Course reform, SMT 506

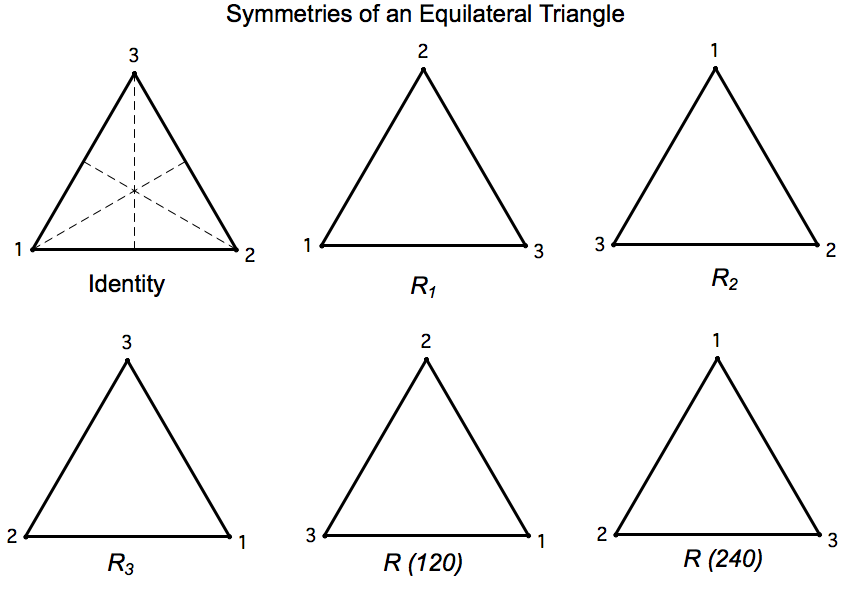
Outline of unit on Transformational Geometry:

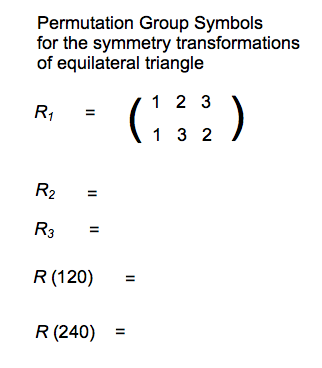
1. Transformational geometry defined through idea/concept of **mapping**

* Requires understanding the ideas of **one to one** and **onto**
* Link between this definition of mapping in transformational geometry and typical definition of **function** (a set of ordered pairs with no two different pairs having the same first element)

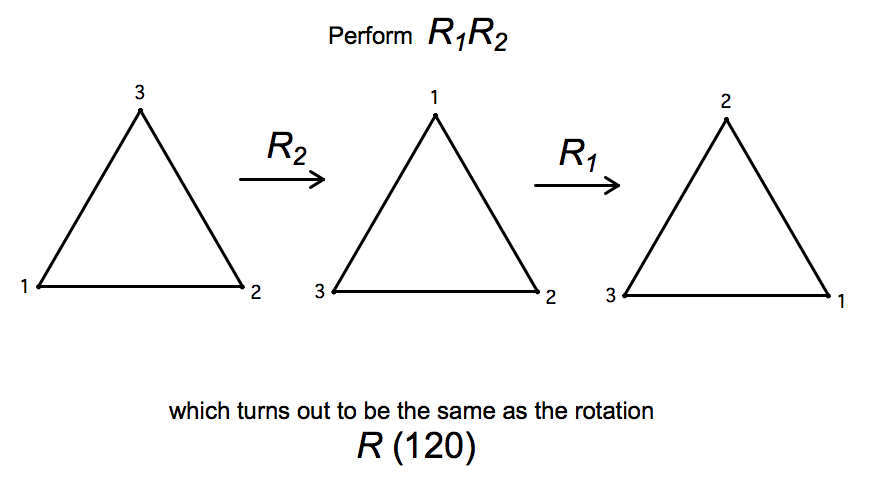
1. Mathematical concept of a **group**

* Idea that we are working with a set of transformations, rather than a single transformation
* In order for a set of transformations to be a group, certain conditions must apply
  + Closure
  + Associativity
  + Identity
  + Inverses

1. Examples of sets of transformations that constitute a group
   1. Symmetries of an equilateral triangle
   2. Learn how to verify each required condition
2. Notation for describing symmetry groups
   1. Permutation group symbols
   2. Pictures/figures
   3. Example: Work through the symmetries of equilateral triangle as shown below 



5. Multiply transformations (Example below—same pattern: show students, then have them produce a new one)



6. Euclidean motions of the plane

* 1. Translations
  2. Rotations
  3. Reflections

1. Similarity transformations