

Standards for Mathematical Practice

and Excel Math Grade 6

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 solve real world problems through the application of algebraic and geometric concepts. These problems involve ratio, rate, area and statistics. Students seek the meaning of a problem and look for efficient ways to represent and solve it. They may check their thinking by asking themselves, "Does this make sense?" "What is the most efficient way to solve this problem?" and "Can I solve the problem a different way?" They check their answers using a different method.

2. Reason abstractly and quantitatively. Mathematically proficient students represent a wide variety of real world contexts through the use of real numbers and variables in mathematical expressions, equations and inequalities. Students contextualize to understand the meaning of the number or variable as related to the problem and decontextualize to manipulate symbolic representations by applying properties of operations.

3. Construct viable arguments and critique the reasoning of others. In Sixth Grade, mathematically proficient students construct arguments using verbal or written explanations accompanied by expressions, equations, inequalities, models, and graphs, tables, and other data displays (i.e. dot plots, histograms, etc.). They critically evaluate their own thinking and the thinking of others. Students ask questions such as, "How did you get that?" and "Why is that true?" They explain their thinking to others and respond to others' reasoning and strategies.

4. Model with mathematics. In Sixth Grade, students model problems symbolically, tabularly, graphically and contextually. They form expressions, equations or inequalities from real world contexts and connect symbolic and graphical representations. Student use number lines to represent inequalities and use measures of center and variability and data displays (e.g. histograms) to compare data sets. They explain the connections between representations.

5. Use appropriate tools strategically. Mathematically proficient students consider available tools when solving a problem and decide when certain tools might be helpful. For example, they may represent figures on the coordinate plane to calculate area. Students might use physical objects or drawings to construct nets and calculate the surface area of three-dimensional figures.

6. Attend to precision. Mathematically proficient Sixth Grade students use clear and precise language in discussions. They use appropriate terminology when referring to rates, ratios, geometric figures, data displays and components of expressions, equations or inequalities. For example, when calculating the volume of a rectangular prism they use cubic units.

7. Look for and make use of structure. Mathematically proficient students carefully look for patterns and structure. Students recognize patterns that exist in ratio tables recognizing both the additive and multiplicative properties. Students compose and decompose two- and three-dimensional figures to solve real world problems involving area and volume.

8. Look for and express regularity in repeated reasoning. Mathematically proficient students use repeated reasoning to understand algorithms. They divide multi-digit numbers and perform operations with multi-digit decimals. They make models to show $a/b \div c/d = ad/bc$.