Appendix 4.2

The Three Triangles

Problem

Construct three different triangles of the same perimeter using coffee stir sticks.

Criteria

- The three triangles must not be congruent.
- The three triangles must be constructed using the same number of stir sticks (same perimeter).
- Each triangle should be constructed using no more than 10 coffee stir sticks.
- Stir sticks cannot be stacked or cut.

Questions to Ask

- What number of stir sticks can be used to construct three different triangles having the same perimeter?
- Is this the only possible number?
- Is there a relationship between the number of coffee stir sticks on each side of the triangle and whether or not you are able to construct a triangle?

Communication

- Record your trials and observations of stir sticks combinations, indicating which can construct a triangle and which cannot.
- Prepare a presentation in which you outline your findings and observations, as well as the strategy used to solve the problem.
- Prepare clear and convincing mathematical arguments to support your conclusions.