

1106-N1-2113

Randy Ryan Davila* (rrd6@rice.edu) and **Sharon K Strickland**. *Definition Construction and Developing Mathematical Inquiry.*

In this session we will present a small unit designed to encourage students to define, conjecture and (dis)prove their own “kind” of numbers and evidence of student success (and struggles) with the unit. Although the students were preservice middle school math teachers, the unit could be used in other courses at or beyond a college algebra level. After introducing some properties of integers such as commutativity and closure, as well as the $2k+1$ and $2k$ forms of odds and evens, students were asked to construct their own “kind” of number (e.g. Apple Numbers are of the form $3n+7$ where n is an integer). Students then conjectured about their numbers and (dis)proved their conjectures. Common conjectures involved closure and whether the “kind” of number was a multiple of some factor. Minimal instruction related to proving was included because this group had no formal proof background. After engaging in their own definition construction for several classes, the students began to conjecture more advanced material like the twin prime conjecture. Overall, the results suggested that they struggled to prove their conjectures but were able to develop many conjectures and seemed to adopt a shift in their thinking towards questions of the sort, “What if” and “Maybe it’s true that.” (Received September 15, 2014)