

# gridlocks – can you unlock the grid?

## Ionic formulas 1

Before you answer the gridlocks below fill in the table of formulas:

cation	chloride	sulfate	hydroxide	nitrate
sodium	NaCl	Na <sub>2</sub> SO <sub>4</sub>		NaNO <sub>3</sub>
calcium		CaSO <sub>4</sub>	Ca(OH) <sub>2</sub>	
aluminium				Al(NO <sub>3</sub> ) <sub>3</sub>
hydrogen		H <sub>2</sub> SO <sub>4</sub>		
magnesium	MgCl <sub>2</sub>			
silver(I)			AgOH	
potassium		K <sub>2</sub> SO <sub>4</sub>		
copper(II)			Cu(OH) <sub>2</sub>	
iron(III)				Fe(NO <sub>3</sub> ) <sub>3</sub>
iron(II)		FeSO <sub>4</sub>		
ammonium	NH <sub>4</sub> Cl			NH <sub>4</sub> NO <sub>3</sub>

### Gridlock 1

Each row, column and 2 x 2 box contains a chloride, sulfate, hydroxide and nitrate. Use your problem solving skills and the answers in the table above to fill in the blank boxes.

calcium compounds		sodium compounds	
CaSO <sub>4</sub>			NaCl
	Al(OH) <sub>3</sub>		HNO <sub>3</sub>
aluminium compounds		hydrogen compounds	

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## Gridlock 2

Each row, column and 2 x 2 box contains a chloride, sulfate, hydroxide and nitrate.

magnesium compounds		potassium compounds	
MgCl <sub>2</sub>			KNO <sub>3</sub>
	Mg(NO <sub>3</sub> ) <sub>2</sub>	KCl	
	Al(OH) <sub>3</sub>		
		Ag <sub>2</sub> SO <sub>4</sub>	
aluminium compounds		silver(I) compounds	

## Gridlock 3

Each row, column and 2 x 2 box contains a chloride, sulfate, hydroxide and nitrate.

copper(II) compounds		ammonium compounds	
CuSO <sub>4</sub>			
		NH <sub>4</sub> NO <sub>3</sub>	
		FeCl <sub>2</sub>	
	Fe(OH) <sub>3</sub>		
iron(III) compounds		iron(II) compounds	

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## Ionic formulas 1 – answers

Before you answer the gridlocks below fill in the table of formulas:

cation	chloride	sulfate	hydroxide	nitrate
sodium	NaCl	Na <sub>2</sub> SO <sub>4</sub>	NaOH	NaNO <sub>3</sub>
calcium	CaCl <sub>2</sub>	CaSO <sub>4</sub>	Ca(OH) <sub>2</sub>	Ca(NO <sub>3</sub> ) <sub>2</sub>
aluminium	AlCl <sub>3</sub>	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub>	Al(OH) <sub>3</sub>	Al(NO <sub>3</sub> ) <sub>3</sub>
hydrogen	HCl	H <sub>2</sub> SO <sub>4</sub>	H <sub>2</sub> O	HNO <sub>3</sub>
magnesium	MgCl <sub>2</sub>	MgSO <sub>4</sub>	Mg(OH) <sub>2</sub>	Mg(NO <sub>3</sub> ) <sub>2</sub>
silver(I)	AgCl	Ag <sub>2</sub> SO <sub>4</sub>	AgOH	AgNO <sub>3</sub>
potassium	KCl	K <sub>2</sub> SO <sub>4</sub>	KOH	KNO <sub>3</sub>
copper(II)	CuCl <sub>2</sub>	CuSO <sub>4</sub>	Cu(OH) <sub>2</sub>	Cu(NO <sub>3</sub> ) <sub>2</sub>
iron(III)	FeCl <sub>3</sub>	Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub>	Fe(OH) <sub>3</sub>	Fe(NO <sub>3</sub> ) <sub>3</sub>
iron(II)	FeCl <sub>2</sub>	FeSO <sub>4</sub>	Fe(OH) <sub>2</sub>	Fe(NO <sub>3</sub> ) <sub>2</sub>
ammonium	NH <sub>4</sub> Cl	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	NH <sub>4</sub> OH	NH <sub>4</sub> NO <sub>3</sub>

## Gridlock 1 – answers

calcium compounds		sodium compounds	
CaSO <sub>4</sub>	Ca(NO <sub>3</sub> ) <sub>2</sub>	NaOH	NaCl
Ca(OH) <sub>2</sub>	CaCl <sub>2</sub>	NaNO <sub>3</sub>	Na <sub>2</sub> SO <sub>4</sub>
AlCl <sub>3</sub>	Al(OH) <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>
Al(NO <sub>3</sub> ) <sub>3</sub>	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub>	HCl	H <sub>2</sub> O
aluminium compounds		hydrogen compounds	

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## Gridlock 2 – answers

magnesium compounds		potassium compounds	
MgCl <sub>2</sub>	MgSO <sub>4</sub>	KOH	KNO <sub>3</sub>
Mg(OH) <sub>2</sub>	Mg(NO <sub>3</sub> ) <sub>2</sub>	KCl	K <sub>2</sub> SO <sub>4</sub>
Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub>	Al(OH) <sub>3</sub>	AgNO <sub>3</sub>	AgCl
Al(NO <sub>3</sub> ) <sub>3</sub>	AlCl <sub>3</sub>	Ag <sub>2</sub> SO <sub>4</sub>	AgOH
aluminium compounds		silver compounds	

## Gridlock 3 – answers

copper(II) compounds		ammonium compounds	
CuSO <sub>4</sub>	Cu(NO <sub>3</sub> ) <sub>2</sub>	NH <sub>4</sub> OH	NH <sub>4</sub> Cl
Cu(OH) <sub>2</sub>	CuCl <sub>2</sub>	NH <sub>4</sub> NO <sub>3</sub>	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>
Fe(NO <sub>3</sub> ) <sub>3</sub>	Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub>	FeCl <sub>2</sub>	Fe(OH) <sub>2</sub>
FeCl <sub>3</sub>	Fe(OH) <sub>3</sub>	FeSO <sub>4</sub>	Fe(NO <sub>3</sub> ) <sub>2</sub>
iron(III) compounds		iron(II) compounds	