TEACHER NOTES

OBJECTIVES
- To investigate special ratios involving square roots in a manner consistent with the historical use of a measuring cord by classic Maya in laying out a building
- To apply the Pythagorean theorem
- To notice a pattern and make a conjecture

SUPPLIES
- String cut into roughly 6 inch pieces, one per student
- Activity can also be completed using a compass instead of string, although string more closely matches what was used by the classic Maya
- Straightedge for making line segments

PREREQUISITES
- Square roots
- Pythagorean theorem
- Ratio

ANSWERS
- Part 1: BC = 1, AC=AE=$\sqrt{2}$, $\sqrt{2}$ to 1
- Part 2: EF = 1, AF=AG=$\sqrt{3}$, $\sqrt{3}$ to 1, So far we have $\sqrt{2}$ to 1 then $\sqrt{3}$ to 1. A conjecture which turns out to be true is that if the process is repeated, the next rectangle will have sides in ratio of $\sqrt{4}$ to 1, or equivalently, 2 to 1.
- Part 3: KJ = 1, AK=AL=$\sqrt{5}$, $\sqrt{5}$ to 1, yes, $\sqrt{6}$, $\sqrt{7}$, $\sqrt{8}$

CONNECTION TO COMMON CORE STANDARDS

- **Grade 7 » Ratios & Proportional Relationships**
  Analyze proportional relationships and use them to solve real-world and mathematical problems.