Important Notes for Teachers:

- The vocabulary cards in this file match the Common Core, the math curriculum adopted by the Utah State Board of Education, August 2010.
- The cards are arranged alphabetically.
- Each card has three sections.
  - Section 1 is only the word. This is to be used as a visual aid in spelling and pronunciation. It is also used when students are writing their own “kid-friendly” definition and drawing their own graphic.
  - Section 2 has the word and a graphic. This graphic is available to be used as a model by the teacher.
  - Section 3 has the word, a graphic, and a definition. This is to be used for the Word Wall in the classroom. For more information on using a Word Wall for Daily Review – see “Vocabulary – Word Wall Ideas” on this website.
- These cards are designed to help all students with math content vocabulary, including ELL, Gifted and Talented, Special Education, and Regular Education students.

For possible additions or corrections to the vocabulary cards, please contact the Granite School District Math Department at 385-646-4239.

Bibliography of Definition Sources:

Two variables have a negative association when the values of one variable tend to decrease as the values of the other variable increase.
No solution would mean that there is no answer to the equation. It is impossible for the equation to be true no matter what value we assign to the variable. Infinite solutions would mean that any value for the variable would make the equation true.
A scatterplot, which does not form a straight line, is said to have a nonlinear association.
Equation whose graph does not form a straight line (linear) is called a nonlinear function.
non-vertical line

non-vertical line

non-vertical line

All lines which have a defined slope.
A diagram that represents numbers as points on a line.
ordered pair

(-5, 2)

(x, y)

A pair of numbers that gives the coordinates of a point on a grid in this order (horizontal coordinate, vertical coordinate). Also known as a coordinate pair.
The intersection of the $x$- and $y$-axes in a coordinate plane, described by the ordered pair $(0, 0)$. 
An outlier is a piece of data that doesn’t seem to fit with the rest of a data set.
output

\[ f(x) = 2(x + 1) - 7 \]

input:  \( x = 3 \)

\[ f(3) = 2(3 + 1) - 7 \]
\[ = 2(4) - 7 \]
\[ = 8 - 7 \]
\[ = 1 \]

output:  1

A value of the dependent variable.
(Generally an answer to an equation.)
Two lines in the same plane that never intersect. Parallel lines have the same slope.
perfect square

perfect square

10 × 10 = 10^2 = 100
–6 × –6 = (–6)^2 = 36

5 × 5 = 5^2 = 25

The product of an integer and itself.
Two variables have a positive association when the values of one variable tend to increase as the values of the other variable increase.
A number with 10 as a base and an integer exponent.

\[
10^2 = 10 \times 10 = 100 \\
10^4 = 10 \times 10 \times 10 \times 10 = 10,000 \\
10^{-2} = \frac{1}{10} \times \frac{1}{10} = \frac{1}{100}
\]
Statement: There is a prime number between 45 and 54.

Proof: We examine one by one, the numbers between 45 and 54, until a prime is found. If no prime is found, the statement is false.

<table>
<thead>
<tr>
<th>Number</th>
<th>Is it prime?</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>No, because it's divisible by 5</td>
</tr>
<tr>
<td>46</td>
<td>No, because it's divisible by 2</td>
</tr>
<tr>
<td>47</td>
<td>Yes, 47 because is only divisible by 1 and 47</td>
</tr>
</tbody>
</table>

Conclusion: The statement is true. (no need to check the rest of the numbers from 48 to 54)

A proof is a logical argument in which each statement you make is backed up by a reason that is accepted as true.
The equation that will represent this data is \( y = 4.24x \), where \( x \) is the number of gallons of gasoline and \( y \) is the total cost.

<table>
<thead>
<tr>
<th>Gallons of Gasoline</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>4.24</td>
</tr>
<tr>
<td>2</td>
<td>8.48</td>
</tr>
<tr>
<td>3</td>
<td>12.72</td>
</tr>
</tbody>
</table>

Two quantities \( x \) and \( y \) have a proportional relationship if \( y \) is always a constant multiple of \( x \). A relationship is proportional if it can be described by equivalent ratios.
Pythagorean Theorem

In any right triangle, the sum of the squares of the length legs \((a\) and \(b)\) is equal to the square of the length of the hypotenuse \(c\).

\[
a^2 + b^2 = c^2
\]

\(a = 3\)
\(b = 4\)
\(c = 5\)

\(3^2 + 4^2 = 5^2\)
\(9 + 16 = 25\)
If $c$ is the longest side of a triangle, and $a$ and $b$ are the lengths of the other two sides, and $c^2 = a^2 + b^2$, then the triangle is a right triangle.
Radicals are the opposite operation of applying exponents.

2 cubed, $2^3 = 8$
The cubed root of 8, $\sqrt[3]{8} = 2$

3 to the 4th power, $3^4 = 81$
The 4th root of 81, $\sqrt[4]{81} = 3$
The ratio of the change in the output value and change in the input value of a function.

Change in the output \[ \frac{125 - 75}{5 - 3} = \frac{50}{2} = 25 \]
A number that can be expressed as a ratio of two integers.
A transformation such that if a point \( A \) is on line \( r \), then the image of \( A \) is itself, and if a point \( B \) is not on line \( r \), then it is image \( B' \) is the point such that \( r \) is the perpendicular bisector of \( BB' \).
A relative frequency table is a chart that shows the popularity or mode of a certain type of data based on the population sampled.

<table>
<thead>
<tr>
<th></th>
<th>Dance</th>
<th>Sports</th>
<th>Movies</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>0.32</td>
<td>0.12</td>
<td>0.16</td>
<td>0.60</td>
</tr>
<tr>
<td>Men</td>
<td>0.04</td>
<td>0.20</td>
<td>0.16</td>
<td>0.40</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.36</td>
<td>0.32</td>
<td>0.32</td>
<td>1.00</td>
</tr>
</tbody>
</table>
A decimal, which has repeating digits or a repeating pattern of digits.
A transformation such that for any point \( V \), its image is the point \( V' \), where \( RV = RV' \) and \( m \angle VRV' = x^\circ \). The image \( R \) itself. The positive number of degrees \( x \) that a figure rotates is the \textit{angle of rotation}.
In real-life, the length of this van may measure 240 inches. However, the length of the van above is 2 inches. You can write this scale factor as 1:20 or 1/20 or 1 to 20.

A scale is a ratio that compares a length in a scale drawing to the corresponding length in the actual object.
scatter plot

A graphic tool used to display the relationship between two quantitative (numerical) variables.
Scientific notation is the way that scientists easily handle very large numbers or very small numbers.
sequence

2, 5, 8, 11, 14, 17...

What is the pattern?

A set of numbers arranged in a special order or pattern.
When two figures are similar, the ratios of the lengths of their corresponding sides are equal.
Two triangles are similar if and only if the corresponding sides are in proportion and the corresponding angles are congruent.
Slope describes steepness, incline, or grade of a line. A higher slope value indicates a steeper incline. The slope of a line is the ratio of the change in $y$ over the change in $x$. 

$$\text{slope} = \frac{\Delta y}{\Delta x}$$
The formula used to find the slope of a line. Slope is often represented with the variable $m$.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - 1}{4 - 0} = \frac{2}{4} = \frac{1}{2}$$

$$m = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x}$$

$m = \frac{y_2 - y_1}{x_2 - x_1}$, where $x_2 - x_1 \neq 0$
The equation of a straight line in the form $y = mx + b$ where $m$ is the slope of the line and $b$ is its $y$-intercept.
Examples:

- The only solution for the equation $2x - 15 = -3$ is $x = 4$.

- The solutions which satisfy the inequality $2x + 3 \leq 7$ are all values which are less than or equal to $x$, denoted $x \leq 2$, or $(-\infty, 2]$.

Any and all value(s) of the variable(s) which satisfies an equation, or inequality.
The square root of a number is a number when it is multiplied by itself, equals the original number.

\[
5 \times 5, \ 5^2 = 25 \\
\sqrt{25} = 5 = 2 \\
9 \times 9, \ 9^2 = 81 \\
\sqrt{81} = 9
\]
A list of numbers that are used to substitute one variable, such as within an equation of a line or other functions, to find the value of the other variable.
terminating decimal

A decimal which has a finite number of digits.

\[
\begin{align*}
\frac{1}{4} &= 0.25 \\
\frac{1}{8} &= 0.125 \\
\frac{1}{5} &= 0.2 \\
\frac{1}{10} &= 0.1
\end{align*}
\]
transformation

To change the position of a shape on a coordinate plane. There are three basic transformations: translations, reflections, rotations.
A transformation that moves points the same distance in the same direction.
A line that cuts across two or more (usually parallel) lines.
A method of approximating a decimal number by dropping all decimal places past a certain point without rounding.
two-dimensional figure

Having length and width.
Having area, but not volume.
(also known as a plane figure)
A frequency table is a table that shows the total for each category or group of data.
**unit rate**

The ratio of two measurements in which the second term (denominator) is 1.

Cereal is $0.43 per 1 ounce.
A quantity that changes or can have different values. A symbol, usually a letter that can stand for a variable quantity.
vertical axis

vertical axis

vertical axis

The $y$-axes in a plane Cartesian coordinate plane.
A vertical intercept is a point where a line crosses the vertical axis, or y-axis, on the Cartesian coordinate plane.
The amount of 3-dimensional space a cone occupies. Volume is capacity.
Volume (cylinder)

The amount of 3-dimensional space a cylinder occupies. Volume is capacity.

\[ V = \pi r^2 h \]
Volume (sphere)

The amount of 3-dimensional space a sphere occupies. Volume is capacity.

\[ V = \frac{4}{3} \pi r^3 \]
In a Cartesian grid, the horizontal axis.

$x$-axis
In an ordered pair, the value that is always written first.
A point where a line crosses the horizontal axis, or $x$-axis, on the Cartesian coordinate plane.
In a Cartesian grid, the vertical axis.

$y$-axis
In an ordered pair, the value that is always written second.
A point where a line crosses the vertical axis, or y-axis, on the Cartesian coordinate plane.