

# gridlocks – did you unlock the grid?

## Forensic tests 1

Before you answer the puzzle below fill in the table of colours for the flame tests of four metals.

Metal	Colour of flame test	Ion
		Na <sup>+</sup>
	lilac (purple)	K <sup>+</sup>
	brick red	
		Ba <sup>2+</sup>

## Problem solving puzzle 1

Each row, column and 2 x 2 box contains information about each of the four metals and their flame tests. Use your problem solving skills and the answers in the table above to fill in the blank boxes.

metal		colour of flame test	
potassium			
		green	
		Na <sup>+</sup>	
	brick red		
colour of flame test		cation formula	

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## Problem solving puzzle 2

Before you answer the puzzle below fill in the table of hydroxide precipitates of cations.

Name	Colour of ppt when NaOH(aq) is added	Cation formula	Ppt formed
copper(II)		$\text{Cu}^{2+}$	$\text{Cu}(\text{OH})_2$
iron(II)		$\text{Fe}^{2+}$	$\text{Fe}(\text{OH})_2$
iron(III)			$\text{Fe}(\text{OH})_3$
aluminium		$\text{Al}^{3+}$	

## Problem solving puzzle 3

Each row, column and 2 x 2 box contains information about each of the four metals and their hydroxide precipitates Use your problem solving skills and the answers in the table above to fill in the blank boxes.

name		colour of ppt when NaOH(aq) is added	
iron(II)			blue
	$\text{Fe}^{3+}$		$\text{Al}(\text{OH})_3$
formula		ppt formed	