

On Math Instruction at SLO Classical Academy

part of our Parent Education Literature Series

by Heidi Frago



Pure mathematics is, in its way, the poetry of logical ideas. ~Albert Einstein

A good foundation in math is essential to classical education, and we seek at SLO Classical Academy to stimulate the laying of this foundation by balancing structure with freedom, and rigor with creativity. We provide this type of instruction through several avenues. One is the way that we choose to teach math during classroom hours, described below. Another is by allowing some flexibility in the math curriculum choice parents use at home. While we highly recommend Saxon Mathematics because of the manner in which this program lays a foundation, we also understand that not all students learn math in the same way, and with permission, another curriculum may be utilized instead that is more appropriate to a specific student. One final way we encourage a good foundation in math is by emphasizing parental instruction and student practice at home — we encourage not only flashcards and practice tests, but math games, songs and fun skills building techniques as well.

After careful research and consideration, math instruction at SLO Classical Academy is guided not by a specific curriculum, but by teaching math strands within multi-age and heterogeneous groups. All students come to class with unique strengths and abili-

ties, and the heterogeneous grouping purposefully provides certain opportunities for students. First of all, it allows students to be both the teacher and the learner depending on their knowledge of the concepts introduced in class. You may have heard sayings alluding to the fact that a subject is not truly learned until one has taught it. Learning in a multi-age classroom gives the more advanced students the ability to practice their knowledge by mentoring others, thus fortifying their knowledge and reinforcing concepts introduced by the teacher. Secondly, the mixed grouping provides opportunity for exposure to math otherwise believed to be “above” a student’s developmental level in math, encouraging the highest level of learning possible. Thirdly, the way students are grouped also gives them the

chance to explore concepts that may not have been fully grasped the first time it was introduced, more firmly building the necessary foundations and again encouraging mastery.

In addition to the heterogeneous manner in which students are grouped for math instruction, math at the Classical Academy is also taught using strands from the California State Mathematics Standards as a guideline. The strands are a general map of mathematical abilities a student should successfully accomplish by the end of a specific grade level. The math standards cover the five main math strands (K-7th grade): number sense, algebra and

functions, measurement and geometry, statistics, data analysis and probability, and mathematical reasoning. The first four strands have a designated period of time as

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the focus of learning through the school year. The fifth strand, mathematical reasoning, does not have a time frame because critical thinking is the focus of all math instruction. Students are challenged to go beyond the “how to” steps and are encouraged to develop methods and strategies to help them become independent learners. These thought processes not only provide more success in math, but the skills learned will transfer as well to other areas of life and study.

Though the standards are written as grade specific, they build on each other as math skills are developed and therefore can be applied to any age group and learning level. In class all students focus on the same concepts, but at different levels of challenge. For example, the number sense strand has a sub-strand that begins with a student being able to use repeated addition (second grade), then builds to memorization of multiplication facts (third grade), and eventually evolves into applying the algorithm of multiplication to multi-digit

problems (fourth grade). All this is accomplished in a small classroom environment, where students benefit from thoughtful class discussions which develop their confidence and their creative and critical thinking skills. In

In addition, they benefit from a classroom teacher who not only knows and loves math, but knows their students intimately as well — excitement about math is “caught,” concepts are taught in a variety of helpful ways, and each student is encouraged and helped in their own math journey.

At SLO Classical Academy, we

believe that all students are unique learners and that math “readiness” cannot be determined by age. As with any subject matter, students tend to focus on learning information that is comfortable and/or familiar. Using the math standards as a guide opens more avenues for students to explore and does not inhibit learning based on grade level. Once proficiency is met at a certain level, the next level of the same math strand can be introduced, forming a continuous process in math learning. This continual process is key in a

firm foundation being laid for years of learning to come.

CA State standards can be found at: <http://www.cde.ca.gov/be/st/ss/mthmain.asp>

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Heidi earned her Bachelor of Science in Agricultural Business from Cal Poly and went on to earn her Multiple Subject Teaching Credential from Chapman University. She has experience teaching at both intermediate and middle school levels and is passionate about teaching - especially math and science!

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