



**Glencoe**

**Impact Mathematics: Algebra and More  
Course 1 © 2004**

| GLE Grade 6  | Impact Mathematics Course 1 Page References   |
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| <b>EALR 1: The student understands and applies the concepts and procedures of mathematics.</b>   |   |
| <b>Component 1.1 Understand and apply concepts and procedures of mathematics.</b>  |   |
| <b>Number and numeration</b>   |   |
| 1.1.1 Understand the concept of integers as the set of natural numbers (1, 2, 3...), their opposites (-1, -2, -3...), and 0.                                     |   |
| Illustrate integer values using models and pictures (e.g., temperature, elevators, net worth/debt, riding a bus or subway). (CU)                                 | SE: 142, 146 #1-8, 147 #9-13, <i>Just the Facts</i> 144<br>TG: 142 Explore, <i>Think and Discuss</i> 144                |
| Apply rules of divisibility to show if a quotient is an integer. (RL)  | SE: 78 <i>Remember</i><br>TG: 183 Example   |
| Explain the meaning of integers and give examples.   | SE: 142-145, 150 #13  |
| Identify the opposite of a given integer.  | SE: 143, 150 #13-15   |
| 1.1.2 Understand the relative values of integers and non-negative rational numbers.  |   |
| Compare different representations of non-negative rational numbers by implementing strategies (e.g., like denominators, changing to the same form). (RL, CU, MC) | SE: 82-87,90-91 #1-19   |
| Identify equivalence between non-negative integers, fractions, percents, and decimals. (MC)  | SE: 96-101, 106-107 #7-21, 128-136, 137-138 #1-28, <i>Share and Summarize</i> 101, 136<br><i>Think and Discuss</i> 100, |
| Compare and order integer values and explain which is greater and why (e.g., place the integers on a number line). (CU)  | SE: 129-131, 138 #29, 272 #28-29, 401 #5-8, 459 #11-20  |
| Represent and identify integers on a model (e.g., number line, fraction line, or decimal grid). (RL, CU)   | SE: 115-116, 129-131, 133<br>TG: 113 Explore  |

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| 1.1.3 Apply properties of addition and multiplication to non-negative rational numbers.  |  |
| Illustrate and explain the commutative and associative properties and why they work (e.g., use physical models, pictures). (CU)  | SE: 452-453, 561<br>TG: 452 Example  |
| Use addition and multiplication properties to assist in computations (e.g., $5 \times 7 \times 6$ can be written $5 \times 6 \times 7$ which is 30 or 210).  | SE: 561<br>TG: <i>Think and Discuss</i> 453 & 561. Example 452                                     |
| Determine whether a solution is accurate based on application of commutative, associative, and identify properties of addition and/or multiplication. (RL)   | SE:452-453, 561  |
| 1.1.4 Understand the concepts of ratio and percent.  |  |
| Write ratios in part/part and part/whole relationships using objects, pictures, and symbols (e.g., using /, :, or “to” as representations for ratios). (CU)  | SE: 97<br>TG: Example 261  |
| Represent equivalent ratios using objects, pictures, and symbols. (CU)   | SE: 605, 608-612, 638, <i>Share and Summarize</i> 612, 639-645<br>TG: <i>Think and Discuss</i> 638 |
| Represent equivalent percentages using objects, pictures, and symbols. (CU)  | SE: 243 #28, 615-617 #1-9, Lab Investigation 268-269   |
| Identify percent as 100 equal-size parts of a set (e.g., 1% of 200 items is 2 items).  | SE: 227-229, 240 #1-8, 241 #20<br>TG: <i>Think and Discuss</i> 227                                 |
| Explain ratio and percents and give examples of each. (CU)   | SE: 227-229, 608-612   |
| Computation  |  |
| 1.1.5 Understand the meaning of multiplication and division on non-negative rational numbers.  |  |
| Explain the meaning of multiplying and dividing non-negative fractions and decimals using words or visual or physical models (e.g., sharing a restaurant bill, cutting a board into equal-sized pieces, drawing a picture of an equation or situation). (CU, MC) | SE: 172-213  |
| Explain why multiplication of fractions can be done by multiplying denominators while addition of fractions requires finding common denominators. (CU)   | SE: 154-163, 166 #1-30, 175-181, 189, 193-195 #1-5, 9  |
| Use technology to demonstrate how multiplication and division with decimals affects place value.   | SE: 201-210  |

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| 1.1.6 Apply computational procedures with fluency for addition and subtraction on non-negative rational numbers.   |  |
| Find the sums or differences of non-negative fractions or decimals.  | SE: 154-163, 166-167 #1-35, 170 #49-52, 165<br><i>Playing Fraction Match</i> |
| Write and solve real-world problem situations to find sums or differences of decimals or fractions. (CU, MC)   | SE: <i>In Your Own Words</i> 217   |
| Use the least common multiple and the greatest common factor of whole numbers to solve problems with fractions (e.g., to find a common denominator, to add two fractions, or to find the simplified form for a fraction). (MC) | SE: 84, 85, 90-91 #11-25   |
| Use addition and subtraction to solve real-world problems involving non-negative rational numbers. (SP)  | SE: <i>Real-Life Math</i> 74, 152, 224, 267, 340, 409, 464, 556, 602         |
| Solve multiple-step computations requiring one, two, or more different operations (MC)   | SE: 570-578, 579-583 #1-23   |
| 1.1.7 Understand and apply strategies and tools to complete tasks involving addition and subtraction on integers and the four basic operations on non-negative rational numbers.   |  |
| Select and justify the selection of appropriate strategies and tools (e.g., mental computation, estimation, calculators, and paper and pencil) to compute in a problem situation. (SP, RL)                                     | SE: Lab Investigations on pages 203-204, 220-221, 388, 551-553, 608-609      |
| Convert between fractions, decimals, whole numbers, and percents mentally, on paper, or with a calculator. (MC)  | SE: 267 #18, 521-523<br>TG: <i>Real Life Math</i> 518                        |
| Use calculators to add and subtract with integers of two or more digits.   | SE: This can be done with any of the problems throughout the Impact program. |
| Use calculators to compute with decimal numbers with precision from the thousandths place and beyond.  | SE: 198-201, 209 #36-38<br>TG: <i>Think &amp; Discuss</i> 197                |
| <b>ESTIMATION</b>  |  |
| 1.1.8 Apply estimation strategies to predict or determine the reasonableness of answers in situations involving addition and subtraction of integers and the four basic operations on non-negative rational numbers.           |  |
| Identify when an approximation is appropriate in situations  | SE: 555-556 #9-10  |
| Use estimation strategies prior to operations on non-negative rational numbers to approximate an answer. (RL)  | SE: Lab Investigation 551-553  |
| Justify why estimation would be used rather than an exact computation. (CU)  | SE: 555 #8   |

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| Explain changing one, two, or three dimensions in a rectangular prism and how it affects the surface area and volume; give three examples.  | SE: 117-119, 123 #5   |
| Solve problems involving the effects of changes in one dimension on area (e.g., given a garden with certain dimensions, make the area of the garden X square units by changing only one dimension of the garden). (SP). | SE: 109-116, 123 #8   |
| 3. The student uses mathematical reasoning. To meet this standard, the student will:  |   |
| <b>Component 1.2: Understand and apply concepts and procedures from measurement.</b>  |   |
| <b>Attributes, units and systems</b>  |   |
| 1.2.1 Understand the concepts of volume and extend the concept of area to surface area of rectangular prisms.   |   |
| Compare the relative capacity of two containers and explain the differences (e.g., paper cylinders formed horizontally and vertically and filled with popcorn). (RL)  | SE: 113-114, 125 #14 (Impact 2)   |
| Represent the volume for given rectangular prisms using pictures or models. (CU)  | SE: 110-112, 115, 117-118, <i>Share and Summarize</i> 116, 119 (Impact 2)                   |
| Compare the surface area of two different rectangular prisms.   | SE: 118 Set F,<br>TG: Example 118 (Impact 2)  |
| Describe and provide examples for surface area measurement (e.g., gift wrapping, painting a room, amount of material needed to build a box). (MC)   | SE: 110, 122 #1, 131-133, 137 #9-10, 317 #6, <i>Share and Summarize</i> 112, 134 (Impact 2) |
| Explain and give examples of how the area and surface area are related (e.g., surface area is the sums of the areas of all the sides of a rectangular prism). (CU, MC)  | SE: 494, 534 #24  |
| Describe and compare the use of area and volume (e.g., covering and filling). (CU)  | SE: <i>In Your Own Words</i> 125 (Impact 2)   |
| 1.2.2 Understand the differences between square and cubic units.  |   |

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| Identify cubic units to measure volume (e.g., linking cubes, cubic centimeter).   | SE: 597 #29  |
| Identify and read incremental units for capacity (e.g., milliliters, cups, ounces).   | SE: Lab Investigation 119-121 (Impact 2)                         |
| Use the appropriate units when describing a situation (e.g., five square meters of carpet, five cubic meters of water). (MC)            | SE: 495-496, 499 #1-4<br>TG: <i>Think and Discuss</i> 497        |
| Explain why volume is measured in cubic units (CU, MC)  | SE: 98 (Impact 2)  |
| Explain how the selected unit of length affects the size of cubic units (e.g., centimeter versus inch). (CU).                           | SE: 209  |
| 1.2.3 There are no GLEs at the 6 <sup>th</sup> grade level.   |  |
| <b>Procedures precision and estimation</b>  |  |
| 1.2.4 Understand and apply systematic procedures to measure volume and capacity for solid shapes.                                       |  |
| Identify the attribute to be measured in the situation (e.g., volume or capacity).  | SE: Lab Investigations 119-121 (Impact 2)                        |
| Choose the appropriate standard unit for measuring volume or capacity (e.g., cubic inches vs. cubic feet, cups vs. gallons).            | SE: 98, 301-304 (Impact 2)                                       |
| Select and use tools that match the unit.   | SE: 117-119, 209, 467-470  |
| Count or compute to obtain the volume or capacity and label the measurement.  | SE: 497-500 507 #5-6, <i>Share and Summarize</i> 500 (Impact 2)  |
| Use volume and capacity to describe and compare figures (e.g., fill containers with cubes to find which has a greater volume). (RL, CU) | SE: 497-500 <i>Share and Summarize</i> 500, 507 #5-61 (Impact 2) |
| Measure the capacity of containers using appropriate tools and label (e.g., graduated cylinders, measuring cups, tablespoons). (CU)     | SE: 301-302, 317 #6 (Impact 2)                                   |
| Evaluate whether measurement has been done correctly. (RL)  | SE: 117-119  |
| 1.2.5 There are no GLEs at the 6 <sup>th</sup> grade level.   |  |
| 1.2.6 Understand and apply strategies to obtain reasonable estimates of volume or capacity.   |  |
| Identify situations in which estimated measures are sufficient.   | SE: 317 #6 (Impact 2)  |
| Estimate volume or capacity.  | SE: 98, 301-304 (Impact 2)                                       |

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| Use estimation to justify reasonableness of a volume of a rectangular prism. (RL)   | SE: 502-503 Lab Investigation (Impact 3)  |
| Estimate a measurement of volume or capacity using standard or non-standard units (e.g., estimate the capacity of a bowl in cups and handfuls). (SP)            | SE: 125 #14 (Impact 2)  |
| Use or describe a process to find a reasonable estimate of volume or capacity (e.g., fill a container with rice or popcorn). (CU)                               | SE: 125 #14 (Impact 2)  |
| <b>Component 1.3: Understand and apply concepts and procedures from geometric sense.</b>  |   |
| <b>Properties and relationships.</b>  |   |
| 1.3.1 Understand the concept of similarity  |   |
| Name and sort circles or rectangular prisms according to their attributes (faces, edges, radii, base, parallel faces). (RL)                                     | SE: 486, 487 Set D, 488-489, 522, Lab Investigation 58-60<br>TG: <i>Think and Discuss</i> 486 |
| Draw a figure with given characteristics (e.g., the set of points equidistant from a given point). (CU)   | SE: 43, 45  |
| Identify lines of symmetry in rectangular prisms.   | SE: 50, <i>Remember</i> 41  |
| Explain lines of symmetry for circles. (CU)   | SE: 41, 50  |
| Describe the relationship between the diameter and the radius of a circle. (CU)   | SE: 486<br>TG: <i>Think and Discuss</i> 486   |
| <b>Properties and relationships</b>   |   |
| 1.3.2 Apply understanding of angles and polygons.   |   |
| Identify geometric figures and concepts in nature and art (e.g., triangle in architecture, rhombus in beadwork, culturally relevant textiles, quilts). (MC)     | SE: 491-492 #10-11<br>TG: <i>Think and Discuss</i> 48   |
| Combine polygons to create given two-dimensional figures and represent them on a grid paper (e.g., use all pieces of tangrams to create a square). (SP, RL, CU) | SE: <i>Just the Facts</i> 494<br>TG: Explore 494  |
| Create a three-dimensional shape given its net or draw the net of a given three dimensional shape. (RL)   | SE: Lab Investigation 58-60<br>129-139 (Impact 2)   |

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| Find the missing measure of an angle using the properties of parallel lines, perpendicular lines, vertical and corresponding angles.  | SE: 47-49, 469-472, 477 #1-6, 479 #24<br>TG: <i>Think and Discuss</i> 473 |
| Find the missing angle given all but one of the angles of a polygon. (RL)   | SE: 473-476, 477#12-21  |
| <b>Locations and transformations</b>  |   |
| 1.3.3 Understand the relative location of integers on a number line.  |   |
| Show the order of a given set of integers on a number line. (CU)  | SE: 128-130, 144, 146, 363  |
| Identify the point of final destination given directions for movement on a number line including positive and negative numbers (vertical or horizontal) (e.g., temperature variation at different times of the day, bank accounts, gain and loss of weight). (MC) | SE: 128-130, 142-144, 146-147#1-13  |
| Determine the distance between any two integers on a number line. (RL)  | SE: 144 Set A   |
| Describe relative location of points and objects on a number line with both positive and negative numbers. (CU)   | SE: 144, Set A, 146-147 #1-13   |
| Identify objects on a number line based on given numeric locations.   | SE: 144, 146 #4   |
| 1.3.4 Apply understanding of rotations (turns) to two-dimensional figures.  |   |
| Apply rotations (turns) of 90 degrees or 180 degrees to a simple two-dimensional figure.  | SE: <i>Remember</i> 466, 305-306 (Impact 3)                               |
| Create a design using (90, 180, 270, 360 degree) rotations (turns) of a shape. (SP, MC)   | SE: 306 Set D, <i>Share and Summarize</i> 306 (Impact 3)                  |
| Show how a shape has been rotated by 90 or 180 degrees. (CU)  | SE: 309 #1-2, (Impact 3)  |
| Describe a rotation so that another person could draw it. (CU)  | SE: 310 #6-7 (Impact 3)   |
| Identify the coordinates of objects that have been rotated 90, 180, or 270 degrees on a coordinate grid.  | SE: 310 #6-7 (Impact 3)   |
| Determine whether an object has been translated or rotated on a coordinate grid.  | SE: 346-347 #1-4 (Impact 3)   |

**Component 1.4: Understand and apply concepts and procedures from probability and statistics.****Probability**

1.4.1 Understand probability as a ratio between and including 0 and 1.

Determine whether a real-life event has zero probability, 50% probability, or 100% probability of occurring. (MC)

SE: 605-606, 615 #1-2

TG: *Think and Discuss* 604

Express probabilities as fractions or decimals between 0 and 1 and percents between 0 and 100. (CU)

SE: 631 #1-6, 633 #10, 634-635 #14-17

Translate between representations of probability (e.g., translate a probability of 6 out of 16 to  $\frac{3}{8}$  or 37.5%). (MC)

SE: 631 #1-6, 634-635 #14-17

1.4.2 Understand various ways to determine outcomes of events or situations.

Determine and use the probabilities of the outcome of a single event.

SE: 606-607, 608-611, Lab Investigation 613-614, 617 #11-12, *Share and Summarize* 607 & 612

Represent or describe all possible outcomes of experiments (e.g., an organized list, a table, a tree diagram, or a sample space). (RL, CU)

SE: 606, 607, 610, 620, 622, 623, 625, 632 #6-7, 634 #14, 641, 642, 646 #13, 648 #6

Calculate probability for an event (e.g., pulling colored or numbered balls from a bag, drawing a card, rolling a six on a number cube, spinning a spinner, etc.).

SE: 604, 606-610, 615 #5 &amp; 7, 617 #9-13

Determine all possible outcomes (sample space) of an experiment or event (e.g., all different choices a person has to wear one top and one skirt from three different tops and two different skirts). (CU)

SE: 639-642, 646 #3

**Statistics**

1.4.3 Analyze how data collection methods affect the data collected.

Evaluate how a question or data collection method may affect the data. (RL)

SE: 318-320, 377-379, 391

TG: *Think and Discuss* 231

Determine whether a sampling method will result in a representative sample.

SE: 390-393

Describe a data collection method that will provide an unbiased sample. (CU)

SE: 390-393

Compare data collection methods for a given situation to determine fairness of the method (e.g., compare a phone survey, a web survey, and a personal interview survey). (RL, MC)

SE: 377, 390-393

Identify different ways of selecting sample (e.g., SE: 377, 390-393, 399-400 #1-2

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| convenience sampling, response to a survey, random sampling) and explain which method makes a sample more representative for a population. (SP, MC)   |   |
| 1.4.4 Apply measures of central tendency to interpret a set of data.  |   |
| Determine when it is appropriate to use mean, median, or mode and why a specific measure provides the most useful information in a given context. (RL, CU)  | SE: 363-365, <i>Share and Summarize</i> 365 & 376   |
| Use mean, median, and mode to explain familiar situations (e.g., the heights of students in the class, the hair color of students in the class). (CU, MC)   | SE: 370-372, 373-374, 380 #1-2, <i>Share and Summarize</i> 372  |
| Find the missing number given a mean for a data set with a missing element (e.g., given a set of homework scores and the desire to earn an average score of 80%, determine what score the student must earn on the next assignment). (SP, RL) | SE: 376 Set L. 380 #3, 382 #6   |
| 1.4.5 Understand how to organize, display, and interpret data in text from single line graphs and scatter plots.  |   |
| Justify a choice of a graph type for a given situation using information about the type of data. (RL, CU, MC)   | SE: 342-343, 353 #1, 359 #9<br>TG: Example 456  |
| Read and interpret data from single line graphs and scatter plots, and determine when the use of these graphs is appropriate. (RL, CU)  | SE: 279, 281, 283-288, 290, 292-295 #1-8, <i>Share and Summarize</i> 291<br>TG: Example 282                       |
| Use an appropriate representation to display data (e.g., table, graphs) given a particular situation and audience. (MC, CU)   | SE: 304, 306-310, 355 #4, 359 #9, 361 #23, 381 #4, 384 #13, 385 #14, 386 #15, 393<br>TG: Explore 317, Example 392 |
| Make inferences based on a set of data. (RL)  | SE: 383 #10, 385 #14, 384 #12-13, 387 #18   |
| Use data from a table, graph, or chart to support an interpretation. (RL, CU)   | SE: 383 #10, 384 #12-13, 385 #14, 387 #18   |
| Use technology to generate bar graphs, line graphs, and scatter plots from tables of data. (MC)   | SE: Lab Investigation 396-398   |
| 1.4.6 Evaluate a data set to determine how it can be, or has been, used to support a point of view.   |   |

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| Compare graphs to data sets (e.g., given unlabeled graphs and data sets, match the appropriate data to a graph). (RL)  | SE: 343, 353 #1   |
| Judge the appropriateness of inferences made from a set of data and support the judgment. (CU, MC)   | SE: 383 #10, 384 #12-13, 385 #14, 387 #18                                 |
| Identify claims based on statistical data and assess the validity of the claims. (CU, RL)  | SE: 358 #8, 359 #9, 361 #23   |
| Explain whether the scale on a graph accurately represents the data. (CU)  | SE: 307,405 #3<br>TG: <i>Think and Discuss</i> 306, Explore 392           |
| Compare or evaluate two or more interpretations of the same set of data for accuracy.  | SE: 343<br>TG: Explore 342, <i>Teaching Resource</i> 55                   |
| <b>Component 1.5: Understand and apply concepts and procedures from algebraic sense.</b>   |   |
| <b>Patterns, functions, and other relations</b>  |   |
| 1.5.1 Apply rules for number patterns based on two arithmetic operations.  |   |
| Recognize or extend patterns and sequences using operations that alternate between terms. (RL)   | SE: 6, 7-9, 10 #3<br>TG: <i>Think and Discuss</i> 6                       |
| Create, explain, or extend number patterns involving two related sets of numbers and two operations including addition, subtraction, multiplication, or division. (CU) | SE: 28-31, <i>Share and Summarize</i> 31<br>TG: Example 29                |
| Use rules for generating number patterns based on two arithmetic operations. (SP)  | SE: 2, 5-9,10 #1-2, 11 #9-11<br>TG: Explore 4                             |
| Use technology to generate patterns based on two arithmetic operations. (SP)   | SE: Graphing calculators (Impact 3)                                       |
| Supply missing elements in a pattern based on two operations.  | SE: 32-35, 36 #1-5, 37 #6-7, 38 #8-10, <i>Share and Summarize</i> 31 & 35 |
| Select or create a pattern that is equivalent to a given pattern.  | SE: 31 Set B, <i>Share and Summarize</i> 31                               |
| 1.5.2 Apply understanding of patterns involving two arithmetic operations to develop a rule.   |   |
| Describe the rule for a pattern with combinations of two arithmetic operations in the rule.  | SE: 31, <i>Share and Summarize</i> 31<br>TG: Example 29                   |
| Identify patterns involving combinations of operations in the rule, including exponents (e.g., 2, 5, 11, 23). (RL, MC)   | SE: 2, 5, 10 #1-2,11 #9-11, 12 #12<br>TG: Example 29, Explore 4           |

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| Represent a situation with a rule involving a single operation (e.g., presidential elections occur every four years; when will the next three elections occur after a given year?). (CU, MC) | SE: 7-9 Set B, 10 #3-8   |
| Create a pattern involving two operations using a given rule.  | SE: 28-31, <i>Share and Summarize</i> 18                             |
| <b>Symbols and representations</b>   |  |
| 1.5.3 Apply understanding of equalities and inequalities to interpret and represent relationships between quantities.  |  |
| Express relationships between quantities (decimals, percents, and integers) using =, =, <, >, <, and >. (CU)   | SE: 559-561, 565 #1-9<br>TG: <i>Remember</i> 103, <i>Explore</i> 558 |
| Match a given situation to the correct inequality or equality. (MC)  | SE: 559, 561, 565 #16-22   |
| Express relationships between non-negative rational numbers using symbols.   | SE: 103, 559   |
| Write an inequality with a single variable to match a particular situation. (RL, CU).  | SE: 559  |
| 1.5.4 Apply understanding of tables, graphs, expressions, equations, or inequalities to represent situations involving two arithmetic operations.  |  |
| Translate a situation involving multiple arithmetic operations into algebraic form using equations, tables, and graphs. (RL, CU, MC)   | SE: 560-562, 565 #1, 566-568 #24-30                                  |
| Identify or describe a situation involving two arithmetic operations that matches a given graph. (CU, MC)  | SE: 304-305, Set C, 320-322, <i>Share and Summarize</i> 305          |
| Represent an equation, expression, or inequality using a variable in place of an unknown number. (CU)  | SE: 560-562, 565 #10-33  |
| Represent or evaluate algebraic expressions involving a single variable. (RL, CU)  | SE: 560-562, 565 #10-33  |
| Represent an equation or expression using a variable in place of an unknown number. (RL, CU)   | SE: 560-562, 565 #10-33  |
| Identify a situation that corresponds to a given   | SE: 567-568 #27-31   |

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| equation or expression.  |  |
| <b>Evaluating and solving</b>  |  |
| 1.5.5 Understand and apply procedures to evaluate expressions and formulas.  |  |
| Evaluate simple expressions and formulas using pictures and/or symbols. (RL)   | SE: 567-568 #27-31   |
| Represent and evaluate algebraic expressions involving a single variable. (RL, CU)   | SE: 560-563, 565 #15-23  |
| Evaluate an expression by substituting non-negative values for variables (e.g., find the value of $3y + 2$ when $y=3$ ). (RL, MC)  | SE: 563 #1, 588 #2-6,  |
| Determine the expression that represents a given situation. (MC, CU)   | SE: 420-421, 424-425 #9-15, <i>Share and Summarize</i> 421<br><br>TG: <i>Think and Discuss</i> 419 |
| Describe a situation that fits with a given expression. (RL, MC, CU)   | SE: 420-421, 424-425 #9-15, <i>Share and Summarize</i> 421<br><br>TG: <i>Think and Discuss</i> 419 |
| 1.5.6 Understand and apply a variety of strategies to solve one-step equations.  |  |
| Solve one-step equations using pictures and symbols.   | SE: 567 #27-31, 571-577, 579 #1-6  |
| Solve one-step single variable equations using any strategy (e.g., what number goes in the mystery box?)   | SE: 567 #27-31, 571-577, 579 #1-6  |
| Solve real-world situations involving single variable equations. (CU, MC)  | SE: 577-578 Set F, 581 #1-17, 582 #20  |
| Explain a strategy for solving a single variable equation. (CU)  | SE: <i>In Your Own Words</i> 583, 581 #6-17, 582 #20   |
| Write and solve one-step single variable equations for a given situation. (MC)   | SE: <i>In Your Own Words</i> 583, 580 #15, 582 #20   |
| <b>EARL 2: The student uses mathematics to define and solve problems.</b>  |  |
| <b>Component 2.1: Understand problems</b>  |  |
| <b>Example: A gardener living in Yakima has 100 feet of fencing material. Find the dimensions of the largest rectangular area that he could enclose using all of the fencing material.</b> |  |
| <b>2.1.1 Analyze a situation to define a problem.</b>  |  |
| Use strategies to become informed about the situation (e.g., listing information, asking questions).   | SE: 589-592  |
| Summarize the situation (e.g., there is 100 feet of fencing and we want to enclose as much land, in the shape of a rectangle, as possible).  | SE; 594 #5, 596 #21-22, 597 #23, 598 #37-39  |

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| Determine whether enough information is given to find a solution (e.g., list what is needed to find the area of a rectangle and compare to the list of known things).        | SE: 594 #5, 596 #21-22, 597 #23         |
| Determine whether information is missing or extraneous (e.g., compare the list of known things to the list of needed things to see if there are things that are not needed). | SE: 594 #5, 596 #21-22, 597 #23         |
| Define the problem (e.g., find the rectangle with the largest area with a perimeter of 100 feet).  | SE: 594 #5, 595 #9, 596 #21-22, 597 #29 |

**Component 2.2: Apply strategies to construct solutions.**

2.2.1 Apply strategies, concepts, and procedures to devise a plan to solve the problem.

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| Organize relevant information from multiple sources to devise a plan (e.g., create a list of known and unknown information; create a table of values for length, width, and area of rectangles with perimeter of 100). | SE: 430-432, 576-578, 581 #16-18, Lab Investigations 433-435 and 563 |
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| Select and apply appropriate mathematical tools for a situation (e.g., guess and check, creating tables of values (with or without technology), examine relationships between sides of a rectangle and area). | 594-595 #5-10 |
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2.2.2 Apply mathematical tools to solve the problem.

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| Implement the plan devised to solve the problem (e.g., in a table of values of lengths, widths, and areas find the one that shows the largest area; check smaller increments to see if this is the largest that works). | SE: 576-578, 589-591, 592-593 |
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| Identify when an approach is unproductive and modify or try a new approach (e.g., while guess and check may give some sense of a neighborhood of values, it is less efficient than a more organized method). | SE: 576-578, 592-593 |
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| Check the solution to see if it works (e.g., if the solution gives a perimeter that is not 100, it makes no sense in the given problem). | SE: 595 #10, 596 #20<br>(Impact 2) 398-403, 404-405 #1-10 |
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**EARL 3: The student uses mathematical reasoning.**

**Component 3.1: Analyze information.**

3.1.1 Analyze information from a variety of sources to interpret and compare information.

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| Identify claims based on statistical data and evaluate the validity of the claims. (1.4.5)   | SE: 383-385 #10-14  |
| Read and interpret data from a single line graphs and scatter plots and determine when the use of these graphs is appropriate. (1.4.5)   | SE: 279-290, 294 #4-8, <i>Share and Summarize</i> 291                                 |
| Use volume and capacity to describe and compare figures (e.g., fill containers with cubes to find which has a greater volume). (1.2.4)   | SE: 497-500, 507 #5 & 6, <i>Share and Summarize</i> 500 (Impact 2)                    |
| <b>Component 3.2: Make predictions, inferences, conjectures, and draw conclusions.</b>   |   |
| 3.2.1 Apply prediction and inference skills to make or evaluate conjectures.   |   |
| Identify claims based on statistical data and evaluate the validity of the claims. (1.4.5)   | SE: 342-343, 353 #1, 359 #9   |
| Predict a future element in a relation (e.g., find the fifteenth term in a pattern). (1.5.1)   | SE: 32, 35, 37-38 #6-8, 40 #13-15, <i>Share and Summarize</i> 35                      |
| 3.2.2 Apply the skills of drawing conclusions and support those conclusions using evidence.  |   |
| Draw conclusions from displays, texts, or oral discussions and justify those conclusions with logical reasoning or other evidence (e.g., read a newspaper article or ad; draw a conclusion and support that conclusion with evidence from the article or elsewhere). | SE: 97 #37, 110 #45, 111 #46, 171 #65, 246 #37-38                                     |
| 3.2.3 Analyze procedures and results in various situations.  |   |
| Represent and interpret all possible outcomes of experiments (e.g., an organized list, a table, a tree diagram, or a sample space). (1.4.2)  | SE: 606, 607, 610, 620, 622, 623, 625, 632 #6 & 7, 634 #14, 641, 642, 646 #13, 648 #6 |
| <b>Component 3.3: Verify results.</b>  |   |
| 3.3.1 Analyze procedures and information used to justify results using evidence.   |   |
| Find and compare rectangular prisms that have a given volume (e.g., if two rectangular prisms have the same volume and one has twice the height of the other, determine how the areas of their bases compare). (1.2.5)   | SE: 58  |
| Apply estimation strategies prior to computation of whole numbers, decimals, and fractions to determine reasonableness of answers. (1.1.8)   | SE: 208-209, 215 #25, 216 #29-31, <i>Share and Summarize</i> 210<br>TG: Example 208   |
| Identify different ways of selecting sample (e.g., convenience sampling, response to a   | SE: 377, 390-393, 399-400 #1-2  |

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| survey, random sampling) and which method makes a sample more representative for a population. (1.4.3)  |   |
| 3.3.2 Analyze thinking and mathematical ideas using models, known facts, patterns, relationships, or counter examples.  |   |
| Identify claims based on statistical data and evaluate the validity of the claims. (1.4.5)  | SE: 358 #8, 359 #9, 361 #23   |
| <b>EARL 4: The student communicates knowledge and understanding in both everyday and mathematical language.</b>   |   |
| <b>Component 4.1: Gather information.</b>   |   |
| 4.1.1 Apply a planning process to collect information for a given purpose.  |   |
| Use mean, median, and mode to explain familiar situations (e.g., the heights of students in the class; the hair color of students in the class). (1.4.4)  | SE: 370-372, 373-374, 380 #1-2, <i>Share and Summarize</i> 372                      |
| Decide on information needed to create a report on a mathematical topic (e.g., compare the predicted rainfall in a given period with the actual rainfall).  | SE: 320-323, 327-329 #1-4   |
| 4.1.2 Understand how to extract information from multiple sources using reading, listening, and observation.  |   |
| Use mean, median, and mode to explain situations (e.g., the heights of students in the class; hair color of students in the class; favorite movie of students in the class; most watched movie in a specific time frame). (1.4.4) | SE: 370-372, 373-374, 377-378, 380 #1-2, <i>Share and Summarize</i> 372             |
| <b>Component 4.2: Organize, represent, and share information.</b>   |   |
| 4.2.1 Apply organizational skills for a given purpose.  |   |
| Show the order of the set of integers on a number line with both positive and negative numbers (e.g., organize the given birth years of the following Arabic kings on a number line). (1.3.3)                                     | SE: 128-130, 144, 146, 363  |
| 4.2.2 Apply communication skills to clearly and effectively express or present ideas and situations using mathematical language or notation.  |   |
| Articulate various strategies used during estimation involving fractions and decimals. (1.1.8)  | SE: 208-209, 215 #25, 216 #29-31, <i>Share and Summarize</i> 210<br>TG: Example 208 |
| Clearly explain, describe, or represent mathematical information in a pictorial, tabular, graphical, two-or three-dimensional drawing, or   | SE: 536-543, 544-549 #1-14  |

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| other form as appropriate for the mathematical information (e.g., time, distance, categories), audience, and/or purpose, such as to perform or persuade, with notation and labels as needed. |   |
| Use an appropriate representation to display data (e.g., table, graphs) given a particular situation and audience. (1.4.5)   | SE: 304, 306-310, 355 #4, 359 #9, 361 #23, 381 #4, 384 #13, 385 #14, 386 #15, 393<br>TG: Explore 317, Example 392 |
| <b>EARL 5: The student understands how mathematical ideas connect within mathematics, to other subject areas, and to real-life situations.</b>   |   |
| <b>Component 5.1: Relate concepts and procedures within mathematics.</b>   |   |
| 5.1.1 Apply concepts and procedures from a variety of mathematical areas in a given problem or situation.  |   |
| Translate a situation involving multiple arithmetic operations into algebraic form using equation, table, and graphs. (1.5.4)  | SE: 560-562, 565 #1, 566-568 #24-30   |
| Given a set of data, compare various representations (e.g., table, graph, rule for a given situation). (1.4.5)   | SE: 304, 306-310, 355 #4, 359 #9, 361 #23, 381 #4, 384 #13, 385 #14, 386 #15, 393<br>TG: Explore 317, Example 392 |
| 5.1.2 Apply different mathematical models and representations to the same situation.   |   |
| Represent equivalent ratios or given percentages using objects, pictures, and symbols. (1.1.4)   | SE: 605, 608-612, 639-645, <i>Share and Summarize</i> 612<br>TG: <i>Think and Discuss</i> 638                     |
| Match a graph with a data set. (1.5.4)   | SE: 287, 302-304, 311 #4, 316-317, 343<br>TG: <i>Think and Discuss</i> 306, Explore 317, Explore 342              |
| <b>Component 5.2: Relate mathematical concepts procedures to other disciplines.</b>  |   |
| 5.2.1 Apply mathematical patterns and ideas to extend mathematical thinking and modeling to other disciplines.   |   |
| Identify geometric figures and concepts in nature and art (e.g., triangle in architecture, rhombus in beadwork). (1.3.2)   | SE: 491-492 #10-11<br>TG: <i>Think and Discuss</i> 48   |
| Show the order of the set of integers on a number line with both positive and negative numbers (e.g., organize and graph on a number line the given birth years of the given                 | SE: 128-130, 144, 146, 363  |

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| Arabic kings). (1.3.3)   |   |
| Read a micrometer to the nearest hundredth of an inch or centimeter, depending on the tool. (1.2.4)                                    | SE: 125   |
| Create a physical activity plan that results in 2500 calories expended over the week.  | SE: Supplemental Materials with projects  |
| Calculate the ratio of various parts of an artwork (length of eyes to ears).   | SE: 536 #25 (Impact 2),<br>475-478 (Impact 3)   |
| Discuss the difference between $\frac{3}{4}$ time and $\frac{5}{8}$ time and how it relates to a model.                                | SE:   |
| <b>5.2.2 Know the contributions of individuals and cultures to the development of mathematics.</b>                                     |   |
| Recognize the contributions of a variety of people to the development of mathematics (e.g., research the concept of the golden ratio). | SE: <i>Just the Facts</i> 16, 53, 60, 93, 97, 210, 219, 242, 263, 271, 285, 308, 417, 422, 468, 502, 537, 538, 558, 564, 590, 641 |

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| <b>Component 5.3: Relate mathematical concepts and procedure4s to real-world situations.</b>   |  |
| <b>5.3.1 Understand that mathematics is used in daily life and extensively outside the classroom.</b>  |  |
| Write and solve real-world problem situations to find sums or differences of decimals or fractions (e.g., explain how to find the change received from a \$50.00 bill when a given amount of CD's and tapes with prices are bought). (!>!>^) | SE: 430-432                                  |
| Calculate the ratio of bicycle gears..   | SE: 518 <i>Real-Life Math</i> (Impact 2)     |
| <b>5.3.2 Understand that mathematics is used within many occupations or careers.</b>   |  |
| Explain or describe the mathematics necessary to get and perform in a particular job (e.g., complete a project that researches how mathematics is used in careers or occupations of interest).   | SE: <i>Real-Life Math</i> 74, 152, 556       |
| Identify where in a particular career mathematics is used (e.g., police work—looking for patterns sin fingerprints or crimes).   | SE: Available in the supplemental materials. |