## JC Schools 7th Grade Accelerated Yearly Math Standards

| Units | Priority Standards | Supporting Standards |
| :---: | :---: | :---: |
| Unit 1 <br> Rational <br> Numbers: <br> Integers <br> 23 Days <br> Unit End Date: <br> Sept. 23 <br> Unit Assessment <br> Window: Sept. 1-16 | 7.NS.A. 3 <br> Solve problems involving the four arithmetic operations with rational numbers. <br> 8.EEI.A. 1 <br> Know and apply the properties of integer exponents to generate equivalent expressions <br> 8.EEI.A.4.a,b <br> Use scientific notation to solve problems <br> a. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used <br> b. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities | 7.NS.A.1.a-f <br> Apply and extend previous understandings of numbers to add and subtract rational numbers. <br> a. Add and subtract rational numbers. <br> b. Represent addition and subtraction on a horizontal or vertical number line. <br> c. Describe situations and show that a number and its opposite have a sum of 0 (additive inverses). <br> d. Understand subtraction of rational numbers as adding the additive inverse. <br> e. Determine the distance between two rational numbers on the number line is the absolute value of their difference. <br> f. Interpret sums and differences of rational numbers. <br> 7.NS.A.2.a-f <br> Apply and extend previous understandings of numbers to multiply and divide rational numbers. <br> a. Multiply and divide rational numbers. <br> b. Determine that a number and its reciprocal have a product of 1 (multiplicative inverse). <br> c. Understand that every quotient of integers (with non-zero divisor) is a rational number. <br> d. Convert a rational number to a decimal. <br> e. Understand that all rational numbers can be written as fractions or decimal numbers that terminate or repeat. <br> f. Interpret products and quotients of rational numbers by describing real-world contexts. |


|  |  | 8.EEI.A. 3 <br> Express very large and very small quantities in scientific notation and approximate how many times larger one is than the other. |
| :---: | :---: | :---: |
| Unit 2 <br> Rational <br> Numbers: <br> Decimals and <br> Fractions <br> 21 Days <br> Unit End Date: <br> Oct. 25 <br> Unit Assessment Window: <br> Oct. 18-Nov. 3 | 7.NS.A. 3 <br> Solve problems involving the four arithmetic operations with rational numbers. <br> 8.NS.A. 2 <br> Estimate the value and compare the size of irrational numbers and approximate their locations on a number line | 7.NS.A.1.a-f <br> Apply and extend previous understandings of numbers to add and subtract rational numbers. <br> a. Add and subtract rational numbers. <br> b. Represent addition and subtraction on a horizontal or vertical number line. <br> c. Describe situations and show that a number and its opposite have a sum of 0 (additive inverses). <br> d. Understand subtraction of rational numbers as adding the additive inverse. <br> e. Determine the distance between two rational numbers on the number line is the absolute value of their difference. <br> f. Interpret sums and differences of rational numbers. <br> 7.NS.A.2.a-f <br> Apply and extend previous understandings of numbers to multiply and divide rational numbers. <br> a. Multiply and divide rational numbers. <br> b. Determine that a number and its reciprocal have a product of 1 (multiplicative inverse). <br> c. Understand that every quotient of integers (with non-zero divisor) is a rational number. <br> d. Convert a rational number to a decimal. <br> e. Understand that all rational numbers can be written as fractions or decimal numbers that terminate or repeat. <br> f. Interpret products and quotients of rational numbers by describing real-world contexts. |


|  |  | 8.NS.A.1.a-d <br> Explore the real number system <br> a. Know the differences between rational and irrational numbers <br> b. Understand that all rational numbers have a decimal expansion that terminates or repeats <br> c. Convert decimals which repeat into fractions and fractions into repeating decimals <br> d. Generate equivalent representations of rational numbers |
| :---: | :---: | :---: |
| Unit 3 | 7.RP.A.2.a-d | 7.RP.A. 1 |
|  | Recognize and represent proportional relationships between quantities. | Compute unit rates, including those that involve complex fractions, with like or different units. |
| Ratios and Proportions | a. Determine when two quantities are in a proportional relationship. | $\text { 7.GM.A. } 1$ |
|  | b. Identify and/or compute the constant of proportionality (unit rate). | Solve problems involving scale drawings of real objects and geometric figures, including computing actual |
| 15 Days | c. Explain what a point ( $x, y$ ) on the graph of a proportional relationship means in terms of the situation. | lengths and areas from a scale drawing and reproducing the drawing at a different scale. |
| Unit End Date: <br> Nov. 16 <br> Unit Assessment Window: Nov. 9-23 | d. Recognize that the graph of any proportional | 7.RP.A. 3 |
|  | relationship will pass through the origin. <br> 8.EEI.B.5.a,b | Solve problems involving ratios, rates, percentages and proportional relationships. |
|  | Graph proportional relationships. | 8.EEI.B.2.a |
|  | a. Interpret the unit rate as the slope of the graph. <br> b. Compare two different proportional relationships. <br> 8.EEI.B.6.b | Apply concepts of slope and y-intercept to graphs, equations and proportional relationships <br> a.Explain why the slope $(\mathrm{m})$ is the same between any |
|  | Apply concepts of slope and y-intercept to graphs, equations and proportional relationships | coordinate plane |


|  | b. Derive the equation $y=m x$ for a line through the origin and the equation $y=m x+b$ for a line intercepting the vertical axis at $b$ |  |
| :---: | :---: | :---: |
| Unit 4 <br> Percents <br> 18 Days <br> Unit End Date: <br> Dec. 15 <br> Unit Assessment Window: <br> Dec. 8-Jan. 5 | 7.EEI.B.3.a,b <br> Solve multi-step problems posed with rational numbers. <br> a. Convert between equivalent forms of the same number. <br> b. Assess the reasonableness of answers using mental computation and estimation strategies. | 7.RP.A. 3 <br> Solve problems involving ratios, rates, percentages and proportional relationships. |
| Unit 5 <br> Expressions, Equations and Inequalities <br> 20 Days <br> Unit End Date: $\text { Jan. } 27$ <br> Unit Assessment Window: Jan. 20-Feb. 3 | 7.EEI.B.4.a-c <br> Write and/or solve linear equations and inequalities in one variable. <br> a. Write and/or solve equations of the form $x+p=q$ and $p x=q$ in which $p$ and $q$ are rational numbers. <br> b. Write and/or solve two---step equations of the form $p x+q=r$ and $p(x+q)=r$, where $p, q$ and $r$ are rational numbers, and interpret the meaning of the solution in the context of the problem. <br> c. Write, solve and/or graph inequalities of the form $p x+q>r$ or $p x+q<r$, where $p, q$ and $r$ are rational numbers. <br> 8.EEI.C.7.a,b <br> Solve linear equations and inequalities in one variable. <br> a. Create and identify linear equations with one solution, infinitely many solutions or no solutions. | 7.EEI.A. 1 <br> Apply properties of operations to simplify and to factor linear algebraic expressions with rational coefficients. <br> 7.EEI.A. 2 <br> Understand how to use equivalent expressions to clarify quantities in a problem. <br> 8.EEI.A.2.a-c <br> Investigate concepts of square and cube roots. <br> a. Solve equations of the form $x^{2}=p$ and $x^{3}=p$, where $p$ is a positive rational number. <br> b. Evaluate square roots of perfect squares less than or equal to 625 and cube roots of perfect cubes less than or equal to 1000. <br> c. Recognize that square roots of non-perfect squares are irrational. |


|  | b. Solve linear equations and inequalities with rational number coefficients, including equations and inequalities whose solutions require expanding expressions using the distributive property and combining like terms. |  |
| :---: | :---: | :---: |
| Unit 6 <br> Angle <br> Relationships <br> 18 Days <br> Unit End Date: <br> Feb. 23 <br> Unit Assessment Window: <br> Feb. 15-Mar. 2 | 7.GM.B. 5 <br> Use angle properties to write and solve equations for an unknown angle. <br> 8.GM.A.5.a-d <br> Explore angle relationships and establish informal arguments. <br> a. Derive the sum of the interior angles of a triangle. <br> b. Explore the relationship between the interior and exterior angles of a triangle. <br> c. Construct and explore the angles created when parallel lines are cut by a transversal. <br> d. Use the properties of similar figures to solve problems. <br> 8.GM.B. 7 <br> Use the Pythagorean Theorem to determine unknown side lengths in right triangles in problems in two- and three-dimensional contexts. | 7.GM.A.2.a,b <br> Use a variety of tools to construct geometric shapes. <br> a. Determine if provided constraints will create a unique triangle through construction. <br> b. Construct special quadrilaterals given specific parameters. |
| Unit 7 <br> Area, Volume, and Surface Area | 7.GM.B.6.a,b <br> Understand the relationship between area, surface area and volume. <br> a. Find the area of triangles, quadrilaterals and other polygons composed of triangles and rectangles. | 7.GM.A. 3 <br> Describe two-dimensional cross sections of pyramids, prisms, cones and cylinders. |


| 18 Days <br> Unit End Date: <br> March 21 <br> Unit Assessment Window: <br> Mar. 14-Apr. 5 | b. Find the volume and surface area of prisms, pyramids and cylinders. <br> 8.GM.C.9.a,b <br> Solve problems involving surface area and volume <br> a. Understand the concept of surface area and find surface area of pyramids <br> b. Understand the concepts of volume and find the volume of pyramids, cones and spheres | 7.GM.A.4.a,b <br> Understand concepts of circles. <br> a. Analyze the relationships among the circumference, the radius, the diameter, the area and Pi in a circle. <br> b. Know and apply the formulas for circumference and area of circles to solve problems. |
| :---: | :---: | :---: |
| Unit 8 <br> Probability <br> 16 Days <br> Unit End Date: <br> April 19 <br> Unit Assessment <br> Window: April 12-26 | 7.DSP.C.7.a,b <br> Explain possible discrepancies between a developed probability model and observed frequencies. <br> a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. <br> b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. <br> 7.DSP.C.8.a,b <br> Find probabilities of compound events using organized lists, tables, tree diagrams and simulations. <br> a. Represent the sample space of a compound event. <br> b. Design and use a simulation to generate frequencies for compound events. | 7.DSP.C.5.a,b <br> Investigate the probability of chance events. <br> a. Determine probabilities of simple events. <br> b. Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. <br> 7.DSP.C.6.a-c <br> Investigate the relationship between theoretical and experimental probabilities for simple events. <br> a. Predict outcomes using theoretical probability. <br> b. Perform experiments that model theoretical probability. <br> c. Compare theoretical and experimental probabilities. |
| Unit 9 <br> Statistics <br> 9 Days | 7.DSP.A. 2 <br> Use data from multiple samples to draw inferences about a population and investigate variability in estimates of the characteristic of interest. | 7.DSP.A.1.a-c <br> Understand that statistics can be used to gain information about a population by examining a sample of the population. <br> a. Understand that a sample is a subset of a population. |

\(\left.$$
\begin{array}{|l|l|l|}\hline \begin{array}{l}\text { Unit End Date: } \\
\text { May } 2\end{array} & \begin{array}{l}\text { 7.DSP.B.4 } \\
\text { Compare the numerical measures of center, } \\
\text { Unit Assessment } \\
\text { Window: } \\
\text { Apr. 25-May } 9\end{array} & \begin{array}{l}\text { (rom two random samples to draw inferences about } \\
\text { fre population. }\end{array}\end{array}
$$ \begin{array}{l}b. Understand that generalizations from a sample are <br>
valid only if the sample is representative of the <br>
population. <br>
c. Understand that random sampling is used to produce <br>

representative samples and support valid inferences.\end{array}\right]\)| 7.DSP.B.3 |
| :--- |
| Analyze different data distributions using statistical |
| measures. |

