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Section of Mathematics

Level: Master One (M 1)

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Module: English Language (The importance of Mathematics)

Thesis: Mathematics is Useful, Important, and Interesting

Mathematics classes are required of all students in American public schools, from entry through graduation. Why do we, as a society, require students to learn mathematics? Are these reasons good ones, and how should they inform the way mathematics is taught? Put another way -- as many frustrated students have -- "Who cares about math and when am I ever going to need it?"

Mathematician John Allen Paulos writes,

"As a mathematician, I'm often challenged to come up with compelling reasons to study mathematics. If the questioner is serious, I reply that there are three reasons or, more accurately, three broad classes of reasons to study mathematics. Only the first and most basic class is practical. It pertains to job skills and the needs of science and technology. The second concerns the understandings that are essential to an informed and effective citizenry. The last class of reasons involves considerations of curiosity, beauty, playfulness, perhaps even transcendence and wisdom." [Paulos, A Mathematician Reads the Newspaper)

Broadly speaking, we should study math (or anything) because it is Useful:

1. Mathematical problems abound in daily life.
2. Mathematical proficiency is required for many jobs.
3. Mathematics is essential for science, engineering, and research

Important:

A mathematically informed citizenry will make better economic and political decisions about risk, policy, and resource allocation.

Interesting:

1. "Mathematics, rightly viewed, possesses not only truth, but supreme beauty" (Bertrand Russell) and should be studied in its own right.
2. The landmark accomplishments of mathematics stand alongside the masterworks of art and music as cultural triumphs that all educated persons should be able to appreciate.
3. Doing mathematics teaches patterns of problem-solving and insight that transfer to other knowledge domains.
4. Mathematical proof teaches skills in rigor, argumentation and persuasion that transfer to other knowledge domains