

Standards for Mathematical Practice

and Excel Math Grade 5

The Common Core State Standards for Mathematical Practice are integrated into Excel Math lessons. Below are some examples of how to include these Practices into the tasks and activities your students will complete throughout the year.

Mathematical Practices

1. Make sense of problems and persevere in solving them. Mathematically proficient students examine problems and tasks, and solve problems by applying their understanding of operations with whole numbers, decimals and fractions including mixed numbers. They solve problems related to volume and measurement conversions. They look for efficient ways to represent and solve problems. They complete a task by asking, "Does this make sense?" "What is the most efficient way to solve this problem?" and "Can I solve the problem a different way?"

2. Reason abstractly and quantitatively. Mathematically proficient students recognize that a number represents a specific quantity. They connect quantities to written symbols and create a logical representation of the problem. They extend this understanding from whole numbers to their work with fractions and decimals. Students write simple expressions that record calculations with numbers and represent or round numbers using place value concepts.

3. Construct viable arguments and critique the reasoning of others. In Fifth Grade, mathematically proficient students may construct arguments using objects, pictures and drawings. They explain calculations based on models, properties of operations and rules that generate patterns. They explain the relationship between volume and multiplication. Students may ask questions such as, "How did you get that?" and "Why is that true?" They can explain their thinking to others and critique each others' reasoning and strategies.

4. Model with mathematics. Mathematically proficient students represent problems in multiple ways including numbers, words, drawing pictures, using objects, making a chart or list, completing a graph, creating equations, etc. Students need opportunities to connect these representations and explain their connections. They complete a task by asking, "Does this make sense?" They evaluate the utility of models to find which are the most efficient and useful to solve problems.

5. Use appropriate tools strategically. In Fifth Grade, mathematically proficient students consider the available tools when solving an equation. For example, they may use unit cubes to fill a rectangular prism and then use a ruler to measure the dimensions. They use graph paper to accurately create graphs and solve problems or make predictions from real-world data.

6. Attend to precision. Mathematically proficient students use clear and precise language in discussions. They use appropriate terminology when referring to expressions, fractions, geometric figures and coordinate grids. They are careful when specifying units of measure and using symbols. For example, when calculating the volume of a rectangular prism they use cubic units.

7. Look for and make use of structure. In Fifth Grade, mathematically proficient students carefully look for patterns and structure. Students use properties of operations as strategies to add, subtract, multiply and divide whole numbers, fractions and decimals. Students notice numerical patterns and relate them to a rule or a graphical representation.

8. Look for and express regularity in repeated reasoning. Mathematically proficient students use repeated reasoning to understand algorithms and to fluently multiply multi-digit numbers, decimals and fractions. Students explore operations with fractions using visual models.