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Jerome S. Epstein* (jerepst@att.net), Mathematics Dept., 6 Metrotech Center, Brooklyn, NY 11201. *Integrated Mathematics and Physical Science—The Best pre-Calculus.*

It is well established that constructivist learning is superior for real understanding in mathematics. Thus we need an alliance between mathematics and the physical sciences. We have given a test of basic skills to college populations in recent years which clearly shows that skills from elementary school are lacking in some of our students. A majority of faculty are not aware of how deep this problem is. Many students emerge from calculus without understanding of meaning, only able to do rote problems. The reform movement stresses real meaning and not symbol pushing. Testing indicates that there are many students who are not at a conceptual level to benefit from reformed calculus. Our thesis is: integrated mathematics and science is the best way to fill that gap. A program now 20 years old has been extensively tested. The early parts of the program are discussed in another paper submitted. But the later parts bring the student into calculus entirely through physical lab work. This program will be shown in some detail in this talk. It is entirely laboratory with no lectures. Results will be shown and problems of implementation will be discussed. It has never been tried with students going on to higher level work in mathematics. It is an experiment that is worth doing. (Received September 13, 2000)