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**What is mathematical modelling? Exploring prospective teachers' use of experiments to connect mathematics to the study of motion.**

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Summary: This paper focuses on the construction, development, and use of mathematical models by prospective science and mathematics teachers enrolled in a university physics course. By studying their involvement in an inquiry-based, experimental approach to learning kinematics, we address a fundamental question about the meaning and role of abstraction in modelling when such approaches involve students encountering and resolving experimental error. We use a "tensions" framework to explore the capability of learners to make necessary connections between abstract mathematical models and physical phenomena. (Contains 5 tables and 8 figures.) (ERIC)

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*Keywords:* teaching methods; physics; mathematics teachers; science teachers; mathematical models; motion; teacher education; college students; preservice teachers

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