

Understanding by Design

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Introduction

Consider the following four vignettes and what they suggest about understanding and the design of curriculum and assessments. Two are true. Two are fictionalized accounts of familiar practice.

Vignette 1

As part of a workshop on "understanding," a veteran high school English teacher entered the following reflection in a learning log about her own experience as a high school student:

I felt then that my brain was a way station for material going in one ear and (after the test) out the other. I could memorize very easily and so became valedictorian, but I was embarrassed even then that I understood much less than some other students who cared less about grades.

Vignette 2

For two weeks every fall, all the 3rd grade classes participate in a unit on apples. The students engage in a variety of activities related to the topic. In language arts, they read *Johnny Appleseed* and view an illustrated filmstrip of the story. They each write a creative story involving an apple and then illustrate their stories using tempera paints. In art, students collect leaves from nearby crab apple trees and make a giant leaf print collage on the hallway bulletin board adjacent to the 3rd grade classrooms. The music teacher teaches the children songs about apples. In science, they use their senses to carefully observe and describe the characteristics of different types of apples. During mathematics, the teacher demonstrates how to "scale up" an applesauce recipe to make a quantity sufficient for all the 3rd graders.

A highlight of the unit is the field trip to a local apple orchard, where students watch cider being made and go on a hayride. The culminating unit activity is the 3rd grade apple fest, a celebration for which parent volunteers dress as apples and the children rotate through various activities at stations—making applesauce, competing in an apple "word search" contest, bobbing for apples, completing a math skill sheet containing word problems involving apples, and so on. The fest concludes with selected students reading their apple stories while the entire group enjoys candy apples prepared by the cafeteria staff.

Vignette 3

A test item on a national mathematics assessment presented the following question to 8th grade students:

"How many buses does the army need to transport 1,128 soldiers if each bus holds 36 soldiers?"

Almost one-third of the 8th graders answered the question, "31 remainder 12" (Schoenfeld, 1988, p. 84).

Vignette 4

It is late April and the panic is beginning to set in. A quick calculation reveals to the world history teacher that he will not finish the textbook unless he covers an average of 40 pages per day until the end of school. He decides, with some regret, to eliminate a mini-unit on the Caribbean and several time-consuming activities, such as a mock United Nations debate and vote, and discussions of current international events in relation to the world history topics students have studied. To prepare his students for the departmental final exam, the teacher will need to switch into a fast-forward lecture mode.