

6th Grade Math – Harding Middle School

This course focuses on solving ratio and rate problems, understanding division of fractions by fractions, using positive and negative numbers, solving problems involving surface area and volume, and writing equations to solve problems.

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Course Expectations

Students are expected to follow Harding's **CPR** Expectations (COLLABORATIVE, PROFESSIONAL, AND RESPECTFUL)

- **COLLABORATIVE** – Students will be expected to do some work independently and some in groups. Please interact positively with one another and work together to keep our classroom clean, safe, and productive.
- **PROFESSIONAL** – Everyday, students will work on their DO NOW for the first 10 minutes of class to refresh and review skills. They are expected to bring a pencil and their school binder. Make sure you are on time to class and ready to work.

- **RESPECTFUL** – Listening to peers and teachers is necessary for success in class. Treat everyone well and respect every person in the classroom. NO put downs or bullying are tolerated. Show your teacher respect by keeping electronics put away, unless your teacher gives you permission. Please use appropriate voice levels.

Units, Topics & Grading Scale

Unit 1 – The Number System

August 24th – October 21st

Topic 1 – Addition & Subtraction of Decimals

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| 4 | In addition to score 3.0 performance, the student demonstrates in –depth inferences and applications that go beyond the learning goal. |
| 3 Learning Goal | Solve real-world and mathematical problems involving adding and subtracting multi-digit decimals. |
| 2 | Recognize or recall specific vocabulary such as: <i>decimal</i> Add multi-digit decimals using the standard algorithm (6.NS.3) Subtract multi-digit decimals using the standard algorithm (6.NS.3) |
| 1 | Student’s performance reflects insufficient progress towards foundational skills and knowledge. |

Topic 2 – Multiplication & Division of Decimals

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| 4 | In addition to score 3.0 performance, the student demonstrates in –depth inferences and applications that go beyond the learning goal. |
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| 3 Learning Goal | Solve real-world and mathematical problems involving multiplying and dividing multi-digit numbers. |
| 2 | Recognize or recall specific vocabulary such as: <i>Place value, numerical expression, per</i> Multiply multi-digit decimals using the standard algorithm (6.NS.3) Divide multi-digit decimals using the standard algorithm (6.NS.3) Divide multi-digit numbers using the standard algorithm (6.NS.2) |
| 1 | Student's performance reflects insufficient progress towards foundational skills and knowledge. |

Topic 3 – Fractions, Decimals & Percents

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| 4 | In addition to score 3.0 performance, the student demonstrates in –depth inferences and applications that go beyond the learning goal. |
| 3 Learning Goal | Order positive fractions, decimals, and percents Find a percent of a quantity as a rate per 100 (6.RP.3) (Include percents over 100%) |
| 2 | Recognize or recall specific vocabulary such as: <i>Percent, Equivalent, Simplest Form</i> Convert between fractions, decimals, and percents |
| 1 | Student's performance reflects insufficient progress towards foundational skills and knowledge. |

Topic 4 – Multiplying & Dividing Fractions

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| 4 | In addition to score 3.0 performance, the student demonstrates in –depth inferences and applications that go beyond the learning goal. |
| 3 Learning Goal | Solve word problems involving multiplication and division of fractions (6.NS.1) |
| | Recognize or recall specific vocabulary such as: <i>Model, quotient, product, diagram</i> |

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| 2 | <p>Compute products and quotients of fractions by using the algorithm (6.NS.1)</p> <p>Interpret products and quotients of fractions and visual fraction models to represent the problem (6.NS.1)</p> |
| 1 | Student's performance reflects insufficient progress towards foundational skills and knowledge. |

Unit 2 – Ratios and Proportional Relationships

October 24th – December 9th

| Topic 5 – Ratios & Rates | |
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| 4 | In addition to score 3.0 performance, the student demonstrates in –depth inferences and applications that go beyond the learning goal. |
| 3 Learning Goal | <p>Solve real-world and mathematical problems using ratios and unit rates (6.RP.3) (units per 1)</p> <p>Solve real-world and mathematical problems using greatest common factor and least common multiple</p> <p>Create equivalent fraction representations of ratios</p> |
| 2 | <p>Recognize or recall specific vocabulary such as: <i>rate, ratio, unit rate, LCM, GCF</i></p> <p>Find greatest common factor ≤ 100 for two whole numbers (6.NS.4)</p> <p>Find the least common multiple ≥ 12 for two whole numbers (6.NS.4)</p> <p>Use ratio language to describe a ratio relationship between two quantities (6.RP.1)</p> <p>Use rate language in the context of a ratio relationship (6.RP.2)</p> |
| 1 | Student's performance reflects insufficient progress towards foundational skills and knowledge. |

| Topic 6 – Solving Percents | |
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| 4 | In addition to score 3.0 performance, the student demonstrates in –depth inferences and applications that go beyond the learning goal. |

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| 3 Learning Goal | Solve word problems and mathematical problems involving percents (6.RP.3) |
| 2 | Recognize or recall specific vocabulary such as: <i>Percent, sale price, original price</i> Solve percent problems |
| 1 | Student's performance reflects insufficient progress towards foundational skills and knowledge. |

Unit 3 – Integers

December 12th – January 6th

| Topic 7 – Integers | |
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| 4 | In addition to score 3.0 performance, the student demonstrates in –depth inferences and applications that go beyond the learning goal. |
| 3 Learning Goal | Write, interpret, and explain statements of order for rational numbers in real-world contexts (for example, writing $-3^{\circ}\text{C} > -7^{\circ}\text{C}$ to express the fact that -3°C is warmer than -7°C) (6.NS.7) Interpret absolute value as a magnitude for a positive or negative quantity in a real-world situation Distinguish comparisons of absolute value from statements about order (6.NS.7) |
| 2 | Recognize or recall specific vocabulary such as: <i>Integer, negative, withdrawal, bonus, fine, absolute value, distance, opposite</i> Use positive and negative numbers to represent quantities in real-world context explaining the meaning of zero in each situation (6.NS.5) Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line (6.NS.6) Find and position rational numbers, including integers, on a number line (6.NS.6) Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram (6.NS.7) |

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Topic 8 – Integers on the Coordinate Plane

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| 4 | In addition to score 3.0 performance, the student demonstrates in –depth inferences and applications that go beyond the learning goal. |
| 3 Learning Goal | Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane (6.NS.8, 6.G.3) Use coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate (6.NS.8) |
| 2 | Recognize or recall specific vocabulary such as: <i>Ordered pair, quadrant, location, coordinate plane, x-axis, y-axis</i> Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane Find and position pairs of integers and other rational numbers on a coordinate plane (6.NS.6) |
| 1 | Student's performance reflects insufficient progress towards foundational skills and knowledge. |

Unit 4 – Expressions and Equations

January 9th – February 28th

Topic 9 – Expressions

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| 4 | In addition to score 3.0 performance, the student demonstrates in –depth inferences and applications that go beyond the learning goal. |
| 3 Learning Goal | Evaluate expressions with specific values of their variables including whole-number exponents (6.EE.1; 2) Create equivalent expressions using the properties of operations (6.EE.3) Use distributive property within expressions (including variables) |

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| 2 | <p>Recognize or recall specific vocabulary such as: <i>Expression, factor, scenario, distributive property, equivalent, algebraic</i></p> <p>Write and evaluate numerical expressions involving whole number exponents (6.EE.1)</p> <p>Write algebraic expressions involving exponents, numbers, and variables (6.EE.2)</p> <p>Identify parts of an expression using mathematical terms (6.EE.2)</p> <p>Identify when two expressions are equivalent (6.EE.4)</p> <p>Use distributive property to solve. Example: $4 \times 38 = (4 \times 30) + (4 \times 8)$</p> |
| 1 | Student's performance reflects insufficient progress towards foundational skills and knowledge. |

Topic 10 – Equations

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| 4 | In addition to score 3.0 performance, the student demonstrates in –depth inferences and applications that go beyond the learning goal. |
| 3 Learning Goal | Write and solve real-world and mathematical equations of the form $x + p = q$ and $px = q$ when all variables are nonnegative, rational numbers (6.EE.7) |
| 2 | <p>Recognize or recall specific vocabulary such as: <i>Equation</i></p> <p>Use variables to represent numbers within equations (6.EE.6)</p> <p>Solve one-step equations (6.EE.7)</p> |
| 1 | Student's performance reflects insufficient progress towards foundational skills and knowledge. |

Topic 11 – Functions & Inequalities

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| 4 | In addition to score 3.0 performance, the student demonstrates in –depth inferences and applications that go beyond the learning goal. |
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| 3 Learning Goal | Write an inequality of the form $x > c$ or $x < c$ to represent a real-world or mathematical problem (6.EE.8) Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations using order of operations. |
| 2 | Recognize or recall specific vocabulary such as: <i>Inequality, function, table, number line, input, output, sequence, term</i> Use substitution to determine whether a given number makes an equation or inequality true (6.EE.5) Represent solutions of inequalities on number line diagrams (6.EE.8) |
| 1 | Student's performance reflects insufficient progress towards foundational skills and knowledge. |

Unit 5 – Geometry

March 1st – April 21st

| Topic 12 – Area | |
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| 4 | In addition to score 3.0 performance, the student demonstrates in –depth inferences and applications that go beyond the learning goal. |
| 3 Learning Goal | Solve real world and mathematical problems involving the area of triangles, Solve real- world problems involving quadrilaterals (including rectangles, parallelograms, and trapezoids), Solve real-world problems involving polygons composed of triangles and quadrilaterals. (6.G.1) |
| 2 | Recognize or recall specific vocabulary such as: <i>Area, polygon, quadrilateral, triangle, base, height, square units</i> Calculate the area of triangles (6.G.1) Calculate the area of quadrilaterals (6.G.1) Calculate the area of polygons composed of triangles and quadrilaterals (6.G.1) Calculate the perimeter of any polygon |
| 1 | Student's performance reflects insufficient progress towards foundational skills and knowledge. |

Topic 13 – Surface Area & Volume

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| 4 | In addition to score 3.0 performance, the student demonstrates in –depth inferences and applications that go beyond the learning goal. |
| 3 Learning Goal | Solve real-world and mathematical problems involving surface area of right prisms (6.G.4) Solve real-world and mathematical problems involving the volume of right rectangular prisms with fractional edge lengths applying the formulas $V=l*w*h$ and $V=B*h$. (6.G.2) |
| 2 | Recognize or recall specific vocabulary such as: <i>Area, net, right prism, surface area, three dimensional, square units, length, unit cube, volume, base, width, height, cubic</i> Represent three-dimensional figures using nets made up of rectangles and triangles (6.G.4) Find the surface area of rectangular prisms using nets (6.G.4) Calculate the volume of a right rectangular prism with fractional edge lengths |
| 1 | Student’s performance reflects insufficient progress towards foundational skills and knowledge. |

Unit 6 – Statistics and Probability

April 24th – May 31st

Topic 14 – Statistical Measures

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| 4 | In addition to score 3.0 performance, the student demonstrates in –depth inferences and applications that go beyond the learning goal. |
| 3 Learning Goal | Relate choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered (6.SP.5) Calculate interquartile range and mean absolute deviation (6.SP.5) |

