



## Landscapes of Learning Mathematics Professional Development for P-8 Teachers, Coaches & Supervisors

The WNY Master Teacher program is excited to offer this set of minicourses that focus on developing students' numerical understanding and fluency, and operational thinking across the elementary and middle grades. Common Core content development across the grade levels will provide opportunities for teachers to work together, share their thinking, and enhance their conceptual understanding of mathematical content. The framework of a landscape of learning that encompasses big ideas, strategies, and models<sup>1</sup> is central to the work we will engage in as is the perspective that students' mathematical thinking best develops through a progression that begins with contexts or concrete tasks followed by pictorial representations and that culminates in abstract perspectives. Each participant will receive a CTLE certificate for 12 hours of professional development per minicourse. First-time participants will also receive a set of 6 large dry-erase boards (24x32) for small group work presentation. Coffee and snacks will be served each morning and Panera lunch will be provided each day.

### **Landscapes I: July 10 & 11      9:00 AM - 3:30 PM, SAMC 259**

#### **Number Sense, Addition and Subtraction**

From counting and cardinality through place value, this minicourse will look at the big ideas relating to number, addition & subtraction from whole numbers to fractions, the strategies students utilize in developing those big ideas, and models that promote concrete understanding. Our discussions will focus on sharing classroom practices that foster students' growth across the landscape and take advantage of the range of grade level perspectives that will be represented. Number talks, number strings, tape diagrams, tools for thinking including the rekenrek and Digi-Blocks, all will be an integral part of the course as we consider how best to develop students conceptual understanding in concrete and pictorial representations and that lead to more abstract thinking. The content in Landscapes I will be the basis for development of ideas central to the focus of Landscapes II.

### **Landscapes II: July 12 & 13      9:00 AM - 3:30 PM, SAMC 259**

#### **Multiplication & Division**

Extending the discussion from Landscapes I, this minicourse will explore the landscape of learning for multiplication and division and the associated big ideas, strategies, and models. Discussions will include use of area models and number lines for developing pictorial representations across the grade levels, as well as number talks, number strings, and other classroom practices for thinking about multiplication and division. Partitive and measurement models for division will be developed and extended from whole numbers to fractions. Discussions will focus on sharing classroom practices that foster students' growth across the landscape and take advantage of the range of grade level perspectives that will be represented.

**These workshops are open to all P-8 teachers, coaches, and supervisors. Seating is limited so please register soon at <https://wnymasterteachers.wufoo.com/forms/math-landscapes-summer-2017/>**

**The cost for each workshop is \$100. We accept POs and credit cards.**

**If you have questions, please contact the WNY Master Teacher Program at [msmt@buffalostate.edu](mailto:msmt@buffalostate.edu)**

<sup>1</sup> The landscape model is based on the work of Catherine Fosnot as documented in her *Young Mathematicians at Work* series.