

Wordoku

L	M				T			S
						M	L	I
					S	C		T
		L		P	N			
	A						I	
			L	C		S		
S		A	N					
C	P	N						
I			P				A	N

A
C
I
L
M
N
P
S
T

Solve this wordoku in the same way as a sudoku with letters instead of numbers (each of the nine letters in each row, column and nine-square cell). Once solved, one of the overall diagonals can be rearranged into the name of a chemotherapy drug.

Word grid

Te	N	O
N	O	Na
H	I	Es

Prize entry: Using each element symbol in the grid only once, combine them together to make a single word of 12 letters.

Word.....

Just for fun: Construct as many other words as you can using a minimum of three symbols, and each symbol only once.
 6 words: OK
 9 words: Good
 12+ words: Excellent

Entry form

There are four prize puzzles on this page: crossword (cryptic answers only); wordoku; molecule search; and word grid. For each puzzle, a winner will be selected from all the correct entries received and awarded a £25 book voucher.

You can enter any or all of the prize draws, but each entrant is only eligible to win one of the individual puzzle prizes each month.

Please enter your details below and either post or email this page with your completed entries to us by **20 January 2018**. The winners of this month's puzzles will be published in the February 2018 issue, along with the solutions.

Chemistry World puzzles, Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK
 Email: chemistryworld@rsc.org

Name

Email

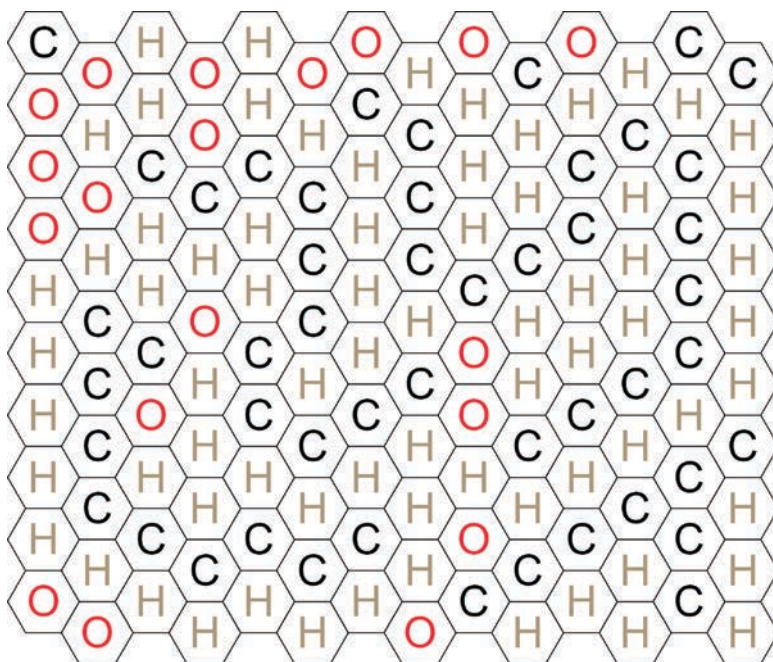
Tel

Participants are advised that any personal information supplied will be processed in connection with this competition and only in accordance with our privacy statement (www.chemistryworld.com/privacy).

Crossword

1		2		3		4	5		6		7		8
					9								
10							11						
12													
13					14				15				
16					17								18
19				20				21					
22								23					
24									25				

Molecule search



Connect atoms in adjacent cells using single or multiple bonds to reveal the hidden molecules. The hexagonal grid necessitates some minor distortion of bond angles, for example in five membered or saturated rings.

Find these two molecules. There are also several CO₂ molecules hidden in the grid (bond angles might not be realistic). Find all of them!



Clues: One molecule contains a ring, the other one doesn't. One molecule is a carboxylic acid.

Cryptic (prize entry)

- Across**
- Find odd oilmen around cat (6)
 - Honourable people mess around with initially chirpy hen (8)
 - Polymath right away mixing lager with oil? (7)
 - Bravo we burp around tavern (7)
 - Eery epigram about true element discoverer (10, 5)
 - Left out slides I use about trivial matter (4, 5)
 - 16 down American chemist generates noble gas compound - no tease! (5, 7)
 - Sticky stuff from those bumble bees? (5)
 - Press on it Esther - garnets inside! (9)
 - Italian physicist plays old Ravel sonatas (10, 5)
 - Old English bilge about person owed (7)
 - Rita involved in bad French nuptial (7)
 - Chlorine, say, hides protective gear (3, 5)
 - Loss accepted by gutless gaudy magazine (6)

- Down**
- Fixers glue odd mosses together (7)
 - State cars are pests? (8, 7)
 - I mull over true metalloid (9)
 - Return me before beers? Sours! (9)
 - Pricey pets returned around end of June (5)
 - Mad Hatter pensively breathes too heavily (15)
 - Pudding prepared from soya beans - suet oddly vanished! (7)
 - We hear this physicist's a swine (4)
 - Neck bites upset novelist (9)
 - Groan about live broadcast (4, 5)
 - See 15 Across (7)
 - Chemist prepares extremely lemony meals (7)
 - I am heartlessly smug about this letter (5)
 - Initial release of my economic capital (4)

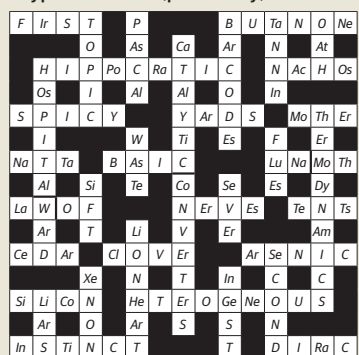
Quick (just for fun)

- Across**
- Medical condition caused by interruption of blood supply to the brain (6)
 - Austro-Hungarian biochemist (8)
 - Having D and L forms in equal proportions (7)
 - Instrument for measuring current (7)
 - British biochemist, double winner of chemistry Nobel prize (9, 6)
 - Iron- and oxygen-binding protein (9)
 - Bird and lifting equipment (5)
 - Eggy (5)
 - Hormone (9)
 - Swiss mathematician and physicist (6, 9)
 - Exceptional (7)
 - Japanese alloy of copper and gold (7)
 - Posies (8)
 - Martial arts teacher (6)

- Down**
- Fluoxetine (7)
 - Sheepbacks (geology) (5, 10)
 - South African diamond mine (9)
 - Listened (9)
 - Dance (5)
 - Books for signatures (9, 6)
 - Evergreen conifer (3, 4)
 - Palm tree grown for its berries (4)
 - Ale paunch (4, 5)
 - CO₃²⁻ (9)
 - English physician a degenerative disease of the adrenal glands is named after (7)
 - Capital city in Africa (7)
 - Economising (5)
 - Iron oxide (4)

December 2017 solutions and winners

Cryptic elements (prize entry)



Quick alphanumeric (just for fun)



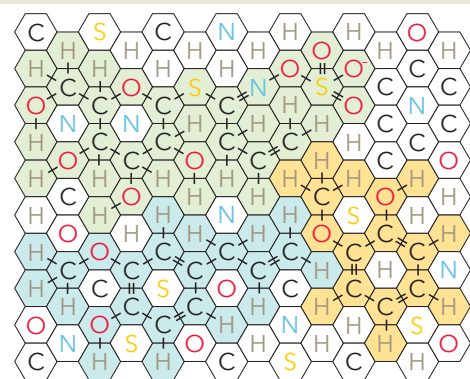
Wordoku

The name of the bioinorganic chemist was Thomas O'HALLORAN

Word grid

The nine-symbol word was XENOBOTICS

Molecule search



December winners

- Molecule search**
Stefania Musolino, St Andrews, UK
- Wordoku**
Louise Payling, Ripon, UK
- Word grid**
Brian Price, Weston-Super-Mare, UK
- Crossword**
Ian Hatton, Reigate, UK

Eugenol (cloves), sinigrin (Brussel sprouts) and guaiacol (wood smoke) are molecules often encountered around Christmas time

On the spot: At sea



Answer to On the spot

Aluminium phosphate pesticides will react with water to produce phosphine gas, the toxic gas concerning the crew. The containers are typically packed very tightly, with the bottom levels having lashings across the doors, making it impossible to access them during transit. It's worth knowing that the shipping containers are fairly watertight and the pesticides will be packaged in boxes and then bottles; therefore, concerns about the reaction with water can be somewhat assuaged. As the ship has only struck a reef and isn't grounded, it can still manoeuvre. This means that the crew could turn the ship so the holds are downwind from the superstructure and further reduce the risk while recovery is arranged. Should the crew's safety be compromised, for example if there is no wind and the gas plume spreads in all directions, or they find that they cannot place the holds downwind after all, the crew could abandon ship. However, this might be a disproportionate response to this incident and could make matters worse.

Tom Johnson is an emergency responder at the National Chemical Emergency Centre