

8<sup>th</sup> grade New York State Standards  
“Batter Up”

**Problem Solving**

8.PS.1 Use a variety of strategies to understand new mathematical content and to develop more efficient methods

8.PS.2 Construct appropriate extensions to problem situations

8.PS.3 Understand and demonstrate how written symbols represent mathematical ideas

8.PS.7 Understand that there is no one right way to solve mathematical problems but that different methods have advantages and disadvantages

8.PS.8 Understand how to break a complex problem into simpler parts or use a similar problem type to solve a problem

8.PS.9 Work backwards from a solution

8.PS.10 Use proportionality to model problems

8.PS.11 Work in collaboration with others to solve problems

8.PS.12 Interpret solutions within the given constraints of a problem

8.PS.13 Set expectations and limits for possible solutions

8.PS.14 Determine information required to solve the problem

8.PS.15 Choose methods for obtaining required information

8.PS.16 Justify solution methods through logical argument

8.PS.17 Evaluate the efficiency of different representations of a problem

**Reasoning and Proof**

8.RP.2 Use mathematical strategies to reach a conclusion

8.RP.5 Develop, explain, and verify an argument using mathematical ideas and language

8.RP.8 Apply inductive reasoning in making and supporting mathematical conjectures

### **Communication**

- 8.CM.1 Provide a correct, complete, coherent, and clear rationale for thought process used in problem solving
- 8.CM.2 Provide an organized argument which explains rationale for strategy selection
- 8.CM.3 Organize and accurately label work
- 8.CM.6 Analyze mathematical solutions shared by others
- 8.CM.7 Compare strategies used and solutions found by others in relation to their own work
- 8.CM.9 Increase their use of mathematical vocabulary and language when communicating with others
- 8.CM.10 Use appropriate language, representations, and terminology when describing objects, relationships, mathematical solutions, and rationale

### **Connection**

- 8.CN.1 Understand and make connections among multiple representations of the same mathematical idea
- 8.CN.2 Recognize connections between subsets of mathematical ideas
- 8.CN.3 Connect and apply a variety of strategies to solve problems
- 8.CN.5 Understand how concepts, procedures, and mathematical results in one area of mathematics can be used to solve problems in other areas of mathematics
- 8.CN.6 Recognize and provide examples of the presence of mathematics in their daily lives
- 8.CN.7 Apply mathematical ideas to problem situations that develop outside of mathematics
- 8.CN.8 Investigate the presence of mathematics in careers and areas of interest
- 8.CN.9 Recognize and apply mathematics to other disciplines, areas of interest, and societal issues

### **Representation**

- 8.R.2 Explain, describe, and defend mathematical ideas using representations
- 8.R.3 Recognize, compare, and use an array of representational forms
- 8.R.4 Explain how different representations express the same relationship

8.R.5 Use standard and non-standard representations with accuracy and detail

8.R.6 Use representations to explore problem situations

8.R.7 Investigate relationships between different representations and their impact on a given problem

8.R.8 Use representation as a tool for exploring and understanding mathematical ideas

### **Number Sense and Operations**

8.N.5 Estimate a percent of quantity, given an application

8.N.6 Justify the reasonableness of answers using estimation