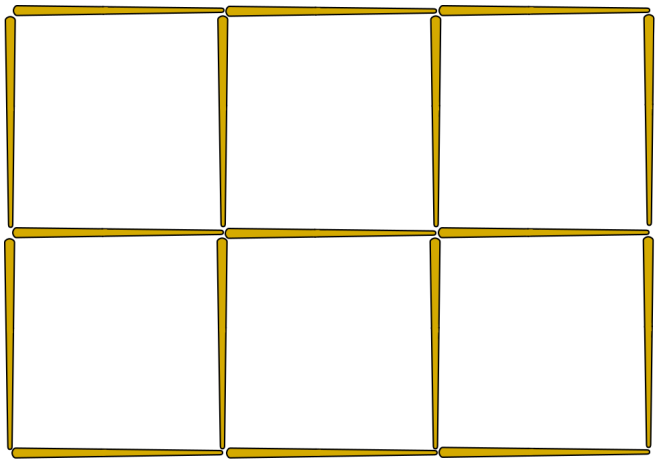
# Problem of the Week
## Problem B and Solution
## Toothpicks for Squares

### Problem

The diagram below is constructed from 17 toothpicks, creating a total of eight squares. Note that some of these are smaller squares of dimension 1 toothpick by 1 toothpick and some are larger squares of dimension 2 toothpicks by 2 toothpicks.



Start with the original diagram in each part below.

(a) Remove five toothpicks so that a total of five squares remain.

(b) Remove five toothpicks so that a total of three squares remain.

(c) Remove three toothpicks so that a total of two squares remain.

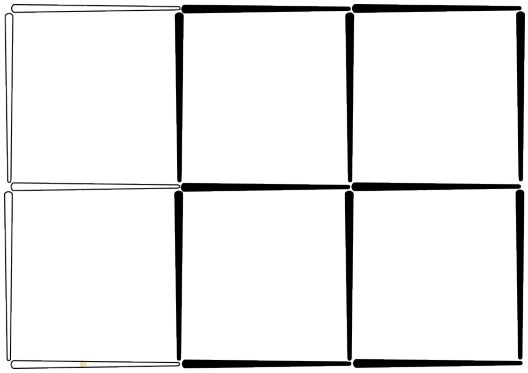
(d) Remove six toothpicks so that a total of two squares remain.

Compare your answers to those of a classmate. Are they the same? Can you complete each part without leaving extra toothpicks that do not belong to a square?

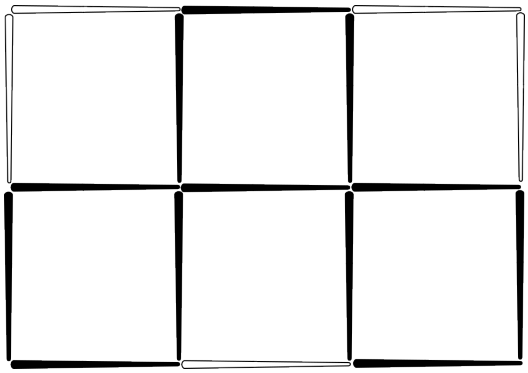
### Solution

Answers will vary. The toothpicks removed are coloured white, and the toothpicks remaining coloured black.

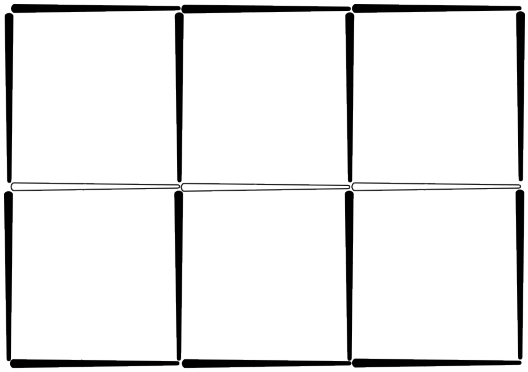
(a) A solution with four small squares and one large square remaining is shown.



(b) A solution with three small squares remaining is shown.



(c) A solution with two large squares remaining is shown.



(d) A solution with one small and one large square remaining is shown.