

## Defining Mathematical Rigor

While teachers greatly influence the climate and conditions within their classrooms, mathematical rigor within classrooms is actually what the students are doing to increase their learning. Rigor is a direct result of active participation in deep mathematical thinking and intensive reasoning. The degree of mathematical rigor is determined by the knowledge and understanding attained by every student.

With this information, we realize the need to offer dual meanings for rigor. First, we need to define mathematical content rigor, but then we also need to define mathematical instructional rigor. This leads us to our two definitions of rigor.

**Content:** Mathematical rigor is the depth of interconnecting concepts and the breadth of supporting skills students are expected to know and understand.

Instructional rigor must be solidly based on challenging and worthwhile mathematical content. While content is essential, our focus in this book is on implementing the identified rigorous content through powerful instruction. For this reason, we offer a definition of instructional rigor.

**Instruction:** Mathematical rigor is the effective, ongoing interaction between teacher instruction and student reasoning and thinking about concepts, skills, and challenging tasks that results in a conscious, connected, and transferable body of valuable knowledge for every student.

We believe that mathematical rigor is a goal that can be achieved by effectively implementing the CCS Content Standards and Practices. To facilitate accomplishing the goal, we have developed the Proficiency Matrix, Rigor Analysis Form, and a Rigor Focus Guide.

**Premise:** Teaching the Common Core content using the Standards for Mathematical Practice to reach progressively higher levels of proficiency attains mathematical rigor.

Leaders and teachers must trust and believe in this premise: The Standards for Mathematical Practices, support visible thinking, ongoing formative assessment and intervention. These three factors work together to achieve higher levels of proficiency and, thus, achieve mathematical rigor. As teachers and leaders strive to implement the factors into action in classrooms, rigor is being attained. The journey may not always be easy, but the results are well worth the effort.

To download the three documents - Proficiency Matrix, Rigor Analysis Form, Rigor Focus Guide – please visit the Rigor tab at [www.mathleadership.com](http://www.mathleadership.com).