August 2018 wordoku

	E	O					N	D
T		M	D		R			
			S				O	
E		S						
		D	R		O	S		
						N		M
	O				U			
			O		E	U		R
M	U					T	S	

D
E
M
N
O
R
S
T
U

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 an early Swedish chemist.

August 2018 word grid

Es	Ti	S
B	Ta	I
N	I	Li

Prize entry: Using each element symbol in the grid only once, combine them together to make a single word of 13 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 August 2018**. The winners of this month's puzzles will be published in the September 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

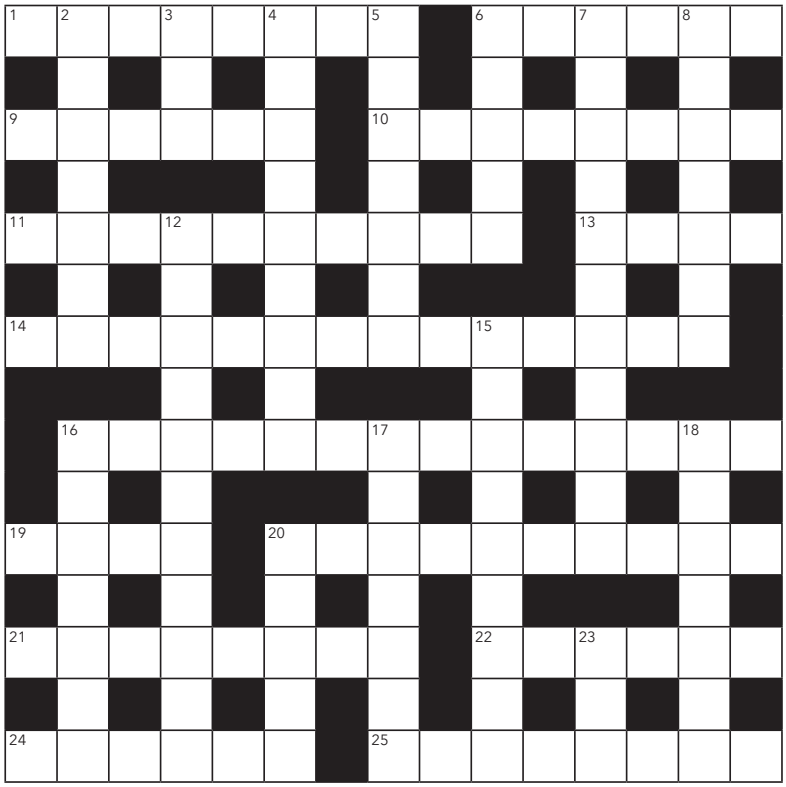
Name .....

Address .....

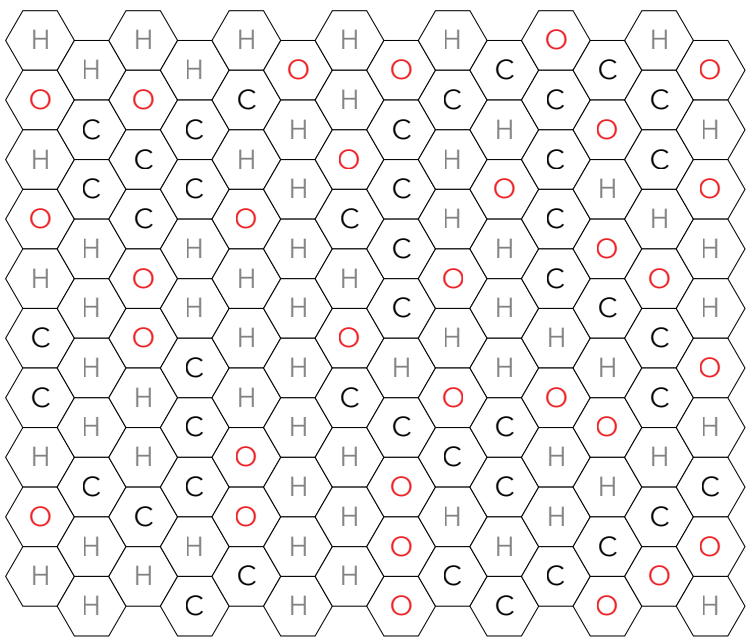
.....

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).

August 2018 crossword



August 2018 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 rings.

Find four molecules hidden in the grid, two of each formula.
$C_6H_{12}O_6$ $C_5H_{10}O_4$

Clues: There are two pairs of structural isomers, one cyclic and one acyclic form in each case. The molecules have several stereoisomers, but these are not differentiated in the solutions.

Cryptic (prize entry)

Across

1 Class following ring compound? (8)
6 Geneticist some women delight (6)
9 **See 16 Down** (6)
10 Sounds like cafe may be explosive (8)
11 Swore about polar energy (5, 5)
13 Lacking initial direction, Denis returns to function (4)
14 Doctors eradicate pains surprisingly (14)
16 Irish train around pool and get goosebumps (14)
19, 6 **Down** Little Bear minus roar perhaps (4, 5)
20 Paid handsomely minute by minute? (6, 4)
21 Somehow paint red insect (8)
22 Looted around Spanish city (6)
24 Nice about extreme heat – it's traditional (6)
25 **See 15 Down** (8)

Down

2 Radiant aural about Old English (7)
3 Box often but not entirely a cube (3)
4 So I go ape about hard passages (9)
5 Immunologist made raw concoction (7)
6 **See 19 Across** (5)
7 Collector tuts about animism (11)
8 Yardage of yesterday's yurts? (7)
12 Noted alarms around British atomic weapons site (11)
15, 25 **Across** Rob cut a healthcare arrangement for discoverer of chemical mutagenesis (9, 8)
16, 9 **Across** A robot irks her about a Canadian nuclear physicist (7, 6)
17 Lizards Gaia upset in leading university (7)
18 Wandering around manic do (7)
20 Missing the point, I cared about theoretical physicist (5)
23 Beagle oddly returned to workshop (3)

Quick (just for fun)

Across

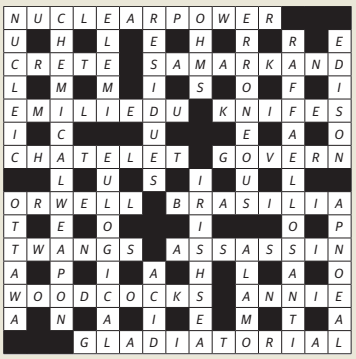
1 American physicist and Nobel laureate, known for his work on antiferromagnetism (8)
6 **See 4 Down** (6)
9 Enzyme that catalyses the hydrolysis of fats (6)
10 Becoming more environmentally friendly (8)
11 Garden flowers of the *Alcea* genus (10)
13 Exam (4)
14 Italian name of Venetian explorer also known as John Cabot (8, 6)
16 Colleges for the study of classical music or other arts (14)
19 Swiss–Russian chemist who gave his name to a thermodynamics law (4)
20 Agreement (10)
21 Separated (8)
22 Liable to change (6)
24 French physicist and mathematician who has an SI unit named after him (6)
25 **See 8 Down** (8)

Down

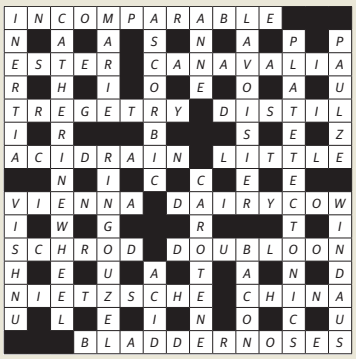
2 African capital (7)
3 Period of time (3)
4, 6 **Across** American chemist and inventor of Kevlar (9, 6)
5 Japanese bacteriologist who discovered the agent of syphilis (7)
6, 20 **Down** Series of biochemical reactions that release stored energy, named after a German-born British biochemist (5, 5)
7 Fossil remains of a bird (11)
8, 25 **Across** American nuclear scientist and inventor of the cyclotron (6, 1, 8)
12 Victorian explorer of Africa (11)
15 Arch of whitish or pinkish sunlight in the sky caused by scattering of fine particulates (9)
16 Alkali metal discovered by Bunsen and Kirchhoff by flame spectroscopy (7)
17 VO^{2+} cation (7)
18 Acid obtained from horse chestnut (7)
20 **See 6 Down** (5)
23 Insect (3)

July 2018 solutions and winners

Cryptic (prize entry)



Quick (just for fun)



Wordoku

The name of the chemotherapy drug was SALVARSAN

Word grid

The nine-symbol word was FRACTIONATION

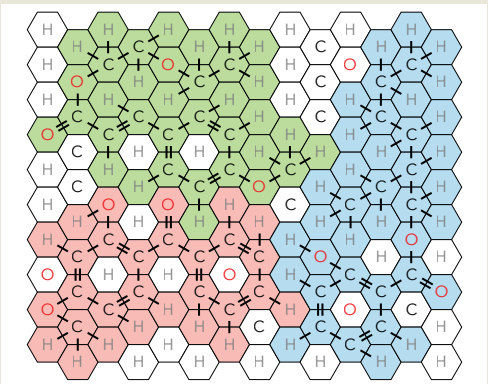
July winners

Molecule search
Sue Howarth, Wychbold, UK

Wordoku
Ellie Tanaka, Edinburgh, UK

Word grid
Christina Storey, Limerick, Ireland

Crossword
Peter Watt, Leigh, UK



The three molecules – cinoxate, oxybenzone and octyl salicylate – are all found in sunscreen. They are responsible for absorbing ultraviolet light. The clue was a reference to Baz Luhrmann's 1997 single, *Everybody's Free (to Wear Sunscreen)*.

On the spot

© Jane Webster/Debut Art Ltd

Answer to On the spot

Formalin is a solution of formaldehyde and methanol in water. It's corrosive and toxic. Guidance for spillages and accidents should be included in the hospital's formalin hazards and risks assessment. Many hospitals will also have a team trained for formalin spills that knows which spills can be dealt with and which require a special response, like the attendance of the fire service. The response team will want to work on evacuating patients and staff from the area before attending to the spillage. They will need to ensure that they not only wear suitable gloves, goggles, boots and coveralls, but also respiratory protection such as an ABEK filtered respirator or self-contained breathing apparatus. Finally, as a precaution, anyone who has been in the area of exposure without protection should be examined.

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