



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
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Bridging the Math Gap

Guide for Curriculum Unit 01.05.02
by Creola Smith

This unit was written with the 4-12th grade student, educator and those with math phobias in mind. Determining time required to implement the unit as written depends on many things. This unit was written for my classes, which are urban students, completely heterogeneous grouped, and 7th graders. Range of math skill diversity, within the class can be astonishing to amazing. Utilization of the unit would be in addition to regular math lessons. Class time allotted to complete unit is 20-25 hours. Recommendation is to incorporate throughout one marking period of 12-16 weeks.

The focus of this unit is to integrate mathematics with the applied science of engineering, allowing students a different venue to experience math. Through developing a model bridge to a specific scale, students are exposed to the application of math in a real world setting. Mathematical concepts addressed are number sense, scale, geometry; each allows for an easy switch to algebra and other concepts. Technology is also utilized through initial bridge design and test, which are completed using a computer program design. Students then have a working design in theory to begin converting to scale. This unit is limited by the imagination only.

Students learn the decision processes that are required to build a bridge. Lessons include types of bridges, bridge history, math, engineering principles and experiments. They begin to understand that the method and steps of problem solving are applicable in many areas. Thinking skills and cooperative learning is key to being successful in this unit, and life. Students must use multiple skills, some are from prior knowledge and others will be new.

“Bridging the Math Gap” has several approaches for the same idea, several ways of expressing thoughts and observations. Keep in mind learners have different styles. As educators we must try to reach as many as possible. It is also rich in the vocabulary of engineering and math. It displays the integration of subject matter and provides a tangible finished product that will be tested for load to weight ratio. The unit’s success depends on preparation time and classroom management. Student must experience the lessons, which means mobility.

(Recommended for Math/Science, grades 5-8, and Math, grades 9-12.)

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