

Michigan Center School District Math Department Curriculum

Updated October 21, 2014

Power Standard

- Most important skills defined within a grade level/course
- Expect proficiency (according to grade level ranges or 75%)

Grade Level/Course 7th Grade Pre-Algebra

Sequence of Units

• Unit 1 Two Dimensional Geometry

○ Power Standards

1. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

- 7.GB.5

○ Vocabulary/Key Concepts

- | | |
|-----------------------------------|--|
| 1. adjacent | 8. Radius |
| 2. vertical | 9. parallel |
| 3. complementary | 10. perpendicular |
| 4. supplementary | 11. isosceles triangle, right triangle |
| 5. Alternate/Consecutive Exterior | 12. acute and obtuse angle |
| 6. Alternate/Consecutive interior | 13. quadrilateral |
| 7. angle | |

• Unit 2 Operations w/ Positive and Negative Rational #s

1. Understand/Master addition of integers and subtraction of rational numbers by adding the additive inverse.

- 7.NS.A.1c, 7.NS.A.1d.

2. Master multiplication/division of integers/rational numbers.

- 7.NS.A.2, 7.NS.A.2a, 7.NS.A.2b

○ Vocabulary/Key Concepts

- | | |
|--|-----------------------------|
| 1. absolute value | 4. inverse operations |
| 2. comparing and ordering rational numbers | 5. operations with integers |
| 3. integers | 6. opposites |
| | 7. positive/negative |

• Unit 3 Proportional Reasoning and Similarity

○ Power Standards

1. Identify and compute the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships

7.RP.A.1, 7.RP.A.2b

2. Solve problems involving scale drawings and similar figures
7.G.A.1

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- **Vocabulary/Key Concepts**

- | | |
|---|-------------------------------------|
| 1. congruency | 5. scale |
| 2. corresponding parts of similar figures | 6. scale factor |
| 3. enlarging and shrinking plane figures | 7. similarity |
| 4. proportional relationships in geometry | 8. transformations of plane figures |

- **Unit 4 Ratio, Proportion, and Percent**

- **Power Standards**

1. Use proportional relationships to solve multistep ratio and percent problems.
 - 7.RP.A.3
2. Use variables to represent quantities in mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about ratio and proportion problems.
 - 7.EE.B.4

- **Vocabulary/Key Concepts**

- | | |
|--|---------------|
| 1. constant of proportionality (unit rate, scale factor) | 5. percent |
| 2. constant rate of change | 6. proportion |
| 3. direct variation | 7. rate |
| 4. linear equation | 8. ratio |
| | 9. unit rate |

- **Unit 5 Algebraic Expressions and Equations**

- **Power Standards**

1. Master solving multi-step equations using applied properties to add, subtract, factor, and expand linear expressions with rational coefficients.
 - 7.EE.A.1
2. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers.
 - 7.EE.B.3

- **Vocabulary/Key Concepts**

- | | |
|---|------------------------------------|
| 1. "breakeven" point / intersection point | 7. non-proportional |
| 2. coefficient | 8. origin |
| 3. constant term | 9. proportional – direct variation |
| 4. constant rate of change | 10. slope |
| 5. linear equation | 11. variable |
| 6. inequalities | 12. x and y-intercept |

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• **Unit 6 Measurement and Shape in 2- and 3- Dimensions**

○ **Power Standards**

1. Develop a conceptual understanding of formulas for circumference, area, surface area, and volume.

- 7.G.B.6
- 7.G.B.4

○ **Vocabulary/Key Concepts**

- | | |
|------------------|------------------|
| 1. area | 9. pi (π) |
| 2. base | 10. prism |
| 3. circle | 11. pyramid |
| 4. circumference | 12. radius |
| 5. diameter | 13. surface area |
| 6. dimensions | 14. vertex |
| 7. edge | 15. volume |
| 8. face | |

• **Unit 7 Probability**

○ **Power Standards**

1. Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
 - 7.SP.C.8
2. Find probabilities of simple events comparing experimental and theoretical probability.

- 7.SP.C 5-7

○ **Vocabulary/Key Concepts**

1. compound events
2. equally likely
3. experimental probability
4. fairness
5. outcome
6. probability
7. sample space
8. simple events
9. theoretical probability

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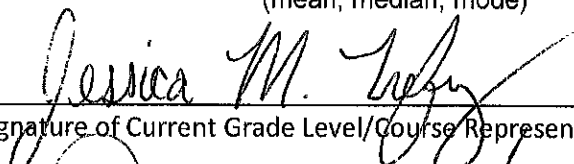
• **Unit 8 Describing Variability and Compare Groups**

○ **Power Standards**

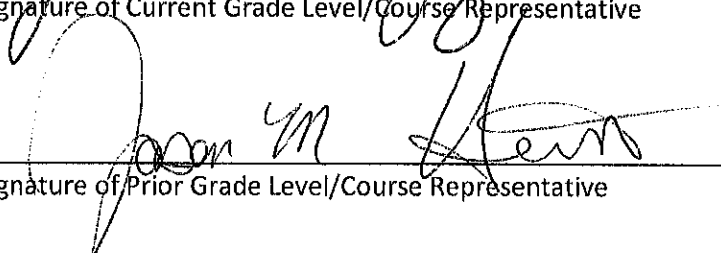
1. Draw conclusions and comparisons through the use of graphs (dot plot and box plot).
 - 7.SP.B.3.
2. Use measures of center and measures of variability for numerical data from random samples to draw comparisons about two populations.
 - 7.SP.B.4.

○ **Vocabulary/Key Concepts**

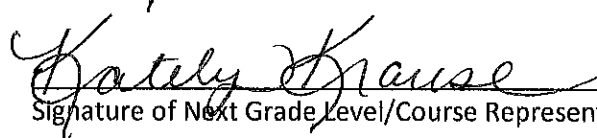
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|--|--|
| 1. population | 5. (range, interquartile range, outliers, mean absolute deviation) |
| 2. random sample | |
| 3. biased sample | |
| 4. measures of center (mean, median, mode) | 6. inference |



Signature of Current Grade Level/Course Representative



Signature of Prior Grade Level/Course Representative



Signature of Next Grade Level/Course Representative

Middle School Goals

“Power Strands/Clusters”

- Integers (Mult, Div, Add, Sub)
- Solve Equations
- Linear Functions – Any Representation
- Proportions