

# North State Mathematics Collaborative



These collaboratives will consist of two major areas of professional learning; content days focused on CA math standards and one-on-one individual coaching sessions.

In “Realizing the Power of Professional Learning,” Helen Timperley writes

*Professional learning requires teachers to be seriously engaged in their learning...Professional learning is the process for solving entrenched educational problems for underachieving student populations, it cannot be trivial. It needs to be ongoing and in depth because achieving the kinds of transformational changes required to make the difference will not happen with brief and superficial engagement of teachers.*

## Being a mathematics teacher...

Engaging students in the learning of mathematics is more than just memorizing procedures to get right answers. Mathematics teachers need to show students “the why and the where before the how.” Having a clear understanding of the math content, its connections and the achievement level descriptors enables a teacher to guide their students to understanding by choosing the best resources and instructional strategies.

## Content Days

Content training will focus on the critical areas of instruction for each grade span as defined by the CA mathematics framework and CA math standards. Teachers will experience teaching the CA Mathematics Standards for conceptual understanding and instruction that reflects the Standards for Mathematical Practice.

Shasta County Office of Education Instructional Services Department will provide **six** days of content training. Day 1 will be in the spring of 2017, and days 2 – 6 will be during the 2017-18 school year.

Specific information on content focus is located under each grade-span section on page 2.

## Coaching

The Silicon Valley Mathematic Initiative states that, “pedagogical content coaching is based on the premise that throughout their careers, teachers need to continue to grow in their knowledge of content and pedagogy. A content coach helps teachers to extend their understanding of mathematical knowledge, of instructional strategies, to assess student thinking and to develop effective lessons for all students in their classrooms.”

Content Coaching is a professional development model designed to promote student learning and achievement by having a coach and a teacher work jointly in specific settings, guided by conceptual tools.

Teachers will receive **four** rounds of individual classroom coaching. Each coaching session will include a pre-conference lesson planning between the coach and teacher, a lesson where the coach and teacher work together to teach, and a post-lesson reflection and next steps conference between the coach and teacher. These three steps represent a complete coaching cycle.

Specific information on content focus is located under each grade-span section on page 2.

## Overview

The CA Mathematics Standards were designed to help students gain proficiency with and understanding of mathematics across grade levels to give students a deeper understanding of the mathematics along with problem solving and critical thinking skills. The standards call for learning mathematical content in the context of real-world situations, using mathematics to solve problems, and developing the Standards for Mathematical Practice that are the “habits of mind” that foster mastery of mathematics content as well as mathematical understanding.

### **K-2<sup>nd</sup>**

Priorities and critical areas of instruction called out in the California Mathematics Framework in grades K-2 include counting and cardinality, addition and subtraction—concepts, skills, problem solving, and place value. Content and coaching sessions will focus on developing conceptual understanding in these areas, instructional strategies to foster deeper understanding of the content standards and the Standards for Mathematical Practice, as well as examining alignment of adopted curriculum in districts to the critical areas of instruction.

### **3<sup>rd</sup> – 5<sup>th</sup>**

Priorities and critical areas of instruction called out in the California Mathematics Framework in grades 3-5 include fractions and multiplication and division of whole numbers focusing on concepts, skills, and problem solving. Content and coaching sessions will focus on developing conceptual understanding in these areas, instructional strategies to foster deeper understanding of the content standards and the Standards for Mathematical Practice, as well as examining alignment of adopted curriculum in districts to the critical areas of instruction.

### **6<sup>th</sup> – 8<sup>th</sup>**

Priorities and critical areas of instruction called out in the California Mathematics Framework in grade 6-8 include ratios and proportional reasoning, early expressions and equations, arithmetic of rational numbers and linear algebra. Content and coaching sessions will focus on developing conceptual understanding in these areas, instructional strategies to foster deeper understanding of the content standards and the Standards for Mathematical Practice, as well as examining alignment of adopted curriculum in districts to the critical areas of instruction.

### **9<sup>th</sup> – 12<sup>th</sup>**

The CA Mathematics Standards for high school are designed to connect the conceptual clusters across grade levels to give students a deeper understanding of the mathematics along with problem solving and critical thinking skills. The standards call for learning mathematical content in the context of real-world situations, using mathematics to solve problems, and developing “habits of mind” that foster mastery of mathematics content as well as mathematical understanding. The emphasis on focus and coherences helps students with the skills and understanding needed to pursue complex tasks within each cluster.

COST:

\$3159 per teacher

Not included

- Substitute costs
- Stipends

**Additional Cost for mileage & and or other travel for out-of-county teachers**