**Using the CCR Standards to Assess Math**

According to McTighe and Wiggins in the [Understanding by Design Framework](http://www.ascd.org/ASCD/pdf/siteASCD/publications/UbD_WhitePaper0312.pdf), assessment for understanding is critical. They have identifies several facets of understanding for assessment purposes. They believe that when a person truly understands she:

* can explain concepts, principles, and processes by putting it in their own words, teaching it to others, justifying their answers, and showing their reasoning,
* can interpret by making sense of data, text, and experience through images, analogies, stories, and models,
* can apply by effectively using and adapting what they know in new and complex contexts,
* can demonstrate perspective by seeing the big picture and recognizing different points of view;
* display empathy by perceiving sensitively and walking in someone else’s shoes, and
* have self-knowledge by showing metacognitive awareness, using

productive habits of mind, and reflecting on the meaning of the learning and experience (p.5).

These six facets of understanding for assessment encompass all content areas. However, the first three - explain, interpret, and apply – hold especially true for numeracy instruction. The instructional shift, “rigor,” requires that instructors teach for more than just procedural skill and fluency but also application and conceptual understanding. The aspects of application and conceptual understanding echo McTighe’s and Wiggins’ views of true understanding.

Thanks to the way some of the CCR Standards were written, it makes it easier to think about assessing in terms of these ways of understanding. Let’s look at an example:

*Find whole-number quotients and reminders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. (4.NBT.6)*

This standard requires students to not just be able to divide, but to use different strategies to do so. And, more importantly, the standard requires that students can illustrate and explain. In other words, students need to truly understand what they are doing when they divide.

As teachers design assessment tools to determine students’ ability to work with one-variable equations and inequalities, they should include more than just solving decontextualized problems. The standards ask students to understand what solving an equation means, begin able to use in in real-world situation, and to be able to create their own equations and inequalities. That doesn’t mean, however, that teachers have to design completely new classroom assessments. It means that teachers need to ask students to explain, to draw pictures, to justify their reasoning, and to provide real-world examples even when using more traditional assessments.

Teachers, even without paying attention to each individual standard during a lesson, can begin to informally assess for understanding and application by asking more of their students. Rather than simply asking for the right answer, or the “right” procedure to solve a problem teachers need to change their line of questioning to: “Draw a picture to prove your answer.” “Explain why you think that is correct.” “Are you sure? Prove it.” “Give me an example of how you would use this in your life.”

No matter whether teachers are focusing on math or language arts, they should be checking their students’ understanding. Teachers should be asking students to explain, interpret, apply, and understand and appreciate the thinking of others.