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Dev P. Sinha*, dps@uoregon.edu, and **Tricia Bevans**, thbevans@uoregon.edu. *Coherent use of bases in preservice elementary content courses.*

Using different bases to represent numbers has often been included in preservice elementary content courses. Traditionally the rationale has been to help ensure that the students understand the standard algorithms of arithmetic. Some reformers see this as of less value than other activities, and have jettisoned the topic.

We have been developing a more coherent use of different bases, in part with an eye towards deeper reflection on the Common Core. For example, we do skip-counting activities, using unit-form names for numbers in different bases (e.g. "three sevens and four") as a way to highlight how place value is reinforced by skip counting (2.NBT.2).

We will share a wide range of activities through which work in different bases reinforces other significant mathematical work: standard arithmetic; the Russian Peasant multiplication algorithm; divisibility rules; base-b-imal representation of numbers. We also share what is to our knowledge a novel way to represent numbers in bases greater than ten, discovered by a twelve-year-old, which opens up a some interesting activities. A culmination activity is finding and interpreting the base-two-imal representation of the square root of two, using it to place the square root of two on a base-two number line. (Received August 28, 2014)