California Department of Education
1430 N Street
Sacramento, CA 95814

Date: July 7th, 2023
Subject: Public Comment in Support of California's Mathematics Framework

Dear California Department of Education,

I am writing to provide my support for the proposed Mathematics Framework for California. As an educator and advocate for quality mathematics education, I commend the Department for its dedication to developing a comprehensive framework that aligns with research-based practices and addresses the needs of all students.

I would like to express my enthusiasm for the emphasis on mathematical thinking, problem-solving, and reasoning throughout the framework. These skills are crucial for students to develop a deep understanding of mathematics and apply their knowledge to real-world situations. By promoting these skills, the Mathematics Framework will empower students to become critical thinkers and lifelong learners.

Chapter 5 stands out as a significant advancement in mathematics education, as it specifically addresses the importance of data science skills for students in the modern era. The progressions outlined in this chapter provide clear and age-appropriate learning pathways, enabling students to develop a strong foundation in data literacy and engage in meaningful applications of mathematics to real-world scenarios.

I would also like to express my appreciation for the framework's effort to clarify various terms used throughout the document. The definitions and explanations provided for mathematical concepts and processes are thorough and beneficial for educators and students alike. However, I would like to recommend that the term "data cleaning" be included in the glossary or further elaborated within the framework. Clarifying this term will ensure a shared understanding among educators and students, as data cleaning is a crucial step in the data science process.

While the framework effectively connected mathematics with computer science standards, I believe there is an opportunity to establish additional connections with other disciplines. Mathematics has inherent ties with science, technology, engineering, and the arts. By emphasizing interdisciplinary connections and providing guidance on integrating mathematics with these disciplines, the framework can foster a holistic and well-rounded education, showcasing the interconnectedness of mathematics with various fields of study.

I appreciate the mention of specific tools that support data analysis and visualization in the framework. However, I would like to underscore the importance of incorporating commonly used programming languages into data science education. Proficiency in programming languages like Python and R has become increasingly vital in the field of data science. By prioritizing the inclusion of these programming languages in the framework, students will develop practical skills that align with industry demands, better preparing them for future careers and academic pursuits.

I would like to emphasize the alignment between the skills presented in the Mathematics Framework for California and the data skills assessed in the National Assessment of Educational Progress (NAEP). The NAEP data from 2011 to 2022 reveals a decline in average scores and achievement levels in mathematics for California, with an average scale score change of -6 and a grade level loss of -0.5. By incorporating data science concepts and emphasizing data literacy in the mathematics curriculum, as outlined in the framework, California can address this decline and equip students with the necessary skills to succeed in mathematics and beyond. The inclusion of data analysis, interpretation, and problem-solving skills will empower students to navigate the increasingly data-driven world, supporting their academic and career readiness.

In addition, I would like to highlight the growing recognition of the importance of data science education in other states across the country. For instance, Virginia has taken a significant step by creating and approving standalone data science standards, acknowledging the unique skill set required to navigate and analyze data effectively. Similarly, Utah is actively conducting a pilot program that includes standalone data science courses, accompanied by cohorts of professional development for teachers. These initiatives, along with the widespread adoption of the data science course code created by the National Center for Education Statistics (NCES) and the National School Courses for the Exchange of Data (SCED), demonstrate the increasing nationwide recognition of the need to equip students with data science skills. Almost half of the country has either implemented the SCED data science course code or developed their own data science course codes. By incorporating data science concepts into the Mathematics Framework for California, the state can join these leading efforts and ensure that its students are prepared for the data-driven world they will encounter in their academic and professional lives. This alignment with national trends will enable California students to develop the necessary tools to thrive in the data-driven world, remain competitive in an evolving job market, and contribute to the innovation and growth of the state.

Thank you for considering my testimony. I want to express my deep appreciation for the Mathematics Framework for California and emphasize how much I value it as an exceptional tool for teachers. The framework provides comprehensive guidance and innovative strategies that empower educators to deliver engaging instruction, fostering critical thinking, problem-solving, and data literacy skills among their students. By equipping teachers with the necessary resources and support, the framework ensures that students receive a high-quality mathematics education that prepares them for success in the 21st century. I firmly believe that the implementation of the Mathematics Framework will have a positive and transformative impact on mathematics education in California. Should you require any further information or have any questions, please do not hesitate to reach out to me. I eagerly anticipate the implementation of the Mathematics Framework and the incredible benefits it will bring to both teachers and students in California.

Sincerely,

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