

# gridlocks – can you unlock the grid?

## Alkalis

Before you answer the puzzles below fill in the table about alkalis using:

	$\text{BaSO}_4$	$\text{LiCl}$	potassium hydroxide	$\text{Ca(OH)}_2$
Alkali	Formula		Salt formed with $\text{H}_2\text{SO}_4$	Salt formed with $\text{HCl}$
sodium hydroxide	$\text{NaOH}$		$\text{Na}_2\text{SO}_4$	$\text{NaCl}$
calcium hydroxide			$\text{CaSO}_4$	$\text{CaCl}_2$
	$\text{KOH}$		$\text{K}_2\text{SO}_4$	$\text{KCl}$
lithium hydroxide	$\text{LiOH}$		$\text{Li}_2\text{SO}_4$	
ammonium hydroxide	$\text{NH}_4\text{OH}$		$(\text{NH}_4)_2\text{SO}_4$	$\text{NH}_4\text{Cl}$
barium hydroxide	$\text{Ba(OH)}_2$			$\text{BaCl}_2$

## Gridlock 1

Each row, column and 2 x 2 box contains information about the first four alkalis. Use your problem solving skills and the answers in the table above to fill in the blank boxes.

name		salt formed with sulfuric acid	
calcium hydroxide			$\text{Na}_2\text{SO}_4$
			$\text{LiOH}$
$\text{K}_2\text{SO}_4$			
salt formed with sulfuric acid		formula	

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## Gridlock 2

Each row, column and 2 x 2 box contains information about potassium hydroxide, lithium hydroxide, ammonium hydroxide and barium hydroxide.

name		salt formed with hydrochloric acid	
barium hydroxide			NH <sub>4</sub> Cl
	KCl		LiOH
salt formed with hydrochloric acid		formula	

## Gridlock 3

You will need to work out which four alkalis are used in this puzzle.

name		salt formed with hydrochloric acid	
	sodium hydroxide		NH <sub>4</sub> Cl
			NaCl
BaSO <sub>4</sub>			KOH
salt formed with sulfuric acid		formula	

## Alkalis – answers

Before you answer the puzzles below fill in the table about alkalis using:

	BaSO <sub>4</sub>	LiCl	potassium hydroxide	Ca(OH) <sub>2</sub>
Alkali	Formula	Salt formed with H <sub>2</sub> SO <sub>4</sub>	Salt formed with HCl	
sodium hydroxide	NaOH	Na <sub>2</sub> SO <sub>4</sub>	NaCl	
calcium hydroxide	Ca(OH) <sub>2</sub>	CaSO <sub>4</sub>	CaCl <sub>2</sub>	
potassium hydroxide	KOH	K <sub>2</sub> SO <sub>4</sub>	KCl	
lithium hydroxide	LiOH	Li <sub>2</sub> SO <sub>4</sub>	LiCl	
ammonium hydroxide	NH <sub>4</sub> OH	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	NH <sub>4</sub> Cl	
barium hydroxide	Ba(OH) <sub>2</sub>	BaSO <sub>4</sub>	BaCl <sub>2</sub>	

## Gridlock 1 – answers

Each row, column and 2 x 2 box contains information about the first four alkalis. Use your problem solving skills and the answers in the table above to fill in the blank boxes.

name		salt formed with sulfuric acid	
calcium hydroxide	potassium hydroxide	Li <sub>2</sub> SO <sub>4</sub>	Na <sub>2</sub> SO <sub>4</sub>
lithium hydroxide	sodium hydroxide	CaSO <sub>4</sub>	K <sub>2</sub> SO <sub>4</sub>
Na <sub>2</sub> SO <sub>4</sub>	CaSO <sub>4</sub>	KOH	LiOH
K <sub>2</sub> SO <sub>4</sub>	Li <sub>2</sub> SO <sub>4</sub>	NaOH	Ca(OH) <sub>2</sub>
salt formed with sulfuric acid		formula	

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## Gridlock 2 – answers

Each row, column and 2 x 2 box contains information about potassium hydroxide, lithium hydroxide, ammonium hydroxide and barium hydroxide.

name		salt formed with hydrochloric acid	
barium hydroxide	lithium hydroxide	KCl	NH <sub>4</sub> Cl
potassium hydroxide	ammonium hydroxide	LiCl	BaCl <sub>2</sub>
NH <sub>4</sub> Cl	KCl	Ba(OH) <sub>2</sub>	LiOH
LiCl	BaCl <sub>2</sub>	NH <sub>4</sub> OH	KOH
salt formed with hydrochloric acid		formula	

## Gridlock 3 – answers

You will need to work out which four alkalis are used in this puzzle.

name		salt formed with hydrochloric acid	
potassium hydroxide	sodium hydroxide	BaCl <sub>2</sub>	NH <sub>4</sub> Cl
ammonium hydroxide	barium hydroxide	KCl	NaCl
Na <sub>2</sub> SO <sub>4</sub>	K <sub>2</sub> SO <sub>4</sub>	NH <sub>4</sub> OH	Ba(OH) <sub>2</sub>
BaSO <sub>4</sub>	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	NaOH	KOH
salt formed with sulfuric acid		formula	