

# *Connecting Mathematics with Science*

**EXPERIMENTS FOR CALCULUS**

**Irina E. Lyublinskaya**

**KEY CURRICULUM PRESS.**

**Blackline Activity Masters**



# Connecting Mathematics with Science

## Experiments for Calculus

Using science experiments in life science, chemistry, and physics, *Connecting Mathematics with Science: Experiments for Calculus* helps ground students' understanding of abstract calculus concepts in real-world applications. Hands-on activities connect mathematics with science in a way that is accessible to teachers and students alike.

Irina E. Lyublinskaya, Ph.D., designed these experiments with the mathematics classroom in mind, but science classes can also benefit from them. Each activity explores a scientific phenomenon, connecting it to calculus concepts such as continuous functions; limits and derivatives of functions; optimization, related rates, numeric integration; definite and indefinite integrals of a function; differential equations; and convergence and divergence of a series. Students understand abstract calculus concepts by experiencing how scientists solve problems and use mathematical models to design experiments. They apply a variety of techniques to verify their experimental results and develop conjectures. There are 15 activities: 7 use the Calculator Based Laboratory, CBL™, with different probes; 2 use common science equipment; and 6 require only basic tools, such as a stopwatch, metersticks, tape, and scissors, in addition to calculators.

You can use the experiments as hands-on activities or demonstrations. Each activity includes blackline masters for students, accompanied by teacher notes that provide the science background and instructions necessary to successfully guide students. You will find that the experiments bring difficult calculus concepts to life before students' eyes, engaging them as they see how mathematics is used to describe the world around them. These activities will truly enhance your students' learning, while meeting the needs of different learning styles.

Also available: *Connecting Mathematics with Science: Experiments for Precalculus*



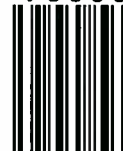
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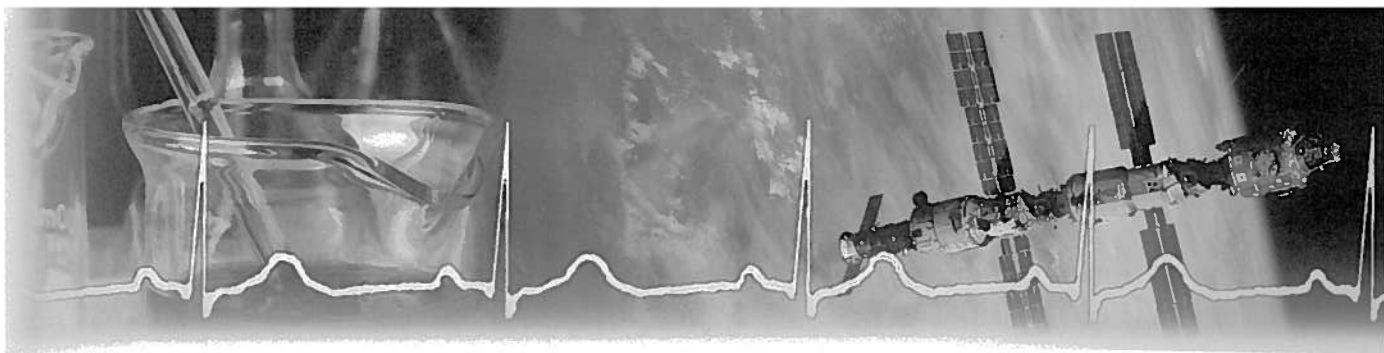
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