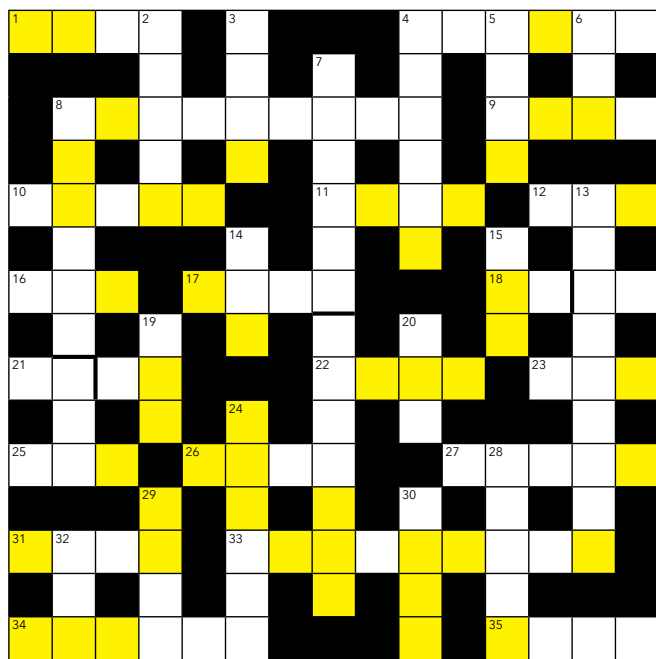


## December 2017 crossword



### Prize entry: cryptic elements

Each crossword square can have one or two letters, which must be letters of an element symbol, or the letters D or T (for deuterium or tritium). For example, Dalton could be written D(Al)TON. The colour of the square is irrelevant for this puzzle.

#### Across

- 1, 21 across, 13 down Worthy film's antics formed around a conservative rule (5, 3, 2, 14)
- 4 Compound fracture of tuna bone (8)
- 8, 6 down Patriotic chap upset by extremely oafish statement-doctors swear by it! (11, 4)
- 9 Anna chose to include Mexican food (6)
- 10 Initially silly person is calling you hot (5)
- 11 Sad about your heartless measures (5)
- 12 Upset them or parent (6)
- 16 Reportedly chat with Italian chemist (5)
- 17, 34 across Film primitive impulse (5, 8)
- 18 Insect left to upset human (4, 4)
- 21 See 1 across (3, 2)
- 22 Seven return around end of year with the jitters (6)
- 23 Sent last scout around yurts (5)
- 25 Some source dark timber (5)
- 26 Plant confuses extremely clever vole (6)
- 27 Coarse Nicaraguan concealing poison (7)
- 31 Colin is around the valley (7)
- 33 Oddly those around greenhouse varied (13)
- 34 See 17 across (8)

- #### Down
- 35 Physicist I cared about after losing direction (5)
  - 2 Subject to other people's idiotic concerns initially (5)
  - 3 French polymath prepares a scallop with love left out (6)
  - 4 Rewrite bad score - all there in black and white (8)
  - 5 Compound reportedly turning you brown (or orange)? (6)
  - 6 See 8 across (4)
  - 7 Scarlet teary about convict cleaners (9, 10)
  - 8 Scrambled pilots had war room (8, 4)
  - 13 See 1 across (14)
  - 14 Rubbish in the middle, say (5)
  - 15 Don't err with ferrules around ducts (5)
  - 19 Right away, first order filter (4)
  - 20 Cut part of coarse verse (5)
  - 24 Order odd Norse to hail King Richard (9)
  - 28 Upsettingly condones no lost time (6)
  - 29 Non-exec returns with something noble at last (5)
  - 30 Eat for a joke by the sound of it (6)
  - 32 Fibbers left in a real state to begin with (5)

### Just for fun: quick alphanumeric

The white squares contain letters and the yellow squares numbers. Each square can only contain one number and one letter, so element symbols like Ag need to be written AG.

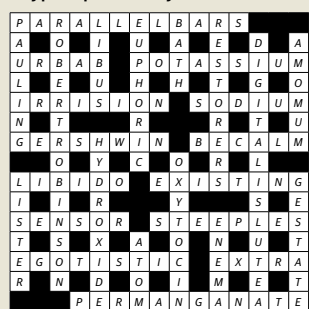
#### Across

- 1 Heaviest isotope of the second most abundant element in the universe (2, 2)
- 4 Cupric hexafluorosilicate (6)
- 8 Moderate damage according to the Fujita scale (2, 7)
- 9 The ----, American new wave band (1-3)
- 10 Eighth homologue in the alkane series (5)
- 11 Star Wars character (2-2)
- 12 Highest classification for tornado damage (3)
- 16 Dry ice (3)
- 17 One hundred jeon (1, 3)
- 18 2006 TV series about a neurosurgeon, referring to the approximate average weight of the human brain (1, 3)
- 21 Nitric acid (4)
- 22 Food additive made from crushed beetles (4)
- 23 Goldfinger's number plate (3)
- 25 TV saint's Volvo registration (3)
- 26 120 inches (2, 2)
- 27 Arsenic salt with molecular weight 314.63 (5)
- 31 1980s film starring Dolly Parton, Lily Tomlin and Jane Fonda (1, 2, 1)

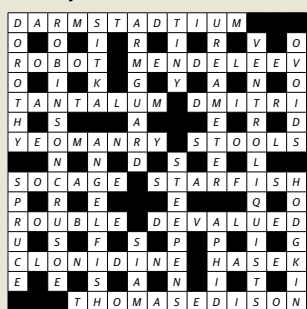
- #### Down
- 2 Ghostbusters' vehicle (4-1)
  - 3 Carbon tetrabromide (4)
  - 4 State of perfect happiness (5, 1)
  - 5 Lady Penelope's car (3, 1)
  - 6 Sulfur dioxide (3)
  - 7 Novel by Ray Bradbury (10, 3)
  - 8 One-player fighter simulator game for Commodore 64 (1-2, 6)
  - 13 Birthday of John Glover, English chemist (8, 1)
  - 14 That Was The Week That Was (3)
  - 15 Oscar Wilde's cell in Reading Gaol (3)
  - 19 Road featured in a John Betjeman poem (3)
  - 20 Laughing gas (3)
  - 24 Smaller currency to make one yen (3, 3)
  - 28 Track from Blur's 1997 album (4, 1)
  - 29 Common width of photographic film (2, 2)
  - 30 Airship that crashed in 1930 (4)
  - 32 Triumph sports car made from 1961 to 1965 (3)

## November 2017 solutions and winners

### Cryptic (prize entry)



### Quick (just for fun)



### Wordoku

The name of the materials scientist was Neil ROBERTSON

### Word grid

The nine-symbol word was PRESBYCUSIS

### November winners

#### Molecule search

Alessia Gambardella, Edinburgh, UK

#### Wordoku

Robert Jacobs, Oxford, UK

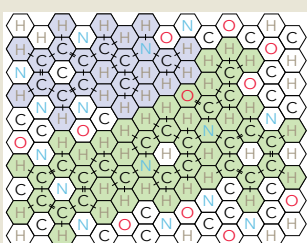
#### Word grid

Rod Barratt, Lichfield, UK

#### Crossword

Chris Farnworth, Horley, UK

### Molecule search



The two molecules, fentanyl and methamphetamine, are both drugs of abuse - although the latter is also used as potent painkiller

## Food Product Problems - Let Us Help

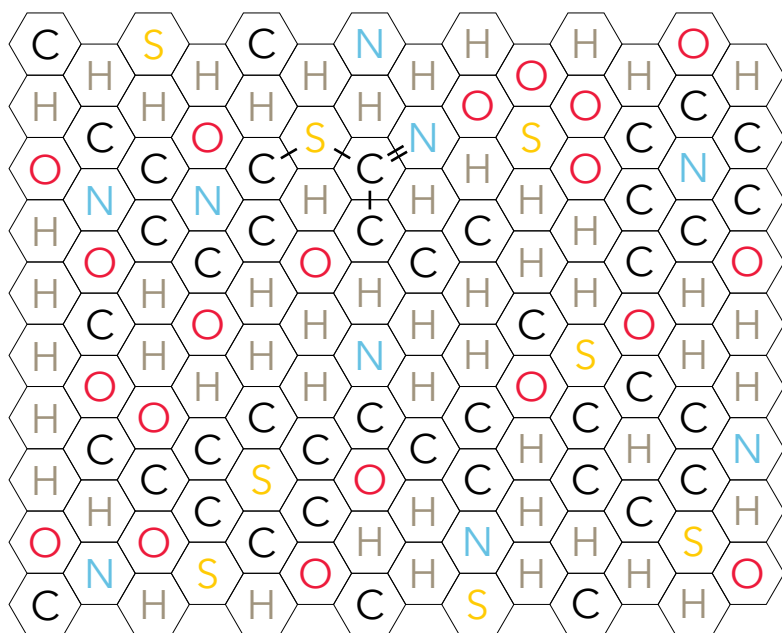
- Product authenticity
- Resolution of product and manufacturing failure
- Ingredient issues
- Product stability
- Contaminant identification
- Taint investigation

For further details contact Customer Services:  
**+44 (0) 118 918 4076** or email [enquiries@rssl.com](mailto:enquiries@rssl.com)  
 or visit [www.rssl.com](http://www.rssl.com)



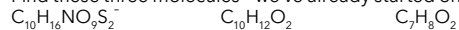
**Answer to On the spot**  
 A reaction in a tank of a self-polymerising substance is not uncommon. Careful temperature control measures must be applied - when these fail, or when the tank is contaminated, self-heating polymerisations can occur. We could let the reaction proceed, but this will lead to heating, possible failure due potentially to an explosion. Water can be applied to the tank's exterior to cool the container. As substances undergoing polymerisation can be rather viscous, the solution would need to be mixed manually by someone stood on top of the tank. This would require a large volume of inhibitor, and the risks posed to the individual are quite severe - they could be exposed to the tank's contents or get injured if an explosion occurred.  
 Tom Johnson is an emergency responder at the National Chemical Emergency Centre

## December 2017 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 three molecules - we've already started one of them for you.



Clues: All three molecules contain a ring, but only two of the molecules are aromatic. All of the molecules have at least one alcohol group, two have methoxy groups.

## December 2017 word grid

Ti	N	I
B	Xe	C
O	O	S

**Prize entry:** Using each element symbol in the grid only once, combine them together to make a single word of 11 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

## On the spot: Acrylic polymerisation



## December 2017 wordoku

				E				L	A
H		A	S	R					E
	E					A	O		H
E	N		L						L
			R		N				O
					H		O	S	N
		O	N				L		R
				O	S	T		N	S
R				L					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 bioinorganic chemist.

## Entry form

There are four prize puzzles on this page: crossword (cryptic elements answers only); wordoku; molecule search; and word grid. For each puzzle, a winner and a runner-up will be selected. The winners will receive goods from Fortnum&Mason and the runners-up 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 **15 December 2017**. The winners of this month's puzzles will be published in the January 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](mailto: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](http://www.chemistryworld.com/privacy)).

RSSL may wish to contact you via email with further information about products and services. Please tick the box if you would like to be contacted by RSSL via email and consent to us sharing your contact details with RSSL for this purpose