**Introduction**

The resources found here help students practice prior skills that will promote understanding of what they are learning now, connect ideas to other areas, or get a different perspective on ideas they are currently learning. It does not replace attending class regularly, working hard, or a quality teacher. It can provide extra help when a student is stuck on a homework problem or struggling with a math concept. The skills covered in this guide are like the foundation skills of an athlete. A basketball player must know how to dribble, pass, and shoot but these skills are not everything that a player needs to win a game. A math student must know the basic skills but must also learn to think and communicate mathematically, to solve problems, and apply what has been learned to new concepts.

**How To Use This Guide**

6th Grade

<table>
<thead>
<tr>
<th>Domain</th>
<th>Competencies or Big Ideas</th>
<th>Videos &amp; Resource Links</th>
</tr>
</thead>
</table>
| Number System   | BIG IDEA # 1: Any rational number can be represented in infinitely many equivalent symbolic forms. | Fraction Introduction
|                 |                                                                                          | Identifying Parts of a Fraction                                                          |
|                 |                                                                                          | Recognizing Fractions                                                                    |
|                 |                                                                                          | Fraction Numerator and Denominator                                                      |
|                 |                                                                                          | Plotting Fractions on the Number Line                                                   |
|                 |                                                                                          | Fraction Word Problem 1                                                                 |

- The broad category of the math.
- Use this category to narrow down where to look for a resource.
- A list of the most important concepts and skills in the Domain.
- Use this category to find the exact skill or concept that is being learned.
- These are links to internet resources that focus on the important skills and concepts.
- Control-Left Click on any link to open in your web browser.
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| Number System       | BIG IDEA # 1: Any rational number can be represented in infinitely many equivalent symbolic forms. | Fraction Introduction  
Recognizing Fractions  
Fraction Numerator and Denominator  
Plotting Fractions on the Number Line  
Fraction Word Problem 1  
Decimal Place Value  
Comparing Decimals  
Decimals on a Number Line  
Points on a Number Line  
Percents  
Percents 2  
Finding Percents  
Representing a Fraction as a Decimal, Percent, and Fraction  
Converting Decimals to Percents 1  
Converting Decimals to Percents 2 |
|                     | BIG IDEA # 2: Computation with rational numbers is an extension of computation with whole numbers but introduces some new ideas and processes. | Adding Fractions with Like Denominators  
Subtracting Fractions  
Adding and Subtracting Fractions  
Adding and Subtracting Fractions with Unlike Denominators  
Subtracting Fractions with Unlike Denominators  
Adding Decimals  
Adding Decimals 2  
Adding Decimals 3  
Subtracting Decimals  
Adding and Subtracting Decimal Word Problems  
Subtracting Decimal Word Problems  
Growing by a Percent  
Solving Percent Problems  
Solving Percent Problems 2  
Solving Percent Problems 3 |
| Ratios and Proportions | BIG IDEA #1: Reasoning with ratios involves attending to and coordinating two quantities. | Introduction to Ratios  
Describing Ratios  
Ratio Word Problem 1  
Word Problem 2 |
### BIG IDEA # 3: A number of mathematical connections link ratios and fractions.

- Ratios as Fractions in Simplest Terms
- Simplifying Rates and Ratios

### BIG IDEA # 4: Ratios can be meaningfully reinterpreted as quotients.

- Proportion Validity

### BIG IDEA # 5: A rate is a set of infinitely many equivalent ratios.

- Solving Ratio Problems with Table Exercises
- Solving Ratio Problems with Table Exercises 2
- Solving Ratio Problems with Table Exercises 3

### Expression and Equations

**BIG IDEA # 1:** Addition, subtraction, multiplication, and division operate under the same properties in algebra as they do in arithmetic.

- Commutative Law of Addition
- Commutative Property of Addition
- Commutative Law of Multiplication
- Associative Law of Addition
- Associative Law of Multiplication
- Number Properties and Absolute Value
- Identity Property

**BIG IDEA # 2:** A mathematical statement that uses an equals sign to show that two quantities are equivalent are called an equation.

- Equality
- Simple Equation

**BIG IDEA # 3:** Variables are versatile tools that are used to describe mathematical ideas in succinct ways.

- What is a Variable
- One Step Equation
- One Step Equation 2

**BIG IDEA # 4:** Quantitative reasoning extends relationships between and among quantities to describe and generalize relationships among these quantities.

- Interpreting Linear Graphs
- Plotting X,Y Relationships

### Geometry and Measurement

**BIG IDEA #1:** Two- and three-dimensional objects with or without curved surfaces can be described, classified, and analyzed by their attributes.

- Perimeter and Area Basics
- Area and Perimeter
- Perimeter and Area of Triangles
- Triangle Area Proof
- Area of Equilateral Triangle
- Radius, Diameter and Circumference
- Area of Circle
- Quadrilaterals
- Area of Parallelogram
- Perimeter of Polygon
- Perimeter and Area of a Non-Standard Polygon
### Statistics and Probability

<table>
<thead>
<tr>
<th>BIG IDEA # 1: There are special numerical measures that describe the center and spread of numerical data sets.</th>
<th>Mean, Median, and Mode Finding Mean, Median, and Mode Exploring Mean, Median, and Mode Average Word Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIG IDEA # 2: Data can be represented visually using tables, charts, and graphs. The type of data determines the best choice of visual representation.</td>
<td>Box and Whisker Plot Reading Bar Graphs Histograms Line Graphs Pie Graph</td>
</tr>
<tr>
<td>BIG IDEA # 3: The chance of an event occurring can be described numerically by a number between 0 and 1 inclusive and used to make predictions about other events.</td>
<td>Basic Probability Probability Described as Between 0 and 1</td>
</tr>
</tbody>
</table>

### Post MSP

<table>
<thead>
<tr>
<th>BIG IDEA # 1: Relationships can be described and generalizations made for mathematical situations that have numbers or objects that repeat in predictable ways.</th>
<th>Theoretical Probability Theoretical Probability 2 Theoretical Probability 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIG IDEA # 2: Mathematical rules (relations) can be used to assign members of one set to members of another set. A special rule (function) assigns each member of one set to a unique member of the other set.</td>
<td>What is a function Difference Between Equations and Functions Function Example</td>
</tr>
</tbody>
</table>