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**Bossé, Michael J.; Ries, Heather; Chandler, Kayla**

**Putting the modern in algebra.**

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Summary: Secondary school mathematics teachers often need to answer the “Why do we do that?” question in such a way that avoids confusion and evokes student interest. Understanding the properties of number systems can provide an avenue to better grasp algebraic structures, which in turn builds students’ conceptual knowledge of secondary mathematics. This paper investigates the number systems from K-12 mathematics, discusses the properties held in each, and diagrammatically establishes connections between the number systems and algebraic structures.

*Classification:* H39 F39 F49 F59 H49

*Keywords:* modern algebra; abstract algebra; algebraic structures; teaching secondary mathematics

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