

Mathematical Practices

The Common Core mathematical practice standards are the foundation for mathematical thinking and practice for students as well as guidance that helps teachers modify their classrooms to approach teaching in a way that develops a more advanced mathematical understanding. Think of these standards as a guide to creating a more complex and absorbing learning experience that can be applied to everyday life, instead of being left in the classroom.

1. Make sense of problems and persevere in solving them.

The first Common Core mathematical practice standard is found in almost every math problem across the board. It means that students must understand the problem, figure out how to solve it, and then work until it is finished. Common Core standards encourage students to work with their current knowledge bank and apply the skills they already have while evaluating themselves in problem-solving. This standard is easily tested using problems with a tougher skill level than already mastered. While students work through more difficult problems, they focus on the process of solving the problem instead of just getting to the correct answer.

2. Reason abstractly and quantitatively

When trying to problem solve, it is important that students understand there are multiple ways to break apart the problem in order to find the solution. Using symbols, pictures or other representations to describe the different sections of the problem will allow students to use context skills rather than standard algorithms.

3. Construct viable arguments and critique the reasoning of others

This standard is aimed at creating a common mathematical language that can be used to discuss and explain math as well as support or object others' work. Math vocabulary is easily integrated into daily lesson plans in order for students to be able to communicate effectively. "Talk moves" are important in developing and building communication skills and can include such simple tasks as restating a fellow classmate's reasoning or even supporting their own reason for agreeing or disagreeing. Prompting students to participate further in class mathematical discussion will help build student communication skills.

4. Model with mathematics

Math doesn't end at the classroom door. Learning to model with mathematics means that students will use math skills to problem-solve real world situations. This can range from organizing different types of data to using math to help understand life connections. Using real world situations to show how math can be used in many different aspects of life helps math to be relevant outside of math class.

5. Use appropriate tools strategically

One of the Common Core's biggest components is to provide students with the assets they need to navigate the real world. In order for students to learn what tools should be used in problem solving it is important to remember that no one will be guiding students through the real world – telling them which mathematics tool to use. By leaving the problem open ended, students can select which math tools to use and discuss what worked and what didn't.

6. Attend to precision

Math, like other subjects, involves precision and exact answers. When speaking and problem-solving in math, exactness and attention to detail is important because a misstep or inaccurate answer in math can be translated to affect greater problem-solving in the real world. The importance in this step comes in the speaking demeanor of students to explain what is understood and what isn't. This is confusing to me.

7. Look for and make use of structure

When students can identify different strategies for problem solving, they can use many different skills to determine the answer. Identifying similar patterns in mathematics can be used to solve problems that are out of their learning comfort zone. Repeated reasoning helps bring structure to more complex problems that might be able to be solved using multiple tools when the problem is broken apart into separate parts.

8. Look for and express regularity in repeated reasoning

In mathematics, it is easy to forget the big picture while working on the details of the problem. In order for students to understand how a problem can be applied to other problems, they should work on applying their mathematical reasoning to various situations and problems. If a student can solve one problem the way it was taught, it is important that they also can relay that problem-solving technique to other problems.