

31: Puzzles

A: Elementary Dear Watson

The first chemical symbols were developed by John Dalton around 1800. He used a system of circles which was not entirely satisfactory. It was Jons Jakob Berzelius who devised a really satisfactory method. His chemical shorthand is still in use today. The atom of each element was represented by the first letter or letters of its name. Some symbols use the first letter of the Latin name of the element. The symbol for sodium is Na from the Latin natrium meaning soda.

What you do

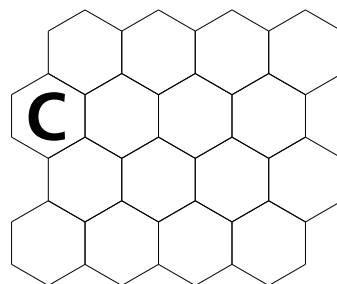
The solution to the mystery that follows depends on your knowledge of chemical elements, symbols and formulas, Dr Watson. If a symbol is given, substitute the name of that element. If the name is given, substitute the symbol. The names of compounds may also be symbolised by formulas. Do not fail me, good doctor. The solution must be in my hands by midnight a week hence, or the consequences could be devastating for your marks!

T'was the week before Christmas, when Inspector Lestrade came to me with a most distraught gentleman in tow. (Helium) _____ explained that the gentleman had purchased several pieces of (Ag) _____ and (Au) _____ jewellery for his wife (or mistress (iodine) _____ surmised). This had disappeared during a street (carbon + argon) _____ ride. The victim interrupted with, 'You must (Fe) _____ this out before the 24th Mr (Ho) _____! ' (Holmium +tungsten) _____ dare someone (sulphur + tellurium + aluminium) _____ from me!' By this time Lestrade seemed eager to (beryllium) _____ rid (oxygen + fluorine) _____ our pompous victim, as (tungsten + arsenic) _____ (iodine) _____. (Indium) _____ private, the Inspector explained that he wasn't personally (Sb) _____ , but just wanted the theft cleared (uranium + phosphorus) _____ quickly (sulphur + oxygen) _____ he could get (oxygen + nitrogen) _____ to matters more important than petty theft. (Iodine) _____ agreed to help, not to save the Inspector more time and embarrassment (tungsten + helium + nitrogen) _____ he failed (arsenic) _____ I (potassium + neon + tungsten) _____ he would, but because I had the (calcium + selenium) _____ already solved. Informed of this , the Inspector cried, ' (Sulphur + oxygen) _____ fast! (Hydrogen + oxygen + tungsten) _____? ! '

Use the periodic table to finish off the story and try it out on your friend.

31: Puzzles (contd)**B. Chemistry Blockbusters**

1. Make a copy of the grid and if possible laminate it. Alternatively you could draw the grid on to an overhead transparency and use permanent pens for the outline and washable pens for the letters.
2. Write a set of questions. The answers will all be chemical formulae or chemical words.
3. Split your club members or class into teams and allocate each a colour.
4. Appoint someone to ask the questions.
5. Using the grid fill in the first letter of the answer to each question.
6. Decide which team starts first. Each team should select one side of the grid to start.



You are now ready to play Chemical Blockbusters.

Each time a question is answered correctly the scorer should colour the hexagon with the team colour and the team will have another opportunity to answer a question from the hexagon of their choice. If they do not answer correctly the opposite team will have their colour added to that hexagon and they will have a chance to answer another question. The first team to reach the other side will be the winner.

C. Writing your name in Chemistry

As a starting activity in your club or an easy activity for an open evening you can ask people to write their name "in Chemistry" – i.e. by using chemical symbols.

Count the number of symbols of elements it is possible to make from a name. You may need to omit a letter or two. e.g. Pat or AmY or BOB

You could make it more difficult by asking for compounds e.g. KIm – by omitting 'm' you have potassium iodide, or a reversible name LaUReN / NeRuAl

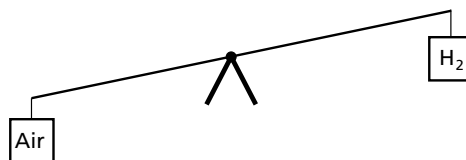
Another activity is to see who can make the longest word from chemical symbols only: e.g. OsTeNTaTiOUS.

D. Chemical Dingbats

Test out your friends' lateral thinking skills. Develop your own Chemical Dingbats.

Here is an example:

Hydrogen is lighter than air.



31: Puzzles (contd)**E. Molecule of the Month**

Organise an element or molecule of the month competition. It might be something which is in the news. You could use CD ROM or access the Internet for extra information. Find out all you can about your chosen element or molecule and either write a poem or limerick about it or produce a pop-up card showing interesting facts about it.

Which element is this poem about?

Fe fi fo fum
As hard as nails
As tough as they come

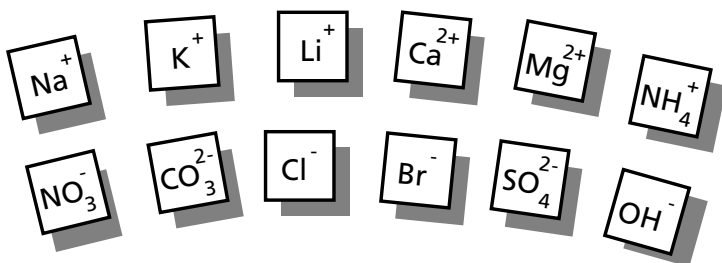
I'm the most important
Metal known to man
(though aluminium
is more common
do we need another can?)

By Roger McGough

F. Chemical Twisters

This is a variation of a game you may have played before. This time you are trying to make chemical formulae so you may need some help.

Arrange the cards in a semicircle as in the diagram below.



In groups of four stand in the centre of the circle. At the appointed time each person should place one hand on two cards that together will give the correct formula of a compound. The recorder will write down the combination selected by each team member. After four different compounds have been selected the scores are added together (one mark for each correct compound). The cards are shuffled and rearranged in the semi-circle for the next team.