 PE: 27–28, 89–90
CAS B. Use derived units and indirect methods for obtaining measures in problem-solving situations.	
1. Develop, using different methods, a plan for obtaining the measure of an object (e.g., determine the height of a tree).	These pages prepare students to meet this objective: TE: T52, T54–56, T139, T152–153, T156 PE: 76–78, 80, 84, 86, 88, 90, 92, 249, 279, 281, 283–286, 299
2. Find the rates and other derived units in real-life situations.	TE: T66, T68 PE: 99–102, 109–110
3. Demonstrate the relationship between horizontal and vertical distance between two points.	TE: T168, T171–172 PE: 318–322, 334–335, 338–339
<i>State Goal 8: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems, and predict results.</i>	
CAS A. Define, describe, and use the concepts of variable, function, equation, and inequality to solve problems.	
1. Create and graph data describing a function.	TE: T168, T170–171, T173 PE: 317–319, 329–330, 334–335, 342–344
2. Use variables in expressions (e.g., $2W + 21$), equations (e.g., $3x = 12$, $y = x - 4$) and formulas ($a + b = b + a$).	TE: T20, T128, T138–139 PE: 5–6, 236, 246–251
3. Evaluate expressions containing variables given specific values.	TE: T20, T128, T138–139 PE: 5–6, 236, 246–251
4. Describe and show that the integrity of both sides of an equation must be maintained in order to continue the equality relationship.	TE: T172 PE: 338–339
CAS B. Define, use, interpret, and extend linear relationships and represent them with tables and graphs in the coordinate plane, and as equations.	
1. Locate and plot ordered pairs of real numbers.	TE: T164–167, T168 PE: 317–319
2. Determine and explain the slope of a line.	TE: T164–167, T171 PE: 336–337
3. Graph a linear equation in two variables on the coordinate plane.	TE: T170 PE: 329–331
4. Evaluate expressions.	TE: T41, T138–139 PE: 67–68, 243–251

Houghton Mifflin *MATHSTEPS*
Level 7
correlated to
Chicago Academic Standards and Framework
Grade 7

Curriculum Framework Statement

Houghton Mifflin *MATHSTEPS*

CAS C. Write and solve linear equations and inequalities involving real numbers, in particular integers and rational numbers.	
1. Translate algebraic expressions into word phrases.	TE: T142 PE: 263–265
2. Explain basic properties of real numbers (e.g., commutative, associative, distributive, identity, order of operations).	TE: T21, T23–24, T41 PE: 7–8, 16–21, 23, 67
3. Solve linear equations, using addition, multiplication, and inverse operations.	TE: T21–22, T42, T80–81, T141 PE: 9–13, 19–20, 69–70, 129–134, 257–258
4. Graph simple inequalities (e.g., $x < 3$, $x > e$, x^3) on a number line.	TE: T142–143 PE: 266–268, 270
CAS D. Analyze real-world situations and mathematical patterns to see whether linear or other simple relationships exist.	
1. Describe, generalize, and verify patterns, including linear (e.g. parking costs \$3.00 for the first hour and \$1.00 every subsequent half-hour).	TE: T35–36, T39, T41, T111 PE: 40, 44, 58, 65, 193–194
<i>State Goal 9: Use geometric methods to analyze, categorize, and draw conclusions about points, lines, planes, and space.</i>	
CAS A. Use sides, angles, parallel and perpendicular lines, similarity, congruence, and rotation and reflection symmetry to identify properties of two- and three-dimensional figures.	
1. Compare and contrast the properties of various quadrilaterals.	TE: T104–107, T112 PE: 199–201
2. Compare and contrast the properties of various polygons.	TE: T104–107, T112 PE: 199–201
3. Describe the relationships between cones and pyramids, between cones and cylinders, and between pyramids and prisms.	TE: T104–107, T114 PE: 207–208
4. Identify and determine measures of sides of special right triangles, applying and relating properties of the Pythagorean theorem.	TE: T148–151, T159 PE: 308–310
CAS B. Demonstrate spatial sense by drawing and constructing two- and three-dimensional figures including prisms, pyramids, cylinders, and cones.	
1. Visualize and represent two-dimensional views of simple rectangular three-dimensional shapes.	TE: T155 PE: 291–292
2. Draw two-dimensional figures to given specifications.	TE: T112, T152–153 PE: 199, 277, 286

Houghton Mifflin *MATHSTEPS*
 Level 7
 correlated to
 Chicago Academic Standards and Framework
 Grade 7

Curriculum Framework Statement

Houghton Mifflin *MATHSTEPS*

CAS C. Analyze and create geometric figures and objects using geometric transformations (translations/slides, rotations/turns, reflections/flips, and changes of scale) and diagrams and networks.	
1. Analyze and describe the geometric features of common objects (e.g., art, fabric design, tiling).	TE: T108–109, T111–113, T169 PE: 182, 184, 188, 195–196, 198, 201, 203, 325, 328
2. Create networks to represent real-world situations (e.g., possible routes to take to get to the fast food place).	TE: T56 PE: 91–92
3. Determine the congruence of geometric figures by comparing the measures of their sides and angles.	TE: T111–112 PE: 195–201
4. Determine the measures of sides and angles of similar objects, using proportions.	These pages prepare students to meet this objective: TE: T62–68 PE: 103–108, 113, 125
CAS D. Formulate and analyze formal and informal logical arguments about geometric objects, using concrete objects, diagrams, technology, and words.	
1. Determine and justify whether a statement about a geometric object is true or false in a mathematical context (e.g., a carpet that costs \$3.00 per square foot, costs \$27.00 per square yard).	TE: T108–109, T111–113, T169 PE: 182, 184, 188, 195–196, 198, 201, 203, 325, 328
2. Verify conjectures, both informally and formally.	TE: T181 PE: 135–136
State Goal 10: <i>Collect, organize, and analyze data, using statistical methods to predict results and interpret uncertainty and chance in practical applications.</i>	
CAS A. Summarize, analyze, evaluate, and draw conclusions from the frequencies, central tendencies (i.e., mean, median, and mode) and range and distribution of data.	
1. Determine and explain the meaning and use of each of the measures of central tendency (i.e., mean, median, mode).	TE: T20, T94–95, T99 PE: 3–4, 153, 156, 159–160, 174
2. Display data, using frequency distributions, line plots, and stem-and-leaf plots.	TE: T20, T94 PE: 3, 153–156
CAS B. Formulate a hypothesis, define the population, collect and analyze data, draw conclusions, and communicate results.	
1. Formulate hypotheses and collect data to test hypotheses.	These pages prepare students to meet this objective: TE: T20, T94, T128 PE: 3–4, 153–156, 237–238

Houghton Mifflin *MATHSTEPS*
 Level 7
 correlated to
 Chicago Academic Standards and Framework
 Grade 7

Curriculum Framework Statement

Houghton Mifflin *MATHSTEPS*

2. Analyze a sample to make inferences about a population.	These pages prepare students to meet this objective: TE: T39, T96, T128 PE: 58, 161–163, 237–238
3. Design and create a survey or experiment and explain the process.	TE: T39, T96, T128 PE: 58, 161, 237
4. Collect, organize, and display data in appropriately designed and labeled tables.	TE: T20, T56, T94 PE: 3–4, 93–94, 153–156
CAS C. Compare and make predictions based on theoretical probability and relative frequency (experimental results).	
1. Identify, discuss, and justify possible outcomes, using different probability-related aids (e.g., spinners, playing cards).	TE: T90–93 PE: 169–172
2. Estimate the probability of an event happening from given data.	These pages prepare students to meet this objective: TE: T90–93, T98 PE: 169–172, 177