Fall 12-30-2013

Davida Fischman TSSA Winter 2013

Davida Fischman
CSUSB, fischman@csusb.edu

Follow this and additional works at: https://scholarworks.lib.csusb.edu/trc-tssa

Part of the Higher Education and Teaching Commons

Recommended Citation
Fischman, Davida, "Davida Fischman TSSA Winter 2013" (2013). Teaching Skills Study Awards (TSSA) Reports. 64.
https://scholarworks.lib.csusb.edu/trc-tssa/64

This Other is brought to you for free and open access by the Teaching Resource Center at CSUSB ScholarWorks. It has been accepted for inclusion in Teaching Skills Study Awards (TSSA) Reports by an authorized administrator of CSUSB ScholarWorks. For more information, please contact scholarworks@csusb.edu.
Visualizing projective geometry through photographs and perspective drawings This mini-course “seek[s] to re-establish the link between mathematics and art” through projective geometry. Projective geometry is the study of properties invariant under projective transformations, and is frequently taught as an upper division course. These courses are typically very abstract, and our students often find it difficult to connect with the material in a meaningful way. The

In this minicourse I learned a numbers of hands-on activities to help students understand perspective, and indeed to make connections between art and mathematics that serves to increase an understanding of both. An example of one such activity is drawing a “map” of an object seen through a window (or a sheet of plastic) as seen in the pictures below\(^1\).

Problem Solving Good problems provide a means to teach content, to elicit mathematical discussion, to include students who are usually not at the forefront of classroom volunteers, and to develop mathematical habits of mind. In a number of different sessions problems were presented that have enriched several of my courses since the conference.

For example, a problem presented by Dr. Greisy Winicki-Landman: Given a 9-pegs circular board (as on the right), create as many types of triangles as you can with vertices on the pegs. Can you create a right triangle? Show it, or explain why it is impossible. Using this problem in a geometry class, I saw students eagerly engage in mathematical conversation, and all students had ideas they could share. The problem leads to good additional questions, and students experience the excitement of chasing ideas through a variety of topics.

Another deceptively simply stated problem was presented by Dr. Benson: Can all counting numbers be expressed as a sum of 2 or more consecutive integers? If not, which can? Why?

These types of problems are simple to state and all students can find an entry point, if only by trying out various possibilities. As they think more about the problem, additional structure is surfaced, and eventually a great deal of mathematics is learned.

\(^1\) From Drawing with Awareness, by Marc Frantz, Indiana University; www.mathaware.org/mam/03/essay6.html