

Complex ion shapes

Before you answer the puzzles below fill in the table of shapes of complex ions using:

wh	en ligand is large	tetrahedral 4	square planar	silver(I) complexes
	shape	example	when formed	coordination number
	linear	NC-Ag-CN		2
		CIPE NH ₃	platinum(II) complexes	4
		Cl C		
	octahedral	NH ₃ H ₃ Ni···· Cr → NH ₃ NH ₃ NH ₃	most common	6

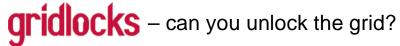
Gridlock 1

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

shape		example	
linear			NH ₃ 3+ H ₃ Ni Cr NH ₃ NH ₃ NH ₃
	octahedral	_NC—Ag—CN_]	
			linear
		square planar	
example		sha	ape







Gridlock 2

Each row, column and 2 x 2 box contains information about each of the four alloys in the table.

shape		example	
square planar			
		NH ₃ H ₃ N r r NH ₃ NH ₃ NH ₃	
		2	
	when ligand is large		
when formed		coordination	on number

Gridlock 3

Each row, column and 2 x 2 box contains information about each of the four alloys in the table.

shape		example	
	linear		NH ₃ H ₃ N Cr NH ₃ NH ₃ NH ₃
			NC—Ag—CN
platinum(II) complexes			4



when formed



coordination number

gridlocks - can you unlock the grid?

Complex ion shapes - answers

Before you answer the puzzles below fill in the table of shapes of complex ions using:

when ligand is large	tetrahedral	4	square planar	silver(I) complexes
when ngana is large	teti aneti ai	_	Squai e pianai	Silver(i) complexes

shape	example	when formed	coordination number
linear	NC—Ag—CN	silver(I) complexes	2
square planar	Clumpt NH ₃	platinum(II) complexes	4
tetrahedral	Cl C	When ligand is large	4
octahedral	NH ₃ 3+ H ₃ N CrINH ₃ H ₃ N NH ₃ NH ₃	most common	6

Puzzle 1 - answers

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

shape		example	
linear	square planar	Cl C	NH ₃ H ₃ NI Cr NH ₃ H ₃ N NH ₃ NH ₃
tetrahedral	octahedral	NC—Ag—CN]	$CI \stackrel{CI_{11}}{\longrightarrow} Pt \stackrel{II}{\stackrel{I}{\longrightarrow}} NH_3$
CIPT PT NH ₃	CI C	octahedral	linear
NH ₃ H ₃ Ni ₁₁₁ Cr1NH ₃ H ₃ NM ₃ NH ₃	[NC—Ag—CN]	square planar	tetrahedral
example		sha	ape





gridlocks – can you unlock the grid?

Puzzle 2 - answers

Each row, column and 2 x 2 box contains information about each of the four alloys in the table.

shape		example	
square planar	octahedral	Cl C	NC—Ag—CN
tetrahedral	linear	NH ₃ 3+ H ₃ Ni CriNH ₃ H ₃ N NH ₃ NH ₃	CIPT Pt NH ₃
most common	platinum(II) complexes	2	4 (tetrahedral)
silver(I) complexes	when ligand is large	4 (square planar)	6
when formed		coordination	on number

Puzzle 3 - answers

shape		example	
tetrahedral	linear	CIPT PT NH ₃	NH ₃ H ₃ N NH ₃ NH ₃ NH ₃ NH ₃
octahedral	square planar	Cl C	NC—Ag—CN
silver(I) complexes	when ligand is large	6	4
platinum(II) complexes	most common	2	4
when formed		coordination	on number



