



The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important “processes and proficiencies” with longstanding importance in mathematics education. They are sometimes referred to as the *8 Standards for Mathematical Practice*. In this and subsequent issues you will find excerpts from these practices as well as brief sketches from the **Conference Board of Mathematical Science** of the Common Core State Standards for Mathematical Practice as they apply to teaching in elementary school.

4. Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. **Model with mathematics.**
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

In elementary school, modeling with mathematics often involves writing an equation for a situation and then solving the equation to solve a problem about the situation. Students also model with mathematics when they draw a quadrilateral to show a route that started and ended at the same location and had four turns. At elementary school, modeling with mathematics is often *mathematizing*—which means focusing on the mathematical aspects of a situation and formulating it in mathematical terms. For example, students may notice shapes in objects around them, such as triangular bracing in chairs or quadrilaterals in collapsible gates. Teachers also need to help students notice math in the world around them.



Try this!

Go on a “Math Walk”. Look for examples of arrays in your school. What did you find? Where did you find them? Show the arrays you found using illustrations. Describe them.