



Highly Qualified Teachers

A position of the National Council of Teachers of Mathematics

Question: What qualities should a teacher have for students to learn mathematics well?

NCTM Position

Every student has the right to be taught mathematics by a highly qualified teacher—a teacher who knows mathematics well and who can guide students’ understanding and learning. A highly qualified teacher understands how students learn mathematics, expects all students to learn mathematics, employs a wide range of teaching strategies, and is committed to lifelong professional learning.

The No Child Left Behind (NCLB) legislation defines “highly qualified teachers” as teachers who have a bachelor’s degree and full state certification or licensure. But teaching mathematics well demands much more. Mathematics teaching at any level requires that teachers have an extensive knowledge of mathematics, including the specialized content knowledge specific to the work of teaching, as well as a knowledge of the mathematics curriculum and how students learn.

NCTM expects that high school teachers will have completed mathematics coursework equivalent to that required for a major in mathematics. Middle school teachers should have acquired the depth and proficiency in mathematics equivalent to at least an undergraduate minor in mathematics. Elementary teachers, resource teachers, and all others charged with providing instruction in mathematics should have completed the equivalent of at least three college-level mathematics courses that emphasize the mathematical structures essential to the elementary grades (including number and operations, algebra, geometry, data analysis, and probability). Furthermore, all teachers need to know how mathematics is used in interpreting the statements, solutions, and questions of students, using such responses to build future understandings.

All teachers must understand how students learn mathematics. They must know how to plan, conduct, and assess the effectiveness of mathematics lessons and know how and when to make teaching decisions (e.g., listening, modeling, questioning). Highly qualified teachers of mathematics not only understand—but also invest in—the particular culture of their students and school. They are adept at knowing how to actively engage students of diverse backgrounds and strengths in significant and challenging mathematical tasks that help them understand concepts, learn skills, and solve problems. A highly qualified mathematics teacher at any level recognizes the need for, and commits to, lifelong professional learning involving mathematics and its instruction. Overall, the mathematical knowledge, informed actions, positive attitudes, and high expectations of highly qualified mathematics teachers lead to mathematics learning, confidence, and the development of a positive attitude toward mathematics on the part of students.

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