

gridlocks – can you unlock the grid?

The blast furnace

Before you answer the puzzles below fill in the table of the four raw materials (reactants) put into the blast furnace using:

limestone	Fe_2O_3	C	to keep coke burning
reactant	purpose		formula
coke	burns to produce heat and reducing agent		
iron ore	contains iron oxide which is reduced to iron		
hot air			O_2/N_2
	remove impurities as slag		CaCO_3

Gridlock 1

Each row, column and 2 x 2 box contains each of the four reactants. Use your problem solving skills and the answers in the table above to fill in the blank boxes.

reactant		purpose	
coke			remove impurities as slag
	limestone		
			coke
		iron ore	
purpose		reactant	

gridlocks – can you unlock the grid?

Gridlock 2

Each row, column and 2 x 2 box contains information about the four reactants.

reactant		purpose	
iron ore			
		remove impurities as slag	
		C	
	to keep coke burning		
purpose		formula	

Gridlock 3

Each row, column and 2 x 2 box contains information about the four reactants.

reactant		purpose	
	coke		remove impurities as slag
			burns to produce heat and reducing agent
contains iron oxide which is reduced to iron			O ₂ /N ₂
purpose		formula	

The blast furnace – answers

Before you answer the puzzles below fill in the table of the four raw materials (reactants) put into the blast furnace using:

reactant	purpose	formula
coke	burns to produce heat and reducing agent	C
iron ore	contains iron oxide which is reduced to iron	Fe₂O₃
hot air	to keep coke burning	O ₂ /N ₂
limestone	remove impurities as slag	CaCO ₃

Gridlock 1 – answers

reactant		purpose	
coke	iron ore	to keep coke burning	remove impurities as slag
hot air	limestone	burns to produce heat and reducing agent	contains iron oxide which is reduced to iron
contains iron oxide which is reduced to iron	to keep coke burning	limestone	coke
remove impurities as slag	burns to produce heat and reducing agent	iron ore	hot air
purpose		reactant	

gridlocks – can you unlock the grid?

Gridlock 2 – answers

reactant		purpose	
iron ore	limestone	to keep coke burning	burns to produce heat and reducing agent
hot air	coke	remove impurities as slag	contains iron oxide which is reduced to iron
remove impurities as slag	contains iron oxide which is reduced to iron	C	O ₂ /N ₂
burns to produce heat and reducing agent	to keep coke burning	Fe ₂ O ₃	CaCO ₃
purpose		formula	

Gridlock 3 – answers

reactant		purpose	
hot air	coke	contains iron oxide which is reduced to iron	remove impurities as slag
limestone	iron ore	to keep coke burning	burns to produce heat and reducing agent
burns to produce heat and reducing agent	to keep coke burning	CaCO ₃	Fe ₂ O ₃
contains iron oxide which is reduced to iron	remove impurities as slag	C	O ₂ /N ₂
purpose		formula	