

Mathematical Process Standards

and Excel Math

The Texas Mathematical Process Standards are integrated into Excel Math lessons. Below are some examples of how we include these Processes into the tasks and activities your students will complete throughout the year.

Mathematical Processes

1. Apply mathematics to problems arising in everyday life, society and the workplace.

Mathematically proficient students know that doing math involves solving problems and discussing how they solved them. Students are able to explain the meaning of a problem and look for ways to solve it. They consider analogous problems. Students use concrete objects or pictures to help them conceptualize and solve problems. They check their answers and ask, "Does this make sense?" Students listen to the strategies of others and use various problem-solving methods.

2. Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution.

Mathematically proficient students know that doing mathematics involves solving problems and discussing how they solved them. Students explain to themselves the meaning of a problem and look for ways to solve it.

3. Select appropriate tools to solve problems.

In third grade, students select from the available tools when solving a mathematical problem. They use real objects, manipulatives, paper and pencil as well as technology. They also use techniques such as mental math, estimation and number sense as appropriate to solve problems. They may use graph paper to find all the possible rectangles that have a given perimeter. They compile the possibilities into an organized list or table.

4. Communicate mathematical ideas, reasoning, and their implications.

In third grade, mathematically proficient students use multiple representations, including symbols, diagrams, graphs, and language as appropriate. They construct arguments using concrete references such as objects, pictures, and drawings. They justify their conclusions as they participate in discussions that the teacher facilitates by asking questions such as "How did you get that?" and "Why is that true?"

5. Create and use representations to organize, record and communicate mathematical ideas.

Mathematically proficient third graders represent problem situations in multiple ways including numbers, mathematical words, drawing pictures, using objects, acting out, making a chart (or table or graph), creating equations, etc. Students are given many opportunities to generate various mathematical representations and to solve equations and story problems. They describe their reasoning and explain connections between representations.

6. Analyze mathematical relationships to connect and communicate mathematical ideas.

Third grade students recognize that a number represents a specific quantity. They connect the quantity to written symbols and create a logical representation of the problem at hand, considering both the units involved and the meaning of quantities, not just how to compute them. Students look closely to discover a pattern or structure. They notice repetitive actions in computation and look for shortcut methods. If students are asked to find the product of 7×8 , they might decompose 7 into 5 and 2 and then multiply 5×8 and 2×8 to arrive at $40 + 16$ or 56.

7. Display, explain, and justify mathematical ideas and arguments using precise mathematical language.

Third grade students develop their mathematical communication skills (in written and oral form) and try to use clear and precise language in their discussions with others and in their own reasoning. They are careful to specify units of measure and state the meaning of the symbols they choose. For example, when giving the area of a rectangle, they answer in square units.