

Name(s): _____

Organic Functional Group Sudoku Puzzles

adapted from

Crute, Thomas D.; Myers, Stephanie A., *J. Chem. Educ.* 2007, **84**, 612

The precursor of the sudoku puzzle was first published in the United States in 1979 by Howard Garns, a retired architect and freelance puzzle constructor. In April 1984, the puzzle was introduced in Japan and the name "sudoku" was assigned to the puzzle. "Suuji wa dokushin ni kagiru" may be translated as "the numbers must be single" or "the numbers must occur only once". Later the name was abbreviated to sudoku (pronounced SUE-dough-coo; "su" means number, "doku" means single). In April 2005, The *New York Post* published sudoku puzzles as a regular feature and by July 2005, the puzzle surged in popularity all over the country (1, 2).

The following two Organic Chemistry Sudoku puzzles deal with the names of organic functional groups and their related formulas. They do not deal directly with numbers, but there are 9 different functional groups in each puzzle in place of numbers. The respective puzzles are to be solved so that there are nine different functions in each horizontal column, each vertical column, each of the nine square matrices, but not the two diagonal columns.

The first puzzle begins with only generic formulas (structures) that represent the nine possible functions (*amide* is provided as an example of one part of the solution). The second puzzle begins with a mix of names and formulas.

Either working with a team of no more than 3 members in total or alone, complete the two puzzles using only functional group names in the empty squares. Before beginning the puzzles, complete the following Tables for the puzzles by matching the generic structural formulas to the respective names for the first, and in the second puzzle the names of the functions with the given structural formulas including all possibilities of each function. Examples are provided.

PUZZLE #1:

<i>alcohol</i>	<i>aldehyde</i>	<i>alkyl halide</i>	<i>amide</i>	<i>amine</i>	<i>ester</i>	<i>ether</i>	<i>carboxylic acid</i>	<i>ketone</i>
R-OH								

PUZZLE #2:

<i>alkene</i>	<i>alkyne</i>	<i>alcohol</i>	<i>amine</i>	<i>carboxylic acid</i>	<i>amide</i>	<i>ester</i>	<i>aldehyde</i>	<i>ketone</i>
								