Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
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Bridges: Built on a Firm Foundation

Guide for Curriculum Unit 01.05.10
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The purpose of this unit is to introduce fourth through sixth graders to the basic bridge building. The end product will be the making of a bridge game we will call “Assembly.” The three types of bridges that will be assembled in the game are truss, suspension, and arch. Much of the students’ time will be spent in experiments, observation, and analysis. Children in this age group know little about the dynamics of bridges, so time will be spent in laying some foundation about lines. Familiarizing them with geometry angles, space figures, plane figures, parallel lines, intersecting lines, perpendicular lines and symmetry is the first order of business.

Next, the students will be given a list of terms, vocabulary words, and expressions that are particular to bridge building, like loads, depth, tension, and span. In this way we can effectively communicate in books, with professionals, and with each other about this highly technical subject. There are plenty of books on the subject, which we will use. Most have wonderful illustrations and photographs.

There will be problem solving involved with this unit. Contrasts and comparisons will be made between foundations, sand, rock, concrete, and water. They will also be made between materials, paper, cardboard, sticks, and metal. The proportion and size of bridge members will be discussed.

The area where the school is located has bridges in walking distance. Field trips will be taken to these structures. Sketches of these bridges will be made by the students. They should be able to label and explain the parts of the bridges by the time this unit ends. Field trips will also be made to see the foundations and formation of major bridges like the Quinnipiac and Grand Avenue Bridges.

Finally, we will attempt to make models of bridges of the truss and arch type. The whole unit should take about a marking period to complete.

(Recommended for Reading-Cause & Effect, Reading-Compare & Contrast, and Problem Solving-Math, grades 3-6.)